Educational Technology

DEDU403

Edited by:
Dr Kulwinder Pal

LOVELY PROFESSIONAL UNIVERSITY

EDUCATIONAL TECHNOLOGY

Edited By

Dr. Kulwinder Pal

Printed by
LAXMI PUBLICATIONS (P) LTD.
113, Golden House, Daryaganj,
New Delhi-110002
for
Lovely Professional University
Phagwara

SYLLABUS

Educational Technology

Objectives:

- To be aware of the basic concept and significance of educational technology.
- To apply the latest technological innovations in the process of teaching-learning.
- To acquire the skills of handling and managing latest sources of information to enrich the quality of education.

Sr. No.	Description
1	Meaning and Nature of Educational Technology, Approaches to Educational Technology
2	Communication Technology, Instructional designs, Formulating Instructional Objectives
3	Teaching Strategies, Methods and techniques of Educational Technology, Learner- Centred Strategies, Group-Centered strategies
4	Phases of teaching- Preactive, Interactive and Postactive, Levels of teaching
5	Micro Teaching, Simulated Teaching(Simulation), Flander's Interaction Analysis System, Reciprocal Category System= RCS
6	Models of Teaching, Glasser's Basic Teaching Model, Taba Inductive Thinking Model,
7	Advance Organizer Model, Bruner Concept Attainment Model, Richard uchman's Inquiry Training Model
8	Information Technology, C.C.T.V. in Learning, Web Based Instruction and E-Learning, E-Pedagogy, Web2.0Technology and Virtual laboratories
9	Programmed Learning/Instruction, Linear Programming, Branching Programming, Mathetics Programming, Development of Programmed Study
10	Open and Distance Education, Interactive Technology, Technology in Professional Development

CONTENT

Notes

Unit–1: Meaning and Nature of Educational Technology

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand education.
- Learn the definition of educational technology.
- Understand the assumptions of educational technology.
- Understand the areas of educational technology.

Introduction

'Educational Technology' word is made up of two words—one is '**Education**' and another is '**Technology**'. First we will look at the meaning of education and then technology and based on this, will try to define the subject.

1.1 What is Education?

The meaning of Education in Hindi is **'Shiksha'**. It means—**To educate.** In other words, learning or academic–to achieve through the creation of rituals and practices is called education. Education is synonyms of the Latin word **'Educatum'** which is meant in English 'Education'. It means—**'The art of**

Notes

teaching'. According to Universal Dictionary of English Language, Education means—**(1) To educate, To provide training, (2) Developing brain and character, and (3) A particular state education systems.** These words indicate various learning of education and educational procedures. **By providing new experience, education makes a boy to adjust him according to the environment and the full development of his powers and inherent abilities, as per eligibility, he could contribute his family, community and nation to a specific area.**

Education is meant to bring the desired change in a child's behaviour. Basic trends of child are refined by education. Psychology, technology and science education provide valuable contribution in refining the basic trends. Thus, education in itself is not a self-sufficient suffix but it is related to technical science.

Notes Technical science education helps in the study of the behavior of children and provides instructions to scrap and modification for them.

1.2 What is Technology?

Technology or Technological Science is a synonym of an English word 'Technology'. Technology means—**Methods of using scientific knowledge in daily life.** According to **Prof. Golbraith,** There are two major characteristics of Technology—

(1) Systematic application of scientific or other organized knowledge to practical tasks.

(2) Forming the division and sub-division of any such task into its component parts.

Jacquetta Bloomer defined Technology in 1973 as follows—"Technology is the application of scientific theory to practical ends".

So it can be said that the **scientific mechanisms and experimental techniques as well as technical or technological sciences.**

'Technical' term of 'machine' or machine-related suffixes people usually associate with. But it is not necessary that the 'technical' should only be used in a machine or machinery. **This means that any experimental work, in which scientific knowledge or principles should be used.** It derives from the Greek word **'Technikos'** which means—art. This is the synonym of the Latin language word **'Texere'** which means for weaving or construction. According to **Dr. Das** "Any system of interrelated parts which are organized in a scientific manner as to attain some desired objective could be called technology."

1.3 Definitions and Nature of Educational Technology

1.3.1 Simplistic Definitions

Definitions of educational technology has a variety of different scholars. Some important definitions are being quoted below. These definitions assist in understanding the meaning and nature of educational technology—

(1) **Jacquetta Bloomer 1973**—"Educational Technology is the application of scientific knowledge about learning to practical learning situations."

(2) **Richmand 1970**—"Educational Technology is concerned to provide appropriately designing learning situations, holding in view the objectives of the teaching or training, bring or bear the best means of intruction."

Notes

(3) **Robert A. Cox, 1970 –** "Application of scientific process to man's learning conditions called Educational Technology."

(4) **Dececco –** "It is in the form of detailed application of the Psychology of learning to practical teaching problems."

(5) **Robert M. Gagne –** "Educational Technology can be understood as a mean for the development of a set of systematic techniques and accompanying practical knowledge for designing testing and operating schools as educational systems."

(6) **S. S. Kulkarni, 1966 –** "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."

To comment on the above definitions is evident that all these definitions are unilateral. Some definitions highlight an aspect of educational technology and some definitions highlight a different aspect. Thus, the properties of these definitions is the lack of comprehensiveness.

1.3.2 Acceptable Definitions of Educational Technology

Definitions of Leith, Sakamato and Shiv K. Mitra may be classified in this category –

(1) **G.O.M. Leith –** "Educational Technology is the systematic application of scientific knowledge about teaching learning and conditions of learning to improve the efficiency of teaching and training."

(2) **Takshi Sakamato, 1971 –** "Educational Technology is an applied or practical study which aims at maximising educational effect by controlling such relevant facts as educational purposes educational environment, conduct of student, behaviour of instructors and interrelations between students and instructors."

(3) **Shiv K. Mitra –** "Educational Technology can be conceived as a science of techniques and methods by which educational goals could be realized."

1.3.3 Functional Definition of Educational Technology

E. E. Hadden's definition is said to be functional. It includes both the fundamental and practical aspects of educational technology.

Did u know? Educational Technology is that branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process.

Based on the above definitions, we arrive at the following conclusions –

1. The basis of educational technology is science.
2. Educational technology studies the effect of science and technology upon education.
3. Practical aspects are important in educational technology.
4. Educational technology is a continuous progressive method.
5. Its goal is to improve the learning technique.
6. In the field of educational technology, psychology, engineering etc. are used.
7. In educational technology, systematic approach plays the main role.
8. Teacher, pupils and technical approaches are included in it.

Notes

9. Innovative teaching methods and new teaching techniques are emerging as a result of progress in educational technology.
10. It is possible to make necessary modification in teaching environment in order to fulfil the teaching goals.
11. Educational technology is helpful in making tools in accordance to teaching, economic, society and technical needs.

On the basis of above definitions and characters, it is clear that educational technology is a very descriptive word. It refers to the use of scientific methods for its working after organizing the entire teaching process. In the words of **Dr Anand** (1996), it includes a way which can be helpful in improving learning and teaching processes. Educational technology is related to almost all the process of teaching, learning, instruction and training such as determination of instructional objectives, planning of teaching related environment, preparation of learning and teaching materials, selecting the learning methods and techniques for teaching and to feedback the teaching and learning processes etc.

There was a time when educational technology was understood to mean only the audio-visual teaching tools. Today, educational technology has a very broad concept. Now the concept of educational technology is being used for such methods, techniques, compositions and mechanical equipment which can be used to improve the effectiveness of learning and teaching. Educational technology is called as a systematic and scientific endeavour in order to schedule, organize, forward and to control the effects technical and educational processes.

On the basis of above discussion the writer has defined educational technology as—**"Educational technology is a subject based on science, its objective is to make teachers, education and the student's task continuously simple. Together these three parts are well-adjusted so that they are competent and capable to attain their objectives through systematic approaches. Input, Output and Process—all three aspects should be taken into account."**

(Kulshrestha, S.P.,1980)

Self-Assessment

1. Fill in the Blanks—

(*i*) "Education" is derived from .....

(*ii*) Education is derived from the Latin word .....

(*iii*) Education technology is based on .....

(*iv*) Education technology is a continuous ..... method.

(*v*) ..... Defines the fundamental behaviour of a child.

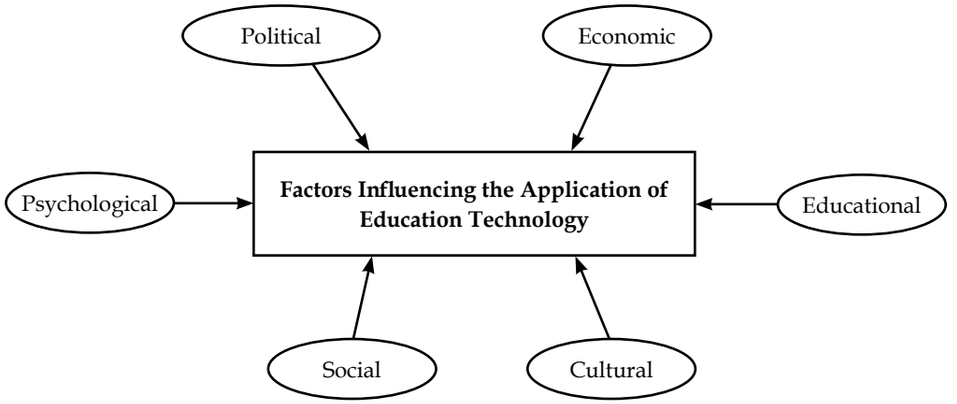
1.4 Assumptions of Educational Technology

Educational technology is based on following assumptions—

(1) Every human works like machines. Therefore, in education scientific principles can be successfully used to scrape and finish this human behaviour.

(2) Education is both the art and science. Therefore, education can be analysed and can be divided into small learning facts, elements and ingredients. Then training, instructing and learning these facts, elements and ingredients is possible. Therefore, Education technology is based on systematic approaches.

Factors Influencing the Application of Education Technology **Notes**



(1) Political Factors — The development of educational technology depends on various factors in any country. Political factor is one of the most important. Political factors are such that are related to nation's political circumstances, political policies, political objectives and scientific investigations. How is the policy of existing government of country in the field of development of education technology? If the ruling party finds the possibility of benefits of using any technology then perhaps it make necessary efforts to develop them. Therefore, it can be said that political factors do influence the educational technology. It plays an important role in the hidden innovation in the field of television and telecommunications and their dissemination.

(2) Psychological Factors — Psychological factors includes interest levels, trends etc. of teachers, students and institutions. Motivation of teachers, learning to teach, wills, attention and interest, etc. are included under the influence of psychological factors.

In educational technology, a lot of things depend on the individual interest of teachers and students, aptitude and efforts. If both the parts have the latest knowledge and information of educational technology, get the necessary instruction to use them, can have the benefits of various local and other sources for their use and finds it appropriate to use in the college environment then educational technology can play an important role in the important in the development of education.

(3) Educational Factors — These factors prove to be very useful with the psychological factors. Teacher's education and training are the main factors among educational factors. Teachers can be proved to be a milestone in the field of educational technology if they are provided the well-organized instruction. These teachers can be able to work in lab for using various approaches of education technology. These new experiments can provide effective leadership and healthy direction to innovative inventions and new dimensions by effective refinement and exploration.

(4) Economic Factors — Economic factors too have a great importance in the development of educational technology. Money is the backbone of any experiment, exploration or invention. Development, dissemination and training of any technology are not possible without money.

Economic grant is necessary for audio-visual aids and other equipment in the field of educational technology and for the development of its lab. Without money, neither equipment can be bought nor experiments can be done and it is possible refine and explore.

(5) Social and Cultural Factors — Society and culture are mirrors of education. As there will be the society and culture, the same will be education. No doubt, one can have a bright future in the field of educational technology it there is awareness in the society, there is dominating leadership and impact of technical terms is visible in the veins of culture. Then the school environment will be forced by people, parents and education experts to enact technical aspects. As a result of which educational technology can play its role in the temple of education.

Notes

Task Describe one factor that affects the use of educational technology.

1.5 Scope of Educational Technology

The field of educational technology is analogous to its concept. If educational technology is considered in terms of audio-visual aids then its field is limited to only audio-visual aids. If educational technology is referred to as programmed instruction then this field includes only programmed instructed learning objects. If we consider it as a systematic approach then it is a huge field.

Today, educational technology is no more audio-visual aids or programmed instruction; rather these are the parts of educational technology. Now educational technology is considered as a comprehensive science, so the field to vast and extensive.

Various scholars have interpreted various fields of educational technology in different manner.

Derek Rowntra, 1973 has explained the following fields of educational technology—

(1) Marking the goals and objective of learning.

(2) Employment of learning environment.

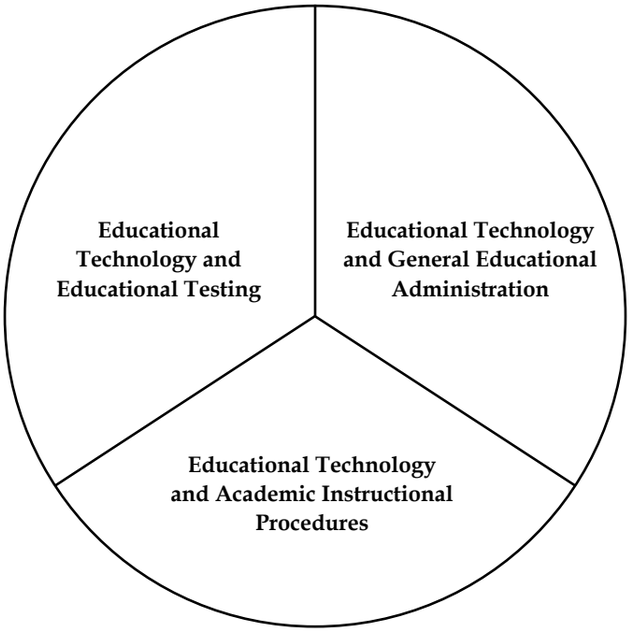
(3) Searching and structuring the courses.

(4) Selecting the appropriate teaching strategies and learning media.

(5) To evaluate the effectiveness of the learning system.

(6) In future, getting desired discernment to improve the effective based on feedback.

According to another scholar, educational technology is related to the general educational administration, educational testing and academic instruction procedures at the scientific level. It represented by the following figure—



Notes

Takshi Sakamato explained that educational technology mainly organizes three aspects—**input, output** and **process** and is trying to improve after developing them. **B.C. Mathis** calls educational technology as the teaching array compositions, teaching methods and approaches and science and technologies. **Richmund** (1970) has divided educational technology into three parts—

(1) Designing Appropriate Learning Situation (2) Realizing objectives of teaching or training (3) Bringing best means of instruction

Davis considers that technical education and training as well as various learning resources are important in the field of educational technology. **Dr Bhargav** has divided it into five parts—

1. Learning and teaching process 2. Teaching array composition and learning paradigm and principles 3. Teaching and learning system 4. Operative research 5. Lesson planning.

The following topics were included in the Need based curriculum for B. Ed. courses in 1980 by **M.P. State Board of Teacher Education—**

1. **New concepts of educational technology**—School broadcast, television, programmed instruction, teaching machine and microteaching.
2. **Non-projective teaching aids**—Black-board bulletin board, chart, poster, graph etc.
3. **Projective teaching aids**—Development of film strip, film, tape library etc.
4. **Sources and use of Educational film, film strip and tape-recording.**
5. **Agencies of educational technology.**

Lumsdeine (1964), **B.C. Mathis**, **J.D. Finn** and **Dececco** etc. have divided the area of educational technology into two parts. These are—

1. Hardware Educational Technology

2. Software Educational Technology or Educational Engineering

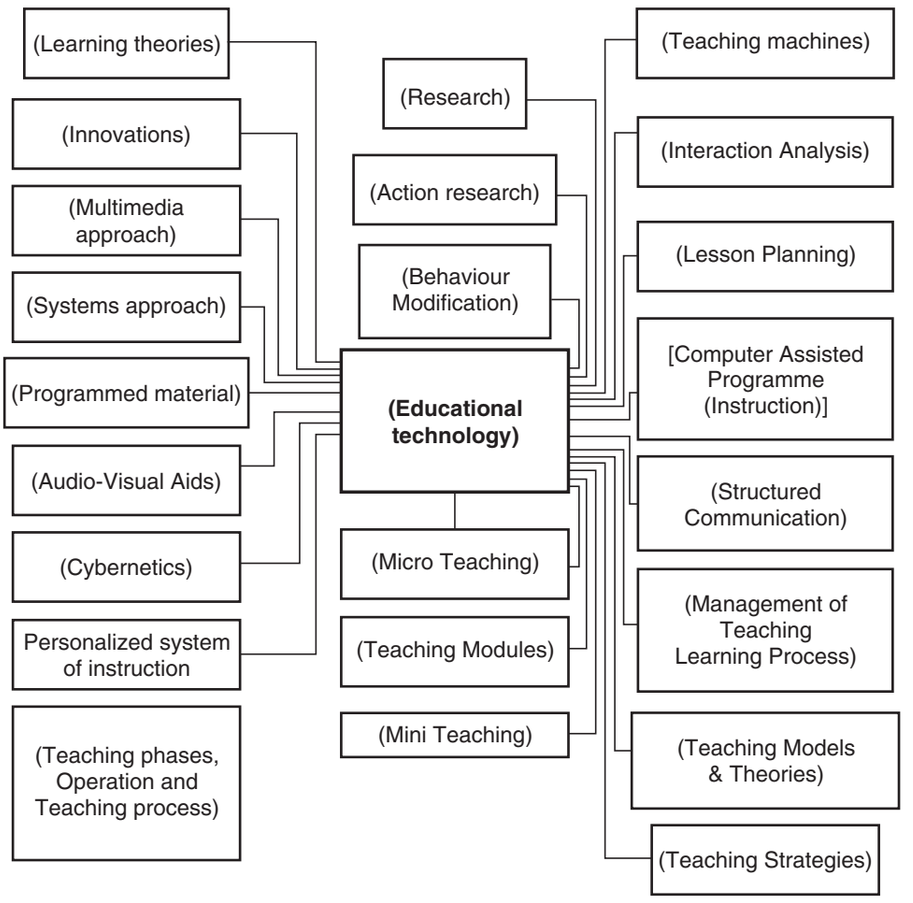
Summer Institute of Educational Technology organized by Indore University suggested to include **Use-ware Educational Technology** in the areas of educational technology.

In 1971, **Takshi Sakamoto** represented the following types of areas of educational technology—

Areas of Educational Technology	Content
I(a) Educational technology I(a)	Educational technology I(a) is that branch which uses audio-visual aids and teaching resources
I(b) Educational Technology I(b)	Educational technology I(b) is related to appropriation of the educational system, regaining of the receipt of information and educational materials
II Educational technology II	In this educational objective are obtained by teaching and learning materials. It also uses Programmed Learning Materials.
III Educational technology III	It uses Human Engineering. The effect of the development of desk, board, class, tape-recorder, television etc. can be seen on educational behaviour.

Kulshrestha (1980) made his research in the form of detailed analysis and explained the displayed the different areas of educational technology through his diagram

Notes



Area of Education Technology

1.6 Utility of Educational Technology

The utility of educational technology is increasing day-by-day. Every country in the world is adapting it. **Kothari Commission** (1966) said in one of his comments, "In the last few years' schools in India—has paid a great attention towards the methods classroom study." The purpose of basic education in primary schools was to bring revolutionary changes in the life and activities and the overall development of child's mind, body and spirit. From this perspective, the importance of educational technology is self-evident.

Educational technology course gives the appropriate importance to the teaching theories rather than learning theories. The utility of Educational technology can be explained easily by the following points—

(1) Utility for a Teacher— Teacher having educational technology command can study the student's behaviour, can understand them and can try to make desired changes. Teachers should have knowledge of behaviour, study and behaviour improving methods along with course materials. Educational technology enables the teacher in this area. Educational technology provides scientific knowledge to teachers about the teaching approaches, teaching array compositions and teaching

Notes

methods. At what time, which audio-visual aids should be used to clarify which phase, which types of radio vision and cassette vision should utilized for radio and television and which types of programmed instruction materials should be prepared for students to learn at their own pace— teacher learns all these things from educational technology. Educational technology provides directions for using various methods of micro teaching, simulated teaching and T. Training etc. in order to prepare an effective teacher.

Teacher uses system approach to study the issues related to educational administration and management. He can use programmed instruction as a solution of individual differences in the classroom. Singh and Kulshrestha (1980) has correctly written—"The teacher needs educational technology to bridge the lives of the children, aims of education and psychology in the present technological era."

The fact is that - Educational technology directs and helps teacher at each term, in every aspect and every point of his work whether creating a teaching strategies, selecting a teaching point, selecting the good method of teaching or understanding the students or solving his own teaching issues or improving his teaching as a career. Today, even a single step can't be taken without the help of educational technology.

(2) Utility of Educational Technology in Learning—Education technology provides us the knowledge of learning method and principles, studies the different methods to make the learned courses permanent and motivates the students to learn and helps them in maintaining their interest. It follows student's rule of learning at their own pace in the area of learning. Educational technology maintains teaching learning processes by their scientific interpretation. Also, educational technology is responsible for the creation new paradigm which explains us the nature of teaching and learning. In this way, educational technology can be made useful for teachers, students and everyone by making teaching and learning process more effective and meaningful.

(3) Utility to Society—The words said in the context of the educational psychology by Garrison etc. also applies to educational technology—We know in advance if we are…… (educational technologists), that certain methods will be wrong. Therefore they save us from mistakes and clarify human motives and thus make it possible to achieve understanding among individuals and groups (teaching and learning).

In society, people have the facility of radio, transistor, tape recorder etc. which can be used in the areas of education by means educational technology. Educational technology develops the cognitive, impressionistic and psychological aspects of teachers and students as well as people. For countries with limited resources, educational technology gives the gift of such methods which will help to promote, disseminate and expand the mass education. Educational technology through an influential teacher, politician or social reformer of the knowledge and skills can be easily transported to every section of society by using television, tape, radio and addresses etc.

Therefore it can be said that **"Educational technology in today's technological age increases the usefulness of teacher, teaches students and pupil teacher with effective methods and is very helpful in the accumulation of knowledge, promotion, dissemination and development of society."**

Self-Assessment

2. Multiple Choice Questions—

(*i*) Which is the most importance among the factors influencing the educational technology?

(*a*) Economic Factor (*b*) Political Factor

(*c*) Psychological factor (*d*) Educational factor

(ii) Day-by-day the utility of educational technology is

(*a*) Decreasing (*b*) Increasing

(*c*) Same (*d*) All the above

Notes

(iii) Which approach can be used by teacher to study the issues related to educational administration and management?

(*a*) Origin (*b*) Productive

(c) System (*d*) None of the above

1.7 Summary

- Educational technology is composed of two words—**education** and **technology**.
- The meaning of education in Hindi is **'Shiksha'**. It means—**To educate.** In other words, learning or academic - to achieve through the creation of rituals and practices is called education.
- Technology or Technological Science is a synonym of an English word 'Technology'. Technology means - **Methods of using scientific knowledge in daily life**.
- Educational technology is the application of scientific knowledge about learning to practical learning situations.
- Practical educational problems of the psychology of learning, educational technology investment is intense.
- "Educational technology is a subject based on science, its objective is to make teachers, education and the student's task continuously simple. Together these three parts are well-adjusted so that they are competent and capable to attain their objectives through systematic approaches. Input, Output and Process—all three aspects should be taken into account."
  - The field of educational technology is analogous to its concept. If educational technology is considered in terms of audio-visual aids then its field is limited to only audio-visual aids.
- Takshi Sakamato explained that educational technology mainly organizes three aspects—input, output and process and is trying to improve after developing them.
- The utility of educational technology is increasing day-by-day. Every country in the world is adapting it. Kothari Commission (1966) said in one of his comments, "In the last few years' schools in India—has paid a great attention towards the methods classroom study."

1.8 Keywords

- Approach—Come
- Topic—Reference

1.9 Review Questions

1. What are the assumptions of educational technology?
2. What do mean by "Technology"?
3. What is education?
4. Explain the utility of educational technology.
5. What is Kothari Act?

Notes

Answers: Self-Assessment

1. (*i*) Shiksha (*ii*) Educatom (*iii*) Science (*iv*) Progressive (*v*) Education
2. (*i*) (*b*) (*ii*) (*b*) (*iii*) (c)

1.10 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–2: Approaches to Educational Technologies

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the comparison between software and hardware approaches.
- Understand the principles of using hardware and software approaches.
- Understand the classification of hardware and software approaches.
- Understand the system analysis.

Introduction

Lumsdane has categorized educational technology into three approaches —

(1) Hardware Approach or Educational Technology I

(2) Software Approach or Educational Technology II

(3) System Analysis or Educational Technology III

(1) Hardware Approach or Educational Technology I — In hardware approach, the emphasis is given to teaching-accessories. This approach is based on physical sciences and engineering technology.

Notes

Physical sciences and engineering technology is the origin of this approach. Most people believe that the machine is technically linked to the educational technology. Education would be incomplete as long as the device like t.v., tape recorder and projector are not available in the field of teaching. Hardware approaches strengthens the concept of utilizing these equipment. **Davis** accepts that the hardware approach is based on the application of physical science to the education and training system which mechanizes the process of teaching gradually so that teachers would be able to deal with more students, resulting in less cost and economy in finances. **Marilyn Nickson** (1971), educational technology deals with the application of many fields of science to the educational needs of the individual as well as of society. According to **David** (1971), this technology is necessary for teaching and training. **Silverman** calls it as technology in education.

This approach resulted in the origin of Correspondence Education and Open University System. This approach plays an important role in the use of computers and machines for the compilation of research forms, analysis etc. **Silverman** (1968), called this type of educational technology **"Relational Technology".** In the words of **Dr. Ruhela**—"This part of Education Technology refers to tools and hardware such as teaching machines, T.V., tape recorder etc. which are used in instructions. In fact the selection and utilization of machines and hardware approaches in the field of learning is called Hardware Approach or Educational Technology—I.

Hardware approach was firstly described by **A.A. Lumsdeine**. This approach is also called as audio-visual aids. In this emphasis is given to **machine technology**. It believes that machine does the instructional work and it is related to the **cognitive side of instruction**. This approach emphasize on the following three facts—

(*i*) Preservation

(*ii*) Transmission

(*iii*) Advancement

Notes Hardware includes chalkboard, radio, overhead projector, slide projector, VCR, TV and monitor, computer, calculator, computer printing machine, audio-visual recorder etc.

In the words of **Dr. Kumar and Chandra—**

"It is important to note that these mechanical devices were not safety designed and invented to fulfil the instructional requirement. Rather, they were designed for communication, information and recreation etc. But now, we are using them in education and training system to achieve the educational objectives of our nation."

2. Software Approach or Educational Technology-II—In the field of software approach educational technology, psychological principles are used in place of machines which can bring the required changes in students. Technologies of this approach are also named as **Instructional Technology, Teaching Technology** and **Behavioural Technology**. In this approach, machines are used only to make presentation of courses more effective. In this technology the emphasis is given to all the three phases—input, output and process. **Skinner** and others considered that this technical approach is based on behavioural technology. According to **Arthur Melton** (1959), this teaching technology is based on psychological learning and this experience starts the process of providing the desired behaviour change.

According to **Davis** (1971)—

"This view of Educational Technology is closely associates with the modern principles of programmed learning and is characterised by task analysis, writing, precise objectives, selection of correct responses and constant evaluation."

Notes

Silverman (1968) termed it as "Constructive Education Technology". Both the education technology I & II are interlinked and they can't be separated from each other. Hardware approach deals with machines while software approach deals with principles of learning and teaching. In fact,

"It is the application of behavioural sciences or principles of psychology, sociology, and philosophy in Education and Training Interaction of behavioural sciences with education has generated a new concept and a new technique of programmed learning."

Many educationalists believe that software approach is more important as compared to hardware approach because hardware technology is of no use unless software approach is used in it. For example, following are some hardware approach and software related to them.

Sr. No.	Rigid Crafts (Hardware Approach)	Related Soft Crafts (Software)
1	Chalk board	Use of chalk
2	Overhead projector	Transparencies
3	Slide projector	Slides
4	VCR and monitor	Video program
5	Computer	Computer program
6	Audio recorder	Recorded matter
7	Blank page	Writing

(Table Based on Kumar 1996)

Arthur Melton has clearly written that the origin of software approach is the result of the efforts of **Skinner and others**. This approach is directly related to scientific learning which includes the behavioural changes based on experience.

(3) See paragraph 2.5 for system analysis or educational technology III.

2.1 Comparison between Software and Hardware Approach

In the words of **Anand** (1996), "Software approach is different from hardware approach in such a way that the hardware approach of educational technology uses teaching equipment while software approach use learning materials such as programmed instruction materials and techniques and methods of teaching strategies based on psychology of teaching strategies.

In hardware approach, machines are used for making the course material more effective while in software approach the emphasis is given to teaching strategies based on principles of teaching and learning rather than machines.

Did u know? These approaches cannot be separated from each other. They are interlinked. They motivate educational technology and are complementary to each other.

2.2 Uses, Need and Importance of Hardware and Software Approaches

1. These approaches are used to increase student's interest, inspire them and to make them curious.
2. By using these approaches, student's feels learning material more structured and clear.
3. These approaches play an important role in making the learning material more adaptive and simple.

Notes

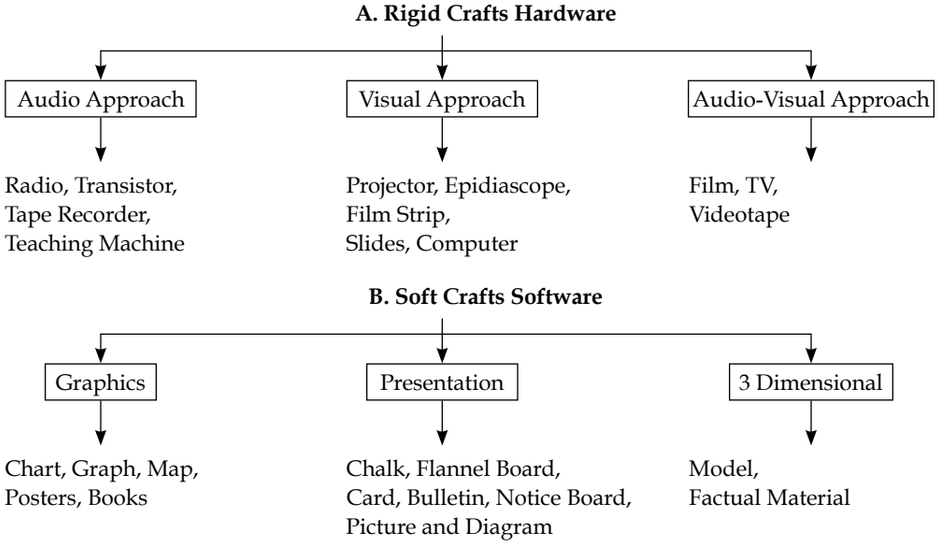
4. They are capable of making learning materials more attractive and interesting.
5. The student becomes more active in class activities by getting excited with these approaches.
6. They play an important role in the effective use of appropriate learning system by taking care of individual friendship of students.
7. These approaches are capable of making use of time, power and resources of teachers and students. More effective teaching in less time and with less effort is their specialization.

2.3 Principles of Using Hardware and Software Approaches

The emphasis is given to following principles to create more effective teaching process by these two approaches.

1. Principle of Selection
2. Principle of Purposiveness
3. Principle of Economy
4. Principle of Availability
5. Principle of Simplicity
6. Principle of Stimulation
7. Principle of Self-preparation

2.4 Classification of Hardware and Software Approaches



Self-Assessment

1. Fill in the blanks:

(*i*) In ..... approach, the emphasis is given to teaching-accessories.

(*ii*) Hardware approach was firstly described by .....

Notes

(*iii*) Educational technology I and II are interlinked and are ..... to each other.

(*iv*) Teaching machines are used in ..... approach of educational technology.

(*v*) Lumsdeine has mainly categorized educational technology into ..... Approaches.

2.5 System Analysis

System Analysis or Educational Technology III — System Analysis is termed as Educational technology III. It was developed after Second World War, it has scientific basis for decision making that concern about the administration, management, business and military problems. This approach is also termed as **Management Technology**. It is used for scientific study of educational administration and management problems. In other words, "Educational technology III provides full support in the development of educational administration and outline of instruction. By using this approach, educational environment becomes more useful and effective in fewer amounts. **Silverman** (1968) has presented this approach as below —

(*i*) Analysis is performed on the existing system to identify the parts and the interrelationships.

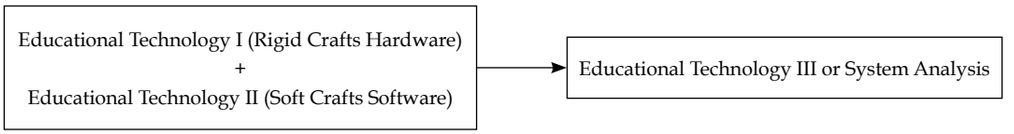
(*ii*) Synthesis is performed to combine these various elements together with new elements previously unrelated.

(*iii*) Models are constructed to predict the effectiveness of the system.

(*iv*) Simulation is carried out prior to implementation of the system in real life.

Educational technology III also includes **Training Psychology Design, Cybernetic Design** and Theory Reinforcement. This educational technology is becoming popular these days.

Educational technology III or system analysis was developed as a combination of hardware approach and software approach.



Educational technology III approach is a connector of Educational technology I and II. It has become a very modern approach by combining hardware approach and software which is being used in every field of education.

Educational technology III is in face based on **principles of psychology**. According to this, educational system can be categorized into four main elements:

Sl. No.	Class of the Key Elements
1.	Input
2.	Process
3.	Output
4.	Environment Context

Elements of System analysis (Educational technology III)

Input refers to those behaviour or abilities which are obtained from teachers and students before starting teaching in an educational system.

Process refers to such activities which help in changing the input or available behaviour.

Notes

Output refers to behaviour for which the entire system was created.

Environment context refers to such elements of environment which affect the system.

System analysis is done in order to solve the educational problems in educational technology III, which is used to improve the whole educational process.

This approach is pupil oriented. According to a scholar, **'' In short, this approach is the method of reaching decisions to solve problems and provides full support in order to develop and increase the legal education and training according to new innovations.''**

This approach is being successfully utilized in solving the educational administration and management problems.

This system analysis approach provides a scientific and numerical approach to solve educational problems. This approach is considered as more objective, scientific, organized and pure approach.

This approach is termed as **Educational technology III** or **system analysis,** some educationalist calls it as **educational management**. But educational technologists mostly consider it as **system analysis**.

Today, this approach is popular in the field of educational administration. By using this approach, education, education system, educational administration and management are considered to be very effective, moderate, less expensive and essential.

2.6 Principles of Selection of Hardware and Software

The principles of selection of hardware and software are explained below—

1. When selecting hardware, quality, popularity, reputation and durability and its value should be noted.
2. When selecting software, its content relevance, effectiveness and usefulness and requirement should be noted.
3. While selecting hardware or software, it should be remembered whether teacher is able to use that approach carefully in an effective way or not.
4. Hardware or software selection should be based on conditions of learning, students' needs, nature of content, school environment and their availability.
5. The same approach should be selected that is more usable, can increase interest, can inspire the students and is in accordance to needs.

Task Write Principles of Selection of Hardware and Software.

2.7 Principles of Using Hardware and Software Approaches

The principles of using of hardware and software are explained below—

1. One must have knowledge of these approaches before using them; he should understand the principles of these approaches and should learn how to use them. Before presented any approach, it should be checked whether it working properly or not. It should be repaired if not working properly.
2. Before using these approaches, teachers should prepare the mentally by explaining complete information about them. For example, before submitting lessons on the radio as T.V. students should know when the program will be broadcast, what are the contents of programs, which points of the

Notes

program should be taken care of. In the way the entertained contents are combined with classroom teaching after preparing them mentally.

3. Teacher should develop a learning environment in the classroom in order to use hardware and software approach. While submitting the contents, teacher should take care, if every student can hear the voice with proper pitch. The contents displayed are clearly visible to students. For this, appropriate arrangements should be done. Teacher should also take care of whether students are interested or not.
4. Before using hardware and software approaches, teacher should formerly review that under what classroom situations, which approach would be more viable, the same should be used. Unnecessarily and forcefully, the approaches should not be used only to show. The approaches should be used when needed.
5. Accordingly, teacher should have feedback of the approach used from time to time and he should try to improve and to increase the effectiveness of his future teaching.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) System analysis is termed as Education technology III.

(*ii*) Education technology III was developed after the Second World War.

(*iii*) Education technology III is the connector of Education technology I and II.

(*iv*) Output refers to behaviour for which the entire system was created.

(*v*) Teacher should develop a learning environment in the classroom in order to use hardware and software approach.

2.8 Summary

- In hardware approach, the emphasis is given to teaching-accessories. This approach is based on physical sciences and engineering technology.
- **Marilyn Nickson** (1971), educational technology deals with the application of many fields of science to the educational needs of the individual as well as of society. According to **David** (1971), this technology is necessary for teaching and training. **Silverman** calls it as technology in education.
- Silverman (1968) termed it as "Constructive Education Technology".
- In the words of **Anand** (1996), "Software approach is different from hardware approach in such a way that the hardware approach of educational technology uses teaching equipment while software approach use learning materials such as programmed instruction materials and techniques and methods of teaching strategies based on psychology of teaching strategies.
- System Analysis is termed as Educational technology III. It was developed after Second World War, it has scientific basis for decision making that concern about the administration, management, business and military problems. This approach is also termed as **Management Technology**.
- ''In short, this approach is the method of reaching decisions to solve problems and provides full support in order to develop and increase the legal education and training according to new innovations.''
- Today, this approach is popular in the field of educational administration. By using this approach, education, education system, educational administration and management are considered to be very effective, moderate, less expensive and essential.

Notes

2.9 Keywords

- **Technology** – Technical
- **Instructions** – Directions

2.10 Review Questions

1. Explain the hardware approach.
2. Describe the Educational Technology II.
3. Elaborate the origin and development of software.
4. Describe the principles of using hardware and software approaches.
5. Describe System Analysis.

Answers: Self-Assessment

1. (*i*) Hard (*ii*) A.A. Lumsdeine (*iii*) Complementary (*iv*) Hardware (*v*) Three
2. (*i*) True (*ii*) True (*iii*) True (*iv*) False (*v*) True

2.11 Further Readings


Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–3: Communication Technology

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the Nature and Characteristics of Communication.
- Know the Process of Communication.
- Understand the Communication in Education Learning.
- Know the importance of Communication.
- Understand the Educational Communication and Public Communication.

Introduction

Communication is the backbone of education. Education and Learning cannot imagine without communication. Communication is an English word. It is developed from a Latin word "communis". Communis means—to share. Therefore it can be said, **"Communication is that process in which people try to exchange views to each other through general awareness"**

Communication refers to the mutual exchange of information and ideas. Education and learning is not possible without the exchange of information and ideas. Being a teacher, you explain something

to your principal or student or students tell you something, you respond or the principal call you and order you, he praises and criticizes you. It means communication process is in progress. Whispering of students is also a communication process. A good lectures uses his body language, gesture, poses to impress his audience.

Notes

Notes Communication is a process in which a person exchanges his knowledge, gestures, poses, body language, ideas etc. and uses the ideas and messages and truly understands and conveys the same.

Communication is a process of conveying ideas, exchanging, conveying your points to others and listening to others, facts, attitudes, emotions and exchanging information and knowledge.

According to **Anderson**, "Communication is a dynamic process in which a person influences the equipment and resources in terms of consciousness, unconsciousness and signs of cognitive structure of others such as gestures etc."

Ligens defines communication, "Communication is that process in which two or more person mutually exchange ideas, facts, feelings etc. in such a way that everyone understands it. Sender and receiver coordinate by means of messages."

According to **Lugis** and **Vegal**—"Communication is that process which changes the ideas, opinions and attitudes of people by using information, instructions and decision under the social system."

According to **Edgar Dale**—"Communication is the sharing of ideas and feelings in a mood of mutuality."

Three simple but important definition of communication are being given below—

1. Communication is the process by which an idea is transferred from a source to a receiver with the intention of changing his behaviour.
2. It is a mutual exchange of facts, thought or perceptions leading to a common understanding of all parties. It does not necessarily imply agreement.
3. Communication is the transfer of information from the sender to the receiver with the information being understood by the receiver.

3.1 Nature and Characteristics of Communication

On the basis of above definition, nature and characteristics of communication can be discussed in the following manner—

1. Communication is a process of establishing a mutual relationship.
2. Special attention is given to discussion and exchanging ideas.
3. It is a two way process i.e. it has two phases. First is sender and the other is receiver of messages.
4. Communication process is an objective process.
5. Communication includes psycho-social phases such as thoughts, sensations, feelings and emotions.
6. Effective communication is fundamental element of good learning.
7. Communication process includes perception. If the person receiving the message, cannot reference the context of the message correctly, then correct communication is not possible.

Notes

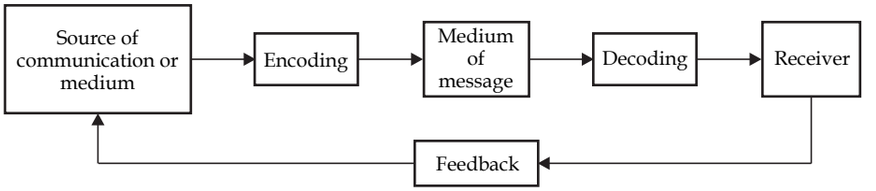
8. Communication and information are different. Information has quality of facts, formality and impersonality such as book is information, program entertained in TV are information. But communication is not possible without reading book or switching on the TV. Information is objective while communication plays an important role in the individual reference.
9. In communication, people usually manifest only those things/ideas, they wish according to situations, their individual needs, values, inspirations etc.
10. Communication maintains human and social environment.
11. Communication has four main tasks
    (*a*) Exchanging information.
    (*b*) Promoting messages, instructions or orders.
    (*c*) Creating mutual faith.
    (*d*) Establishing coordination.
12. Communication must have mutual interaction.
13. In Communication, ideas are exchanged in verbal, written or symbolic form.
14. Communication process is dynamic process

Did u know? "Communication is a dynamic, objective, two-way process in which sender and receiver are communication objects. Information and ideas are exchanged in the verbal, non-verbal or symbolic form."

3.2 Process of Communication

Communication is social process which establishes human relationships, strengthens them and develops them. Communication process is bounded in social structure in such way that it is not possible to imagine a social life without communication.

Communication process is being displayed as a simple model—

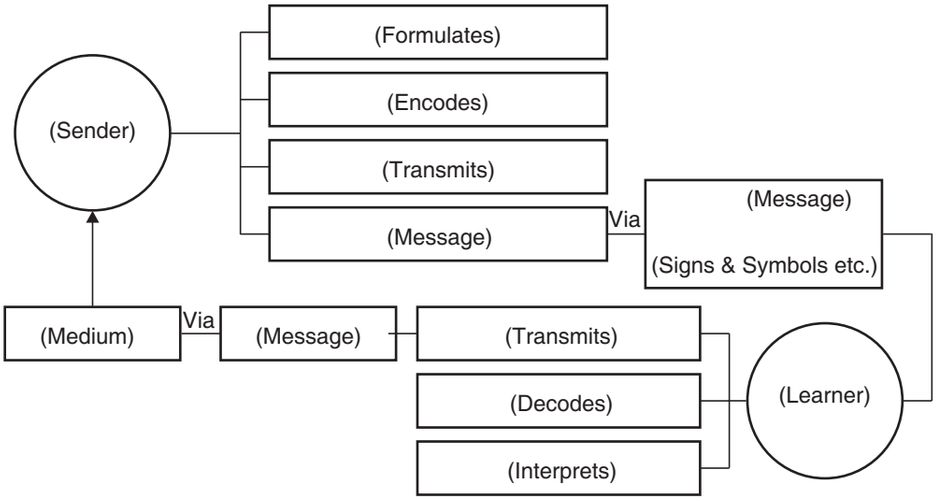


Process of Communication (Model-1)

According to this model, the person who sends message is initiator of message. He encodes the message and sends it through some media such radio, telephone, letter, speech etc. The message is decoded at the place where it was sent and forwarded to the receiver. Receiver gives the feedback (if necessary).

Communication process is being explained by another model—

Notes



Process of Communication (Model-2)

In the above model, the person who convey message (such as teacher) is the initiator of message. In effective teaching, teachers and students strive together to communicate. According to **Herbart**— "The main purpose of teaching to convey ideas, facts and information to students". The teacher, who effectively communicates with them, is more successful teacher. Many communication technologies are used in the field of teaching and training to provide knowledge concerning complex rules, procedures, and practices and teaching array composition (policies) to students and pupil teacher.

3.3 Communication in Education Learning

Effective teaching - learning process is essential for effective communication. Teachers and students together to strive for effective communication in effective teaching. **"The main functions of teaching is to reach the ideas, facts and information to students."** The educational technology for teachers to effectively communicate them that he is more successful teacher. In the field of teaching and training, complex rules, procedures, practices and teaching policies are used by students and teachers to provide knowledge about the many communication techniques.

Self-Assessment

1. Fill in the blanks:

(*i*) Communication is the ..... of education.

(*ii*) Communication is a synonym of a English word .....

(*iii*) ..... process is an objective process.

(*iv*) Communication process is necessary for ..... process.

(*v*) Communication always remains a ..... process.

3.4 Elements of Communication

On the basis of model 1 and 2, following elements are necessary in communication process—

Notes

1. **Communication Context—**
   (*a*) Physical context (such as school, classroom etc)
   (*b*) Social context (such as classroom or college environment)
   (*c*) Psychology context (such as formality)
   (*d*) Timing Context (such date and time)
2. **Source—**A source is a person, teacher or action that provides verbal or non-verbal clues. When source is a person, it is termed as sender. Communication process starts from source which decides the contents of the message, encodes and transmits them. Sender prepares the message carefully in order to make it effective and transmits it through appropriate channel.
3. **Message—**Message is a stimulus which is forwarded by the sender. Message can have many forms such as verbal, written, lip sing or body language of person. Message can be forwarded in the form of posters, charts, pamphlets or information package.
4. **Channel—**Channel refers to a medium through which message transmits from sender to receiver. Channels are the senses of perception can be visual, auditory, touch, taste or smell. Communication channel is that path in which message transmits in physical form. For example, cables, radio, studio, newspaper, magazines, books, letters.
5. **Symbol—**A symbol is something that stands for something else. These symbols can be verbal or non-verbal. Word is also a symbol.
6. **Encoding—**Encoding is a process of using symbols to express ideas or feelings, ciphering a message.
7. **Decoding—**Decoding is a process by which the receiver deciphers the symbols, transmitted by the source.
8. **Feedback—**It is a acknowledgement, which the receiver sends to sender after getting message. For example—notification of message received, presenting views after reading message etc.
9. **Receiver—**receiver is a person who gets the message in the communication process. For example—audience, student, readers etc.

3.5 Types of Communication

The continuity of communication is required to make impressive-teaching-learning process dynamic, active and vibrant. Communication can be categorized in many ways such as verbal and non-verbal communication, educational and public communication etc.

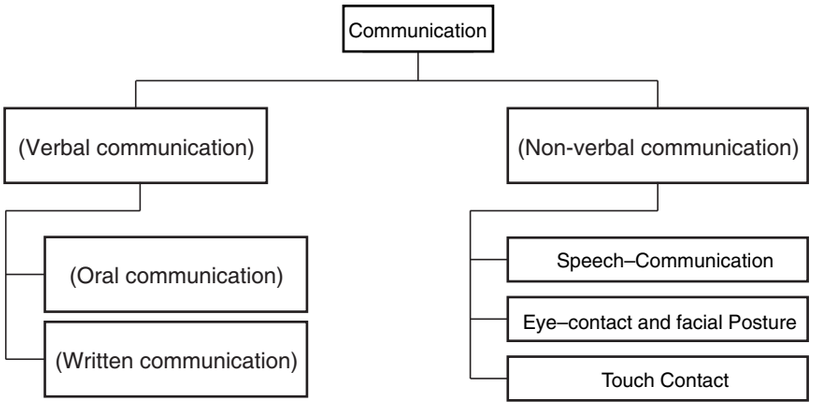


Fig.–Types of Communication

Notes

1. Verbal communication — Language is always used in verbal communication. This communication is used for mutual exchange of ideas and feelings by words or symbols in case of written communication and by speech in case of oral communication. Verbal communication is further divided into type of communications — (a) Oral communication (b)Written communication.

(a) Oral communication — In oral communication, ideas and information are mutually exchanged by speech. Sender and receiver are in front of each other in this method. Oral communication is expressed through gossip, explanation, discussions, group discussion and story etc.

(b) Written communication — In written communication, presence of sender and receiver is not necessary. In this communication, sender expresses his messages in written or symbolic manner in such a way that receiver tries to understand them by understanding them. For the acceptability of written message, the language should be simple, easy, clear and understandable such that receiver can get it without any difficulty. Message is displayed by means of appropriate format, words and small sets.

2. Non-verbal communication — Language is not used in Non-verbal communication. It consists of communications like speech, eye-contact, facial posture and touch etc.

(a) Vocal communication — In speech communication, feeling and thoughts are expressed vocally in small groups either personally or face-to-face. For examples, continuously saying yes, ya, yeah while discussing, whistling, smiling, speaking too loudly, screaming, laughing etc.

(b) Eye-contact and face making — Eye contact and face making are important in private communication. In the classroom, teachers succeed to judge the student's mood correctly by eye contact. Student's Face-making plays an important role for expressing emotional things. Happiness, fear, anger, grief and surprise can easily expressed by face-making. It is very helpful for deaf and dump people.

(c) Touch — Touch is main medium of touch communication. A person is able to express its thoughts and feeling through touch. By shaking hand, we can understand whether it is a hand of friendship or enemy. Whether it is a hand of love or just a show off. Mere touch of a mother to her child is saying a lot. The plaudits of praise, a kiss of love, are an important way to express many feelings, emotions and ideas. Touch is a blessing of blind students.

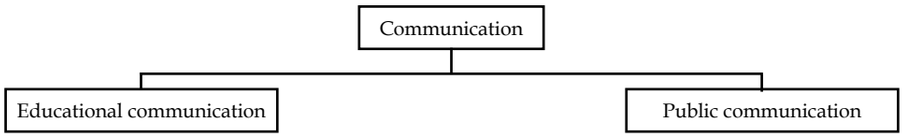
The following tables contains the main characteristics of verbal and non-verbal communications

Types of Communication	Verbal Communication	Non-verbal Communication
Vocal communication	Oral	Laughing, screaming, saying yes, yeah etc.
Non-vocal communication	Written	Body language, face-making and touching.

Task What do you mean by verbal communication?

3.6 Educational Communication and Public Communication

Communication is divided into educational communication and public communication on the basis of its usage —



Notes

3.6.1 Educational communication

Educational communication refers to the communication done in order to obtain educational goals. In this communication, teacher is a source and student is a receiver of message. As far as the question of the message it is related to contents of course or concomitant actions. In order to clarify the course content, teacher uses both verbal and non-verbal communications in educational communication which makes his teaching effective and successful. There should be an effective educational communication for effective teaching. In the words of **Dr Gupta**, " In educational communication, students are provided education concerning a variety of academic rules, principles, policies, methods and practices of teaching and guidance and counselling etc. For this teacher uses analysis as well as communication process. Due to communication process following are the relations between communication and receiver— (1) Orientation, (2) Developing Behaviour, (3) Feedback, (4) Physical Dependency, (5) Reliability, (6) Interactions.''

According to **Khanna, Lamba, Saxsena and Murti (1993)—**"Communication severs as a major tool for teachers and students to work together in the field of teaching-learning process. Communication plays an important role in keeping teachers and students bounded and influenced. The teacher makes his lesson plan theoretically for teaching. He considers the use of teaching methods, policies and methods and implements them according to his ideas and plans for teaching, explains the contents to students in order to achieve success. It requires a good communication skill. It is not possible for him to make his teaching successful without good communication skills."

Two-way communication is mostly used in Educational communication. This type of communication makes students more active in the learning process. They present their doubts to teacher and get the solution; they become able to explain the complex and difficult concepts and contents. Teacher gets the feedback of students through communication and he tries to make his teaching more effective. Teacher uses both positive and negative feedbacks according to situation. While teaching, good teachers use various teaching related objects in order to make the educational communication more effective and try to make the communication pragmatic and inspirational. As much as the communication is used efficiently, so teaching will be impressive.

3.6.2 Public Communication

Public communication is also known as public relations or mass communication. Public communication is transmitted by public through radio, newspapers and other source of mass media at high level. Public communication is a way to express thoughts for people. Public communication is a centre of expressing ideas through radio and TV in a small or large number. Today, organizations of all kinds, whether public or private, somehow belong to a group or individual. Publication and communication are carefully considered to build these relationships. Generally, students learn the fact, how information is transmitted to society, customers, government officials, community organizations, employees, investors and institutes. Students learn what should be the responsibility of voluntary institutions for creating a strong public opinion and what should be their role for creating a strong public opinion. Students learn how to design messages and communication; how an effective mass can benefit institutions and individuals.

Self-Assessment

2. Multiple Choice Questions:

(*i*) Message is a

(*a*) Stimulus (*b*) Light

(*c*) Verbal (*d*) Nonverbal

(*ii*) What is the name of a process of using symbols to express ideas or feelings, ciphering a message? **Notes**

(*a*) Message (*b*) Encoding

(*c*) Symbol (*d*) Decoding

(*iii*) What is the name of a process by which the receiver deciphers the symbols, transmitted by the source?

(*a*) Message (*b*) Encoding

(*c*) Symbol (*d*) Decoding

3.7 Summary

- Educational Technology is composed of two words—**education** and **technology**.
- Communication is that process in which people exchange thoughts to each other by means of general awareness.
- According to Lugis and Vegal—"Communication is that process which changes the ideas, opinions and attitudes of people by using information, instructions and decision under the social system."
- Communication is social process which establishes human relationships, strengthens them and develops them. Communication process is bounded in social structure in such way that it is not possible to imagine a social life without communication.
- There should be an effective educational communication for effective teaching.
- Channel refers to a medium through which message transmits from sender to receiver.
- The continuity of communication is required to make impressive-teaching-learning process dynamic, active and vibrant.
- Language is always used in verbal communication.

3.8 Keywords

- **Communication**—Way of sending and receiving massage.
- **Reaction**— Repercussion

3.9 Review Questions

1. Communication is the backbone of education. How?
2. Write the nature and characteristics of communication.
3. What is the importance of communication in teaching-learning process?
4. What is communication? What are its types? Explain each briefly.
5. What do you mean by educational communication and public communication?

Answers: Self-Assessment

1. (*i*) Backbone (*ii*) Communication (*iii*) Communication (*iv*) Progressive
   (*v*) Learning Dynamic
2. (*i*) (*a*) (*ii*) (*b*) (*iii*) (d)

Notes

3.10 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*
3. Commercial Communication—*Anupchandra u. Bhayani, Rajpal and Sons.*
4. Information and Communication Technology—*J. C. Agrawal, Vinod Pustak Mandir.*

Notes

Unit-4: Instructional Designs

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand Instructional Design and its assumptions.
- Know different type instructional design.
- Understand training psychology Design.
- Understand cybernetics design.
- Know system approach.

Introduction

Instructional Design has important role in Educational process. The fourth part of Educational technology is called as Instructional Design.

Instruction Design is composed of two words—(1) Instruction and (2) Design. Instruction means to give information and Design refers to the principles of **scientific investigation methods**. The entire world research on the basis of certain assumptions and evaluate functions that help to reach certain conclusions. The fourth part of Educational technology is called as Instructional Design. Instructional Design has important role in Educational process. Similarly, the work done on designs in field of education is called instructional design.

Notes

Notes The combined form of learning principles along with learning situations, tasks, techniques and approaches in order to change the students' behaviour is called instructional Design.

According to **David Merrill—**

"Instructional design is the process of specifying and producing particular environmental situations which cause the learner to interact in such a way that a specified change occurs in his behaviour."

According to **Derick Unnwin—**"Instructional design is concerned application of modern skills and techniques of requirement of education and training. This includes the facilitation of learning by manipulation of media and methods and the control of environment is so far as this reflects on learning."

4.1 Assumptions of Instructional Designs

1. Instructional Design is based on teaching principles.
2. It easily accepts the conceptual facts for testing.
3. Physical, computerized and mathematical designs support instructional designs.
4. Patterns are necessary for the measurement of Instructional designs. Behaviour is controlled in terms of its consequences.
5. Regulations, principles and structure, all are important to Instructional design.
6. Teaching is both the art and science.
7. Teacher is developed through effective training.
8. All the phases–learning strategies, teaching principles and organization of course, are important in instructional design.

Table—A Comparative Study of Different Types of Educational Technologies

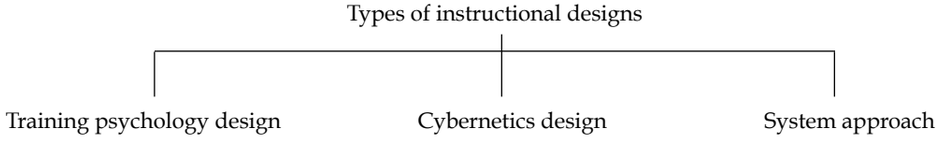
Comparative Points	Teaching Technology	Instructional Technology	Behavioural Technology
1. Exponent	Morrison, Herbart, Davis, Hunt etc.	Bruner, Glazer, Iasubel etc.	Skinner, Amiden, flender, Over etc.
2. Objectives	Development of cognitive, abstractive and functional objectives	Only cognitive objectives	Development of cognitive, abstractive and functional objectives
3. Approach	Content and communication	Physical	Behaviour
4. Components	All major basic components– contents and communication, teacher and student	Structuring, organization and presentation of contents. Students are more active components	Interaction between communication, students and teacher, analysis

Notes

5. Foundation	psychology, sociology and scientific foundation	Psychological and scientific foundation	Principles of psychology and cybernetics
6. Organization	Between the teacher and students	By audio-visual, other methods and person	By teachers
7. Aim	Effective teaching	To share information	Desired behavioural changes
8. Content	Educational models and principles of educational methods and techniques	Work-analysis, objectives, testing and motivating methods	Principles of teacher behaviour, investigating method of behaviour, analysis and improvement in teacher's behaviour
9. Levels of Teaching	Memory, sense and thinking	Memory	Memory and sense
10. Place of Teacher	Manager	Helpful	Subsidiary
11. Principle	Educational art and learning principles	Production principles of charge process	Learning principles– operant, conditioning, motivation and feedback etc.
12. Examples	Education at Memory, sense and thinking level, teaching-management	Self-study, linear and branching programmed instruction, mathetics, correspondence courses and open university system	Micro-teaching and mini-teaching, stimulation-social skills teaching, interaction analysis, team teaching etc.
13. Significance	(1) Makes learning more effective and purposeful. (2) Develops educational principles	(1) Instructional develops principles (2) Relates instructions process to its objectives	(1) Develops principles of teaching-behaviour, improves behaviour
14. Education Implication	Makes class-teaching more effective and purposeful	Helpful in self-study, correspondence and open learning and remedial teaching	It is very useful in making effective teacher.

4.2 Types of Instructional Designs

Many approaches were introduced in the field of education to solve its problems. Following three approaches of instructional design are most popular in the field of new approaches. These are presented by charts—



Did u know? These three designs are supplementary of each other. These are related to input, output and process methods of educational technology.

Notes

Self-Assessment

1. **Fill in the blanks:**
   (*i*) The fourth part of educational technology is known as .....
   (*ii*) Instruction mean to share .....
   (*iii*) ..... design is based on teaching principles.
   (*iv*) ..... is both art and science.
   (*v*) Many approaches were introduced in the field of ..... to solve its problems.

4.3 Training Psychology Design

Training psychology design mainly concentrates on task analysis and related elements of teaching. It is related to input phase of educational technology. Its genesis was the result of response to military requirements. This method was first used for the training of military bombers. In this design, a direct analysis method is used in which trained organs are developed. Robert Gagne and Glazer have specially enlightened this design. Training Psychology Design emphasized on goals and tasks and divides them into different elements. This design has the following points—

1. To recognize component tasks.
2. To consider in relation to their attainment.
3. Providing a systematic order to learn the full circumstances.

Therefore it can be said that this design has three major parts—

1. Task analysis
2. Intra-task-transfer
3. Proper sequencing

This design has a vast area in the field of education and there are many dimensions and problems for research. In the field of teaching-training, it is a viable design for the determination of goals, for writing goals in terms of behaviour and to develop skills in teacher. Educational process and teaching skills can be examined by this design and it provides a legal basis for lesson planning and course preparation.

In 1960s, following are the major models from this design and various teaching models—

1. Georgian Educational Model
2. Wisconsin University Model
3. Education Model Instruction
4. Florida Model
5. Michigan State Model
6. Syracuse Model
7. Teacher college Model
8. Regional Laboratory Model
9. Teachers for the Real World Model

Utility of Training Psychology Design

1. It is very useful for developing teacher training model
2. It supports development of Instruction.

Notes

3. It provides an appropriate sequence for dividing the work analysis of teacher into elements.
4. Branching Programmed learning is a result of it.
5. Solves the experimental problem of teacher training.
6. Endeavour to improve existing training programs.
7. Helps in deciding the training goals and plans to organize real educational training programs.
8. While respecting the individual diversity of students, assists them.
9. This design has an important role in preparing remedial instructions, development of curriculum and instructional material.
10. Makes teaching and training more effective.

4.4 Cybernetics Design

Cybernetics has been evolved from a Greek word "Kybernets" which means Pilot or Governer. The word "Kybornets" means "to govern". Therefore it can be said that cybernetics refers to a system or design to govern. It is a Science of communication and control. Control is the basic element of this design. Here control refers to mutual relation. [In the agreement of self-regulation and continuity, this design emphasize on the desired changes in the student's behaviour by controlling them.]

4.4.1 Basic Elements

There are three basic elements of cybernetics Design—

1. **Input**—It is first necessary input to the entire process, or is the presentation of teaching material. For example–charts, diagrams, audio-visual material, written-symbolic material in the library. So it is a unit that makes us aware of the process and we receive learning material and information.

   Another interesting input is to be an objective instruction system, which is confirmed by this design. The third input gives place to student's personal characteristics in the instructional system and the last input pursue students in the form of response.

2. **Output**—In instructional system, to perform in front of students is called output. This unit is the result of sequence process which can be written and non-writing. Its goals is to produce some responses.
3. **Processor**—Through this, information or materials are used in the revision and refinement. Processor also refers to that tool which demonstrates facts with a linear method, respectively.

In cybernetics system, communication process is of two types—

1. **Open Loop system**—Achievements obtained in open loop system doesn't affect any future work. It is neither affected by input nor by output.
2. **Closed Loop system**—In this, input and output becomes the parts of the system and affects experiments, results and achievements of future. This type is process is called as cybernetics system.

According to this design, teacher and student work as a machine and communication and control process keep running in educational process. Teacher teaches students with different methods – make them able to learn and provide innovative knowledge.

Notes

Task What do you mean by cybernetics design?

4.4.2 Utility of Cybernetics

1. This design makes educational process more organized and scientific.
2. Specifies the principles of linear programmed learning.
3. It displays universal form of teaching.
4. After scientific analysis of learning process, this design makes it progressive.
5. Helps teacher to understand the teaching system.
6. It leads to required learning behaviour using control.
7. Student's learning behaviour can be organized and controlled by practices and feedback.
8. Helpful in creating new teaching models.
9. Helpful in class instruction.
10. It emphasizes on social as well individual instruction.
11. Innovative philosophies have come in the field of teacher training as a result of its feedback. For example – microteaching, mini-teaching, programmed instruction, interaction analysis etc. All these are based on the feedback of cybernetics system.

4.5 System Approach

System approach was born during the Second World War. Since then it has particularly influenced the management decisions of industry, government, military and business sectors. System refers to a fixed method. In fact, system approach is a thorough analysis of a system or subsystem. This term overs a body of theory and practice of system analysis.

There are three important things in system analysis—

1. System thinking
2. System analysis
3. System

System has three parts—

1. **Goal**—It give the knowledge of what to do and why.
2. **Process**—It consists of various activities.
3. **Contents**—It is related to sub-parts of a system.

4.5.1 Steps of the System Approach

1. Define the need.
2. Statement of objectives.
3. Description of restrictions and limitations.
4. Collection of statements alternatives.
5. Make a selection of appropriate alternative.

6. Carryout or Implementation.
7. Evaluation.
8. Refine.

Notes

Different stages of system approach can be displayed in the following manner—

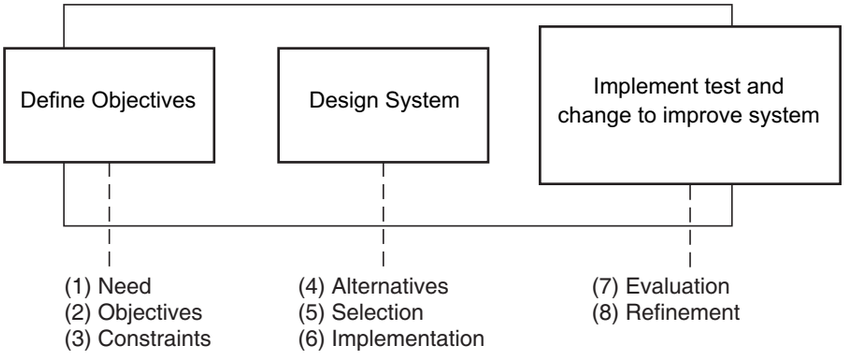


Fig.—Steps of the Systems Approach

4.5.2 Utility of System Approach to Education

1. In the field of educational management, it presents the scientific analytical approach that can solve the complex problems of educational administration.
2. System approach can be made more advanced and useful through education-training programs
3. It has proved to be viable in the study of educational problem as a whole.
4. It is proven best approach to bring fair, objective and right kind of changes in educational system.
5. System approach familiarizes students with the goals and helps to give them perfect learning experience, gives full support to each source obtained while teaching.
6. The preparation of educational materials, control and management of the educational environment has proven to be quite helpful.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Training psychology design emphasizes on work analysis and related training in particular.

(*ii*) Cybernetics has been evolved from an English word Kybernets.

(*iii*) In instructional system, to perform in front of students is called as output.

(*iv*) Achievement of open-loop-order affects ones future work.

(*v*) System approach was born during the Second World War.

(*vi*) System approach doesn't familiarize students with the goals.

4.6 Summary

- Instruction Design is composed of two words—Instruction and Design. Instruction means–to give information and Design refers to the principles of **scientific investigation methods**. The entire world research on the basis of certain assumptions and evaluate functions that help to reach certain

Notes

conclusions. The fourth part of Educational technology is called as Instructional Design. Instructional Design has important role in Educational process.

- Training psychology design mainly concentrates on task analysis and related elements of teaching. It is related to input phase of educational technology.
- This design has a vast area in the field of education and there are many dimensions and problems for research. In the field of teaching-training, it is a viable design for the determination of goals, for writing goals in terms of behaviour and to develop skills in teacher.
- Cybernetics has been evolved from a Greek word "Kybernetics" which means Pilot or Governor. The word "Kybornem" means "to govern". Therefore it can be said that cybernetics refers to a system or design to govern.
- System approach was born during the Second World War. Since then it has particularly influenced the management decisions of industry, government, military and business sectors.

4.7 Keywords

- **Skills:** Qualification
- **Design:** Primarily

4.8 Review Questions

1. What do you mean by instructional design?
2. Write the assumptions of instructional design.
3. What are the types of instructional design? Describe briefly.
4. What are utilities of Training Psychology Design?
5. Describe the utilities of Cybernetics Design.

Answers: Self-Assessment

1. (*i*) Instructional design (*ii*) Information (*iii*) Instructional (*iv*) Teaching
   (*v*) Education
2. (*i*) True (*ii*) False (*iii*) True (*iv*) True
   (*v*) True (*vi*) False

4.9 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–5: Formulating Instructional Objectives

CONTENTS

Objectives

After studying this unit, students will be able to:

- Have the knowledge about Formulation of Objectives and writing in Behavioural terms.
- Have the knowledge about content-analysis and developing instructional sequence.
- Construct criterion test.

Introduction

Bloom's Taxonomy of Education Objectives is used in the determination of objectives. Cognitive Objectives are easily obtained in programmed instruction. Therefore, it follows Bloom's Taxonomy of Education Objectives. The objectives of cognitive phase have been divided into knowledge, sense, experiment, analysis and feedback objectives. Objectives are determined in terms these divisions in programmed instruction. Then it is written in behavioural terms.

5.1 Step (1): Formulation of Objectives and Writing in Behavioural terms

Robert Mager has formulated objectives and writing in behavioural terms in an effective way which is considered as more appropriate way to write objectives of programmed instruction in behavioural terms because programmed instruction suffixes and **Mager method** are based on behavioural and psychological principles. The method of **Robert Mager** was developed in 1862 and in 1963; behavioural objectives were given the importance in programmed instruction suffixes. In terms of objective, Mager says – "A statement of instructional objective is a collection of words or symbols

Notes

describing one or more educational objectives." —**Robert Mager**

Statements are prepared in order to describe terminal behaviours and the activities of the students. Three actions are required for these

(A) Identifying practical action.

(B) To define the conditions occurring in practice.

(C) To define the criteria required for completion.

Mager has given the importance to action verbs in order to write objectives in behavioural terms. He has given a list of actions for each which is described in the previous chapter of Taxonomy of Educational Objective. Three components are used to write objects in behavioural terms—

1. Element of Content or Topic.
2. Objectives in Terms or Taxonomic Category and
3. Appropriate Action Verb.

Notes With the help of these components objectives are written in behavioural terms.

5.1.1 Merits of Behavioural Objectives

Scaffold has described the following merits of Behavioural Objectives

1. Nature of objectives is specified.
2. Assist in creation of test questions
3. Is used to coordinate teaching and testing

Following are benefits of writing objective in behavioural terms—

1. The activities of teaching and instruction is limited and sure
2. Required learning conditions can be generated by selecting the appropriate teaching tips.
3. Object-centred examination criteria can be created by this.
4. The test may be based on the learning objectives and the amount can be calculated.

The main drawback of **Mager** method is that mental actions are avoided in the human-learning. So "Regional college Mysore method" is being adopted, because it especially gives importance to mental actions.

Two type of behavioural objectives are rendered for creation of programmed instruction—

A. Entering behaviour or

B. Terminal behaviour

A. Entering Behaviours

Such student qualities are included in entering behaviour which pre-requisites in programmed instruction. These qualities are included in the following merits --

1. To start programmed instruction, the required knowledge and skills should be clearly explained.
2. Instruction should clearly explain the trend level. Gradient level should be interpreted in terms of authenticated gradient text.
3. Pre-requisite qualifications should be interpreted in terms of test.

Notes

4. For entering behaviour, students' motivation levels should also be emphasized that what kind of motivation they need, due to which students can take interest in instruction learning.
5. In respect of students, the prior information such as the age, level, language, level of intelligence etc. should be collected.
6. In order to write entering behaviour, such population should be defined for which programmed instructed will be enacted.

Did u know? Pre-test are organized in order to know the entering behaviour. Except this, diagnostic test of students, cumulative articles, stories, individual experience etc. are sources of entering behaviour.

B. Terminal Behaviours

In terminal behaviour, all those students' responses are included which are helpful in the achievement of objectives. For terminal behaviour, the importance is given to cognitive objective. These are supposed to be Output phase of programmed instruction. For this, terminal behaviours call the Input. The objectives of terminal behaviour are written with the help of contents and work actions. **Mager method** is normally used to write terminal behaviour. Terminal tests and criterion tests are constructed for measuring this.

Self-Assessment

1. Fill in the blanks:

(*i*) The second step of the construction of programmed instruction is to analyse of content and to write in ..... Terms.

(*ii*) Mager method is based on the principles of .....

(*iii*) ..... test are constructed in to know the entering behaviours.

(*iv*) ..... method is used to write terminal behaviour.

(*v*) The main drawback of Mager method is that is doesn't give importance to ..... action in human-learning.

5.2 Step (2): Content Analysis and Developing Instructional Sequence

After writing and analysing objective programmer develops the nature of contents and uses it for the construction. For this, he analyses the contents. Sub-contents and their component are analysed. Sub-contents and their components are logically organized in a sequence. In respect of this experts are consulted due to which logical sequence of contents can be supposed correctly.

Following advices are given by **Peter Pipe** in order to develop the list of contents—

1. All objectives should take into consideration in the development of contents and the programmer should develop it in right direction and correct sequence.
2. Should take the experts permission for development-sequence. Relations of teaching and learning should be taken into account in order to prepare list of contents. Students get the facility to learn from the list of developing sequence of contents. The logical sequence of contents should be viable in terms of psychological view.

These tasks provide useful information related to contents. The relation of teaching and learning should be taken into in order to prepare list of contents. Students should get the facility to learn from the

Notes

development of logically sequenced list of contents. The logical sequence of content should be viable in psychological terms.

Task What advices are given by Peter Pipe in order to develop list of contents?

5.3 Step (3): Construction of Criterion Test

Criterion test is constructed to measure the terminal behaviour of objective analysis and content analysis. Achievements of objectives are decided with the help of this test. In Criterion test, question are constructed to measure all the objectives while in Achievement test, questions are constructed on the basis of all the contents.

Objective question are included in Criterion test. Each question measure a specific objective. In this way objective-centred test is termed as Criterion test. Questions related to identification and remembrance, are constructed. Mostly multiple choice questions are included. After construction of questions, they are checked and their item-analysis is done. Depending on the difficulty level and the differentiation level, positions are selected. In Terminal Criterion test, questions are organized depending on difficulty level – easy questions are in front side while the difficult are at back end.

Evaluation is done in terms of Terminal Criterion test. By selecting successful ones from the population, reliability and validity multiplier factor is determined. Criterion test norms need not to be developed because criterion test is used to make decision in terms of achievements of objectives. Norms are used to describe the marks secured by the student.

Self-Assessment

2. Multiple Choice Questions:

(*i*) Whose permission must be achieved in respect of developing sequence of contents?

(*a*) Experts (*b*) Mathematicians

(*c*) Scientists (*d*) All the above

(*ii*) Who should get the facility to learn from the developing sequence of contents?

(*a*) Teachers (*b*) Students

(*c*) Psychologists (*d*) All the above

(*iii*) What kinds of question are included in the criterion test?

(*a*) Very Short Answer Type (*b*) Short Answer Type

(*c*) Objective Type (*d*) Long Answer Type

5.4 Summary

- The second step of the construction of programmed instruction is to analyse of content and to write in behavioural terms. Bloom's Taxonomy of Education Objectives is used in the determination of objectives.
- Such student qualities are included in entering behaviour which pre-requisites in programmed instruction.

Notes

- In terminal behaviour, all those students' responses are included which are helpful in the achievement of objectives. For terminal behaviour, the importance is given to cognitive objective. These are supposed to be Output phase of programmed instruction.
- After writing and analysing objective programmer develops the nature of contents and uses it for the construction. For this, he analyses the contents. Sub-contents and their component are analysed.
- Criterion test is constructed to measure the terminal behaviour of objective analysis and content analysis.
- Objective question are included in Criterion test. Each question measure a specific objective. In this way objective-centred test is termed as Criterion test.
- Evaluation is done in terms of Terminal Criterion test. By selecting successful ones from the population, reliability and validity multiplier factor is determined.

5.5 Keywords

- **Norms**—Criteria Enapane
- **Analysis**—Inquiry

5.6 Review Questions

1. Write the merits of behavioural objectives.
2. Write the qualities of entering behaviour.
3. What do you mean by terminal behaviour?
4. What is content analysis?
5. Why criterion test are constructed?

Answers: Self-Assessment:

1. (*i*) Behavioural (*ii*) Psychology (*iii*) Entering-Behaviour (*iv*) Mager (*v*) Mental
2. (*i*) (*a*) (*ii*) (*b*) (*iii*) (*c*)

5.7 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit-6: Teaching Strategies, Methods and Techniques of Educational Technology

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know educational policies, meanings, definitions and characteristics to obtain information.
- Get insight into the classification of educational policies.

Introduction

Educational Technical conventional scientific basis to the idea of teaching art to provide technical, academic effects of various policies, methods and devices is controlled through, develops and manufactures effective teaching process. Thus, it is moving always toward achieving educational goals.

6.1 Teaching Strategies: Meaning, Definition and Characteristics

Educational policies is made up of two words—Teaching and Strategies. Classroom teaching is an interacting process conditions to achieve the desired objectives are accomplished by students and teachers.

Policies indicates Planning, Policy, cleverness and skill. According to The Collin English Gem Dictionary 1988 Policy means the art of war and combat skills. This is the most appropriate place to stand War and is used in reference to the art of fighting. Battle of science policy 'word' in educational technology has been taken. Here are the policies that constitute the skilful arrangement, the classroom teacher in the circumstances to achieve its objectives and the students have to bring the desired change in behavior.

Notes

6.1.1 Definitions of Teaching Strategies

Educational policies following definitions are given by various scholars—

(1) Davies—"Strategies are broad methods of teaching."

(2) Stones and Morris—"Educational policies, a generalized scheme of the text, in which the structure of the desired behavior change objectives of instruction are included as well as the devices are crafted plans."

(3) Strasser—"Teaching strategy is that plan which lays special emphasis on teaching objectives, behavioural changes, content, task analysis, learning experiences and background factors of students."

Note-Before commencing teaching class to use for the teacher to select appropriate teaching strategies takes.There are several factors which include educational policy seeks to empower the learning process and increase the effectiveness of teaching.

6.1.2 Characteristics of Teaching Strategies

(1) Educational policies, would indicate a pattern of teaching activities.

(2) Educational policies, are helpful in achieving educational objectives.

(3) These important works in the field of behavioral change.

(4) These functions are important in analysis and its structure.

(5) The teacher's task is to increase loyalty and his teaching that increase efficiency.

(6) Improve the learning process and provide scientific basis.

(7) Through its intelligence, diligence, clear thinking and develop workshops suffix.

(8) In the educational philosophy of teaching strategies, learning theory, page protection, etc. are contained elements.

(9) Sort learning process and make it meaningful.

(10) Educational policies, teacher remains in control and that she needed to make changes.

According to **Stones** and **Morris** "Teaching tactic is goal linked influenced or influencing behavior of the teacher. Itincludes the way he behaves in the instructional situations and how he fulfills various instructional roles with the students of the class and how the teacher, the students and the subject matter interacts."

Table—Teaching Strategies and Teaching Tactics

Teaching Strategies	Teaching Tactics
1. The detailed teaching method of teaching.	1. Teaching Tactics are subject to educational policy.
2. These teaching methods can be consistent.	2. The teaching methods are consistent.
3. A teaching strategy is used in many devices.	3. Insert one or several tips to make effective educational policy.
4. These are the normal pattern.	4. They have a specific format.
5. The education system has been upgraded.	5. This new knowledge gives lasting perception.

Mr. Davis's assertion is true that teaching tips, teaching methods and strategies are various organs of. Teaching - policy foundations. Planning education for all is to make use of different teaching strategies

Notes

and methods to select the relevant device. True "Pre-planning is the key to successful teaching and learning in the pre-planning policy, customs, law and the role of the device is."

Self-Assessment

1. **Fill in the blanks:**
   (*i*) Educational Technical traditional idea of teaching art ..... is to provide a technical basis.
   (*ii*) Educational policy of text ..... Plans.
   (*iii*) War science ..... The term has been in educational technology.
   (*iv*) ..... Tips are related to the objectives.
   (*v*) Teaching Tips Teaching ..... Correspond to.

6.2 Classification of Teaching Strategies

Classroom environment, classroom teaching based on the circumstances and perspectives of teacher policies can be divided into two major sections—

(1) Democratic Strategies,

(2) Autocratic Strategies.

(1) Democratic Strategies—Democratic Strategies values based on Democray. These policies using child psychology makes child-centered learning. These policies are leading the children or students. The teacher is the location of the accessory. The teacher's age, maturity, mental abilities, interests, and abilities, etc. Based on Samthry arrange their teaching work. Are exempt from the student to express your ideas. Democratic exempt educational policies such as students and their imagination thinking, reasoning, and the creation and development of capabilities to produce important works Students begin their knowledge level memory contemplating moving to level success in providing solutions to problems.

This policy provides students with social development and cognitive, affective and dynamic helps to achieve the objectives. These are the major policies of this type of policy debate, investigation, review, plan, practice, homework, brain activity, exempt study acting, sensitive training.

(2) **Autocratic Strategies**—Autocratic Strategies is based on the values of Dominance These policies are more active in the teacher and student are sitting idle. These policies are Teacher Centred. Each of the student teacher, the ideas and philosophy accepts no arguments. Teachers own text - object to determine its ideals and interests

Is based on. Students' needs and takes care of all their psychological background. The learning and memory at the same level through it easily is the cognitive objectives. Formal classroom environment from the use of these policies fully assimilated. These are the major policies of the hegemonic policies of teaching - lectures, lessons, demonstrations, tutorials, assignments etc.

Various Types of Teaching Strategies—Below is a description of certain important educational policies. Use these policies to make education more effective teacher should carefully.

1. Lecture Strategy

Means any text of the lecture is to teach speech. A subject teacher - especially in the classroom lecture and students listen passively live. This method is considered useful for high level classes. Lecture method may be reported to the topic. But the motivation of students to achieve self-knowledge and ability of the practical use of knowledge can not be obtained. Lecture method is that it is difficult to know the extent to which students are able to learn the knowledge provided by the teacher.

Characteristics **Notes**

(1) It is useful for higher classes.

(2) For the teacher, simple, concise and attractive.

(3) Could be given more information in less time.

(4) Listening student can note it in greater numbers.

(5) Subject always remains logical order.

(6) The teacher and student satisfaction regarding the progress of the study of the subject provides.

(7) Teachers in the flow of ideology-conveys new things.

(8) Using this method, the teacher teaching facility.

(9) At the same time a large group of students are learning.

(10) The teacher is always active.

(11) If the teacher using this method can be used effectively to attract the students, as well as the text can be generated interest.

Demerits

(1) Some things just do not study to obtain information.

(2) Students are sitting idle.

(3) This method is inappropriate for students in small classes.

(4) Students interested in seeking knowledge is not conscious.

(5) Students do not develop some sort of mental strength.

(6) Temporary knowledge is thus provided.

(7) If the student does not understand something in between lectures Voices are unable to understand the rest of the lecture.

(8) Lecture is difficult for students to write all the things quickly.

(9) 'Master-Disciple-teaching' principles that defy the law.

(10) Acoustic lecture method does not use the other senses.

(11) Experimental side of the subject is neglected.

(12) The Teachers 'Teacher' Not content merely 'speaker' is reduced.

(13) It is not a psychological method.

Suggestions

Lecture method while teaching—

(1) Should use the blackboard as needed.

(2) Appropriate supporting materials should be used.

(3) It must be emphasized that the principle of generalization.

(4) Such opportunities should reduce children by telling them. Their labor on the basis of their prior knowledge and experience to gain more knowledge.

(5) Lectures to students working with them from time to time the question must be asked.

Notes

2. Demonstration Strategy

Display method is quite important in the field of teaching. Both student and teacher are active in this mode. Classroom with the teacher to discuss the theoretical part is verified by this method. Uses teacher and student use while teaching-to obtain knowledge through performance monitoring. Concerns requirements from the teacher in front of students.

Characteristics

(1) This method is more suitable for small classes.

(2) Performance of the equipment being used by the teacher breakage is less.

(3) Takes less time.

(4) Students learn by themselves.

(5) Children's vision and hearing senses are more active.

(6) Students observe the arguments and ideas - power grows.

(7) Students can solve explicitly the principle of this method, which is more consistent with the received wisdom.

(8) Reduction in the number of devices is impressive even teaching.

Demerits

(1) The children themselves do not get the opportunity to use this method.

(2) Some students do not properly observe experiments.

(3) Occasionally does not work by the teacher in the minds of the students to the subject leads to many misconceptions.

(4) By this method subject matter of common knowledge that can be performed.

Suggestions

(1) None of the students before the teacher must perform before the rehearsal.

(2) Display all materials required for the performance-should be on the table.

(3) The purpose of the performance of the students should be very clear.

(4) Students use prior knowledge of the performance, the performance of materials and equipment must be full-time students knowledge is not difficult to understand.

(5) Each experiment should be in front of students. Place of use where the use of each student-action well-like to see.

(6) Involving students should use in performance. There needs to be resolved their doubts.

(7) Performance materials and other teaching aids needed blackboard the teacher should use.

(8) Inspection performed by children of the authenticity of the article should be emphasized.

(9) Care, after the use of the equipment must be cleaned and put in the proper place.

(10) Teachers should use simple language to display the time.

(11) After the performance of students with teacher - related conversation with the inspection and the results should be.

3. Lecture Cum Demonstration Strategies

Lecture and Performance is a close linkage between policies, so these two separate policies combined together and used the lecture-demonstration mode gives birth. This method is performed by removing the flaws of the lecture policy policy properties tend to make even more impressive. This included both

Notes

time and energy policy is prudent manner, Theoretical side of this policy with the help of the teacher lectures and blackboard and other aids to help clear statement of the Figure and presents. To elaborate on the theoretical side Used in the classroom to help students perform. He keeps asking students questions from the center of the display. Students use it's age, ability and the environment should be.

Characteristics

(1) Lectures policy removes all impurities.

(2) Performance is the incorporation of all the properties of the policy.

(3) Students are more clear-realization.

Demerits

(1) Students do not get the opportunity to use their own devices freely.

(2) The policy used by the student to observe. By inspection of the data collection and marking for every child would not be possible.

(3) This policy is not economically beneficial.

Suggestions

(1) Theoretical and practical knowledge related to teacher performance should be clear before the experiment.

(2) Teachers needed audio-visual materials should be used.

(3) Use-Simple and student performance should be based on experience and level.

(4) Rehearsal prior to the performance of the teacher should use and All doubts arising in the solution well-should have internalized the idea.

(5) Students use-should display greater cooperation. Use them related small - small responsibility must be provided.

(6) Experiment-Display mode should also focus on other suggestions given.

4. Supervised Study Strategy

Inspection—The study of the policy itself is not a complete method. It is therefore with most other methods. Students to solve any problem related literature published in the same class as is. Students to read the literature carefully before sharing to give appropriate directions to the side of the key points are provided. Time to read the literature is reported. Students read to themselves reach their problems and answers to the questions. After reading the literature students are asked to close and Then the teacher questions and issues through the presentation of the text develops.

Characteristics

(1) Rising trend in student reading.

(2) Information on how to read something in methods.

(3) Students' attention is focused on literature. Remains interested to read them.

(4) Student self-study problems and reach solutions, consequently they have mental satisfaction.

(5) Reading is easier for the teacher. Students do not have to tell him everything.

Demerits

(1) Where this is not the provision of copies of the literature, there It can not be.

(2) Teachers have to rewrite the relevant literature search and play.

Notes

Suggestions

(1) Distributed literature should be as clear and simple.

(2) All copies of literature related to class should definitely check out before bringing in class.

(3) Literature related to the subject matter of this nature should be favorable to the grade level of students.

5. Heuristic Strategy

Students learn by looking at the policy itself. The teacher's task is only a guide. Mistakes help improve the proper time. Student - such as work and are using it - it leads to knowledge they are innovative. Creator of this policy was **Prof. Armstrong**. According to his belief "Process of learning any subject sensual exploration and students themselves must find facts and principles."

Student can perform as an exploration of the policy. In the beginning the student does not use the information. To find the desired information itself and a number of principles that are required to use, as well as to study the available literature.

Characteristics

(1) Students develop the scientific method and spirit.

(2) This method has been faithful and true to the students near delivers

(3) The student has acute observation and reasoning power is activated.

(4) Work is to develop the ability and interest.

(5) Students' activity, confidence and independence increases.

(6) This method prepares students for life.

(7) This knowledge is more stable.

(8) Increases in students thinking and perception.

(9) Because the work is completed in class does not require homework.

(10) This is psychological method.

Demerits

(1) Being slow to teaching full time course can not be taught in precribed time limit.

(2) Student experiences difficulty in reaching conclusions.

(3) The teacher has to make special preparations to use this method.

(4) This method is not suitable in small classes.

(5) This method needs good laboratory and good library.

(6) More money is spent.

(7) This method is hard to teach large groups.

(8) It is not useful for weak students.

(9) The entire course can not be taught.

Suggestions

(1) As a method of investigation must be genuine.

(2) Over the course of only a few selected text to go to teach this method.

(3) Teachers must fully conscious and aware of their responsibilities.

6. Project Strategy

Notes

John Dewey's Pupil **W. H. Kilpatric** gave birth to this method. According to him "Purposes of the action, with the full involvement of the social environment is achieved."

According to **Prof. Stevenson** [Project was a problematic task, which receives its perfection under natural conditions.]

Did u know? In this method, a problem is presented to the students and the students are engaged in the solution. It works according to interest and desire of the students.

Theory of Project Strategy

(1) Theory of Purposiveness

(2) Theory of Activity

(3) Theory of Reality

(4) Theory of Utility

(5) Theory of Freedom

(6) Theory of Social Development

Project planning and regulation of each of these principles is particularly emphasized.

Steps of Project Strategy:

Each Project is divided into the following parts—

(1) Select Project—Teachers must create a situation in which the students themselves start making plans. Thus, students get together to discuss various purposes independently by students and teachers. As far as possible, students should have the opportunity to select your own Project. Teachers should be consulted in the selection process as needed.

(2) Framework to be prepared—Project selection should be created after the completion of the program. Program to students in the assessment discussion should complete remission. Chalk mark on the various responsibilities of all students to share their merit and should do all this article. Project for making such school property surveying, Vatika size, placed the names of plants, plants and seeds and tools required to manage Berkshire etc. well-like a conversation in the various groups of students share responsibility should pay.

(3) Implementation of the program—After making functions under Framework Programme Project starts. The students who have responsibilities, they begin to fulfill. In order to fulfill our responsibility to the students have to gain knowledge of various types. This type of knowledge is more stable. Promoting students, observe their actions and may modify the plan as necessary.

(4) Evaluation—After being on target to meet the teacher and student evaluation. Project based on the purpose of the Project is considered success and failure. From time to time student-their work are considered, the repetition of mistakes to correct and useful knowledge.

Types of Project

By the purpose of teaching students different kinds of knowledge that can be activated. This type of sponsorship may be following—

(1) Project-related construction—Vatika school, museum, aquarium, Tereriam, Waiveriam, Instruments etc. for building purposes.

Notes

(2) Project related inspection—There are a variety of different places through tourism Organisms-animals, insects, moths, climate, vegetation, flowers etc. Specific characteristics can be made for inspection purposes.

(3) Consumer Project—such as agriculture, horticulture etc

(4) Collections related Project—A variety of different places like creatures - animals, birds, plants, Figure, model etc. related Project collection.

(5) Identification Project—Such as fruits, flowers, seeds, roots, creatures - animals relative to the category and class Project.

(6) Operational surgical Project—Like organisms - animals, root - stem, flower, fruit and cut out their internal organs associated with the study of the Project.

(7) Problem Project—Such as improved diet, health etc.

Characteristics

(1) Students themselves by thinking, study and work.

(2) Student is active in the whole scheme.

(3) The physical and mental, students are required to work both as a result of labor is conscious of allegiance.

(4) Student understands and fulfills its responsibilities.

(5) Students patience, contentment and self-satisfaction and sense is awakened.

(6) The psychological method.

(7) This 'learning by doing' is based on.

(8) Has established cooperation in various fields.

(9) Received wisdom is permanent.

Demerits

(1) It takes more time in the classroom teaching.

(2) Knowledge is not orderly fashion.

(3) This policy is difficult to complete certain courses.

(4) The teacher has to work harder.

(5) It is more expensive.

(6) Is likely to create difficulties for inexperienced teachers.

(7) Have accurate knowledge of the actual theory

Suggestions

(1) Project objectives should be fixed.

(2) All students should have deservedly Responsibility Project.

(3) Each figure must have a written document.

(4) Students discussion should be a free course.

7. Assignment Strategy

Yoga practices to build permanent learning in learning the 'assignment strategy' is important. Its objective is to provide students practice. According to **Douglas Leonard** assignment act small, long, hard, simple, Normal, etc. may vary. The link text is the year in units of the school. Teaching theory,

Notes

demonstration and experimental work by law students clarify three aspects can be sent. The text-something small-small assignment into action to schedule the students are given. Students are required to work in libraries and laboratories. Teachers periodically inspects the lives and problems are also addressed. Students complete their work by the entire article has been sent.

Characteristics

(1) Each student works suited to their ability.

(2) Teachers have adequate guidance.

(3) Students used to have to do themselves.

(4) Students develop the habit of fulfilling their responsibilities.

(5) In this method the subject is all aspects.

(6) Emphasis is on practical work.

Demerits

(1) Responsibility for directing the work of teachers, students increases.

(2) Takes more time.

(3) In the absence of good laboratory and good library, this method is not useful.

Suggestions

Do keep in mind that while giving assignment:

(1) Every day should be sent not work.

(2) Work must be sent to the text concerned.

(3) Students according to ability and age.

(4) Proper Way - appeared to be arranged.

(5) Assignment work should clear and meaningful.

(6) Should be meaningful.

(7) Students are motivated to work.

8. Problem Solving Strategy

In Hammonds Carsie's Words—

"Problem solving in teaching refers to the task of making decisions or doing things that learner wants to make or to do, the nature of which he is able to understand but for which at the time he has no solution."

Problem-solving method was born as a result of litigation purposes. Problems related to the students before the student presents his text and Students according to their interests and abilities is to look at their solution. This method should be placed in clear terms the problem faced by students and their learning should be based on experiences. With the help of the teacher student synthesis or analysis of problems and solutions to be able to reach

The method includes the following steps—

(1) Selection of problem,

(2) Presentation of the problem,

(3) Aggregation of facts,

(4) Hypotheses,

(5) reach on conclusions,

Notes

(6) Assessment,

(7) Drafting work.

Characteristics

(1) Students learn to solve problems automatically.

(2) They develop observation and reasoning.

(3) They are able to generalize.

(4) The integration of data, assessment and conclusions are familiar with the procedures.

(5) Learn to use the old facts in a new context.

(6) Would infuse a spirit of working together.

(7) This is motivational method.

(8) It is based on "Learning by doing"

Demerits

(1) Is a waste of time and energy.

(2) In this method, confusion could be the wrong conclusion.

(3) This method requires the use of qualified teachers.

(4) This method is not useful in small classes.

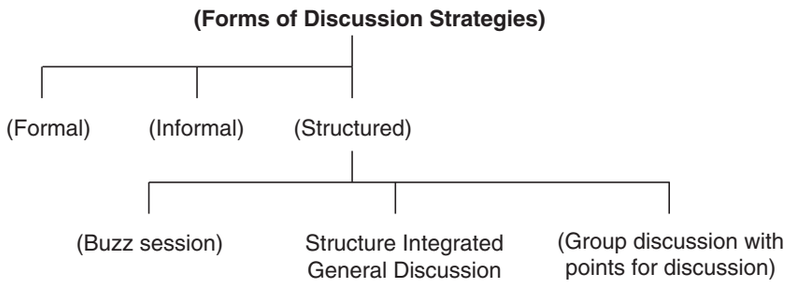
Which method for teaching a particular subject should be selected and will be more useful approach to teaching which, on the subject of the next chapter highlights.

Task Write down five characteristics of problem solving method.

9. Discussion Strategy

According to **Lee "**Discussion is an educational group activity in which the teacher and the students cooperatively talk over some problem or topic"

This policy has taken a topic to students and teachers on the topic conversation or debate to inspire. It enhances student learning and opportunities embedded in the policy process. It is essential for the success of this method is that students should have the freedom to express their views. Discussion Strategy, all students should be encouraged to speak, but the teacher continues to work as an inspector and director. There are three types of Discussion Strategy **–**



Notes

1. **Formal discussion**—Preset programs and formal dialogue is used to achieve the objectives. It is a formal discussion, controlled by the teacher through questions and answers. It is between teacher and students.
2. **Informal discussion**—It does not use the rules and principles. It is informal, voluntary participation under guidance. . It is between teacher and students.

3. Structured—

(*i*) Buz discussion—Some specific questions for the entire class, small groups after reporting with less structured, purposeful discussion.

(*ii*) Meaningful structure integrated general discussion—It is purposefully structured group discussion of the whole class reporting And general discussion to follow is to follow.

(*iii*) Group discussion with points for discussion—This is a group discussion with defined points of the conversation. Through policy dialogue brought the desired change in the behavior of students.

Characteristics

(1) It discourages the Wrong Approaches
(2) Students have confidence in the waking state.
(3) Instrumental in developing the students' aptitude.
(4) Students listen carefully and to respond appropriately inspires.
(5) Teachers and students come together and understand each other very well.
(6) These students have been active.
(7) Enhances students' creative features.
(8) It is a public policy.
(9) It may have more opportunities for social learning.
(10) The cognitive and affective aspects of higher objectives can be achieved.
(11) The increasing rationality, knowledge grows and develops skills to have their say.

Limitations

(1) The student can not speak equally.
(2) Sometimes it increases competition and jealous
(3) Students occasionally go too far from the subject.
(4) Remove unnecessary criticism or chop people can destroy its purpose.

Suggestions

(1) Provide equal opportunities for all students to speak up.
(2) Speaking students should be brought forward.
(3) Asking suggestive questions that students must be prepared for the interview.
(4) Should like to discuss the episode mutual conversation.
(5) Only constructive and meaningful criticism should be encouraged.
(6) As far as possible, should ignore controversial topics.
(7) Teachers should act as the active controller.
(8) The conversation should always be meaningful.

Notes

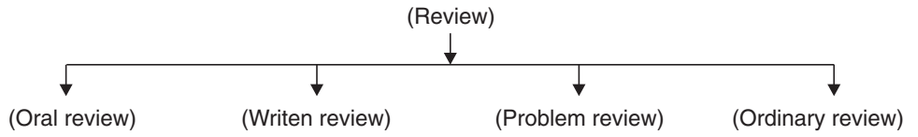
10. Review Strategy

Review, also called revision in Hindi. It means to look again, to remember the facts, is to review and reach significant conclusions. Teachers prepare their lessons through review again the key points to consider What episode is more useful for the students, how many have been taught and how many are left. Review teacher teaching her what it tells them what the defect can be corrected anyway.

According to **Laurance Urdang—**

A study on the subject again in the memory of the process or recitation in order to decide Criticism, carefully informing the investigation, a decision and the decision-making process of the revision is submitted in writing.

Review is generally divided into the following sections—



Characteristics

(1) It is effective for higher classes.
(2) Through successful in achieving its aim to become teachers.
(3) This knowledge will help to perpetuate.
(4) It is much informality.
(5) Nothing could be reviewed.
(6) Both student and teacher are active.
(7) Analysis is to develop the capabilities of students.
(8) Students develop the habit of reading in the library.
(9) This is very useful in research.
(10) Student start reading independently.
(11) Internal evaluation is useful.

Limitations

(1) The following classes are useless.
(2) Time consuming.
(3) Student depend on direction of teacher
(4) For the class of all mental ability is relatively less useful.

Suggestions

(1) Episode Review of students to be on merit.
(2) Review should also be fixed.
(3) The purpose of the review is why the review should be fixed.
(4) Reference texts for review at the time of receipt of the text should also be kept in mind.
(5) Students should also review the functions of the teacher should review the actions.

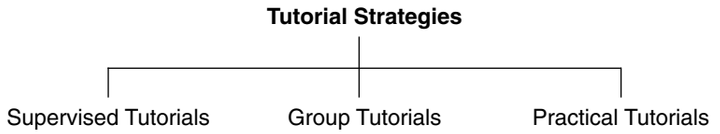
11. Tutorial Strategies

Notes

Tutorial is a teaching strategy used can be both individual and collective. It defines by **Laurances Urdang** written—

"A session of intensive instruction by a tutor. It is a system of education in which instructions are given by tutor (teacher) who also acts as general advisor".

The small class teaching policy-divide into small groups and small - reaching teachers in small groups, the group looks for problems and difficulties and helps students reach their correct solution. Tutorials with students' personal problems-with the necessary attention is given to studies related complications. It is also known as Intensive Instruction. High levels of cognitive and affective aspects tutorial objectives are achieved. It is more suitable for the study of young children and adults. There are mostly three types of tutorials.



In **Supervised Tutorial** Individually with the teacher to student discussion and The conversation. In **Group Tutorial** Ordinary level students are given specific training. In **Practical Tutorial** Physical skills, lab work, psychological processes are studied and resolved.

For the development of values this educational policy is useful for students of both backward and talented.

Characteristics

(1) This tutorial focuses on the corrective side.

(2) Student on the basis of prior knowledge of their problems are resolved.

(3) Cognitive and emotional aspects has been instrumental in the achievement of higher purposes.

(4) Contribute significantly in enhancing students' achievements.

(5) It is used as needed, both personal and collective.

It has rightly been said that—

"Tutorial strategy is best suited for the development of application, evaluation, synthesis, expression, communication, interests and attitudes. It involves simple to complex tasks or abilities (in a problem solving situation closed as well as open ended) involving new unfamiliar areas."

To complete the process, students are given small signal at the beginning, later while addressing the problem gradually should do.

Limitations

(1) Only a teacher can thoroughly solve problems related to your topic. They do not take much interest in other subjects.

(2) Teachers sometimes tend to focus on specific students, the tutorial is the group for each student.

(3) Some students have little opportunity to speak to the other students.

(4) It increases student competition in different field.

(5) Teachers and students should have knowledge of psychology.

Suggestions

When using this policy—

(1) Teachers should pay attention to all the students of the group within the fair.

Notes

(2) Experiences of teachers, students, tutorial classes on the basis of interests and specialization must.

(3) The main objective should be to solve the problems of students.

(4) All students should be given the same opportunity to talk and face difficulties.

(5) As far as possible, should be the psychological basis of group creation process.

(6) Remedial teaching problem solving skills, as well as general purpose should be to develop.

(7) Taken care of various group in terms of competition and jealous.

12. Historical Discovery Strategy

Students in search of historical research about any event is passed through the initial stage of development. Students in the policy in respect of the first explorers to the last explorers inventor or scientist are placed in position. The students are placed in such a way so that they are well-like to see how the various searchers believe how time, discoveries and inventions with facts-go with the change.

After a theory of how the theory is changed. In the system of student evaluation of various facts and estimates are differences. **Mr. Garg** wrote explaining this policy is to accept the fact that the student, Estimate is true that until then he can explain all the observed phenomena. The scientific theory of evolution can view events, ie estimates ranging from immature to mature exploration.

Founder of this Teaching Strategy is **J. S. Burnner**. According to him "Law students in finding their mental level, age, class, and other related facts fundamentally new knowledge must conform. It is thus the interpretation of the facts seems to be aware of new facts." This method makes students and students active thinking, imagination and develops inspection capabilities.

Characteristics

(1) It prepares students searcher and And students search methods is striving toward mastery.

(2) This observation, thinking and imagination that use and develop them.

(3) Social or scientific facts rather than remembering provides an opportunity to understand them.

(4) It is helpful in developing creative thinking.

(5) Cognitive and emotional sides is useful for higher objectives.

(6) Students discover new knowledge through it and try to remember it permanently.

(7) Develop students' abilities to analyze and synthesis is done.

(8) Through it, students know how social change is the result of bringing scientific discoveries.

(9) Students of this knowledge is that how principle is changed and how the new theory implies.

(10) This method produces interesting for students.

(11) Knowledge gained from this method is permanent.

Limitations

(1) This method can not be applied to all subjects or topics.

(2) This method of teaching is significantly slower pace.

(3) In this method, the students are active but they do not get the opportunity to own.

(4) This method is more useful for talented students. The table below indicates the difference between the search and investigation techniques.

Notes

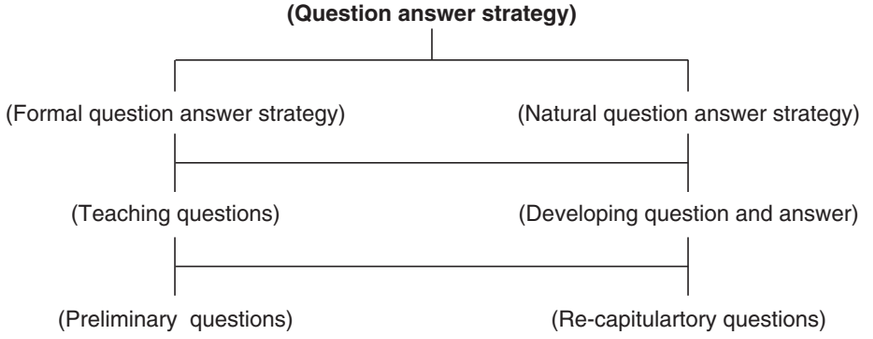
Table—Difference between Discovery and Heuristic

Discovery	Heuristic
1. These are used mostly for social matters is knowledge of the facts.	1. Exploration of a particular use is in the study of scientific subjects.
2. The connection is ancient events.	2. The present study does.
3. It is subjective interpretation of the facts.	3. The text-as students are given objective perception of the object.

This method is very prevalent in some schools in Maharashtra. On the Class VI, VII and VIII of the students are required to write a thesis based on this method. 'Thesis' use of writing it has proved quite popular.

13. Question-Answer Strategy

The Q-standing educational policy is an ancient method of Socrates. This policy is called the Socratic method. Socratic questioning system consists of three major steps—(1) in order to build queries. (2) in front of the students to keep them properly, so as to awaken the curiosity of the new knowledge, and (3) students by connecting them through new knowledge. The low, medium and high level Waif question are used as needed. We can classify the types of questions as follow:



Characteristics

(1) Students become active during question-answer method.

(2) They are awakened curiosity leads to new knowledge.

(3) It is based on psychological principles.

(4) Usefull for training institutions, and for small children.

(5) The strength of the students to develop ideas and thinking.

(6) Provide assistance in the development of the text.

(7) Helpful in the review and Rememorize the text.

(8) Students' specific problems and difficulties that can be achieved through knowledge questions.

(9) It is useful in the assessment of students' knowledge.

Limitations

(1) Occasionally becomes mechanical and drab brings this method.

(2) Specific training is required for the correct use of Q method.

Notes

(3) To build the good and the right questions is an art in which all people are not well trained.

(4) It is not complete in itself but has to resort to other policies, such as-Lecture policy etc.

(5) Not more useful for higher classes.

Suggestions

(1) Questions should be brief and clear, correct structure.

(2) Questions should be mutual respect.

(3) Grade level of students and text - focus on the nature of the object must build queries.

(4) The language of the questions should be easy.

(5) Questions correctly and the sentences should be presented in a clear voice.

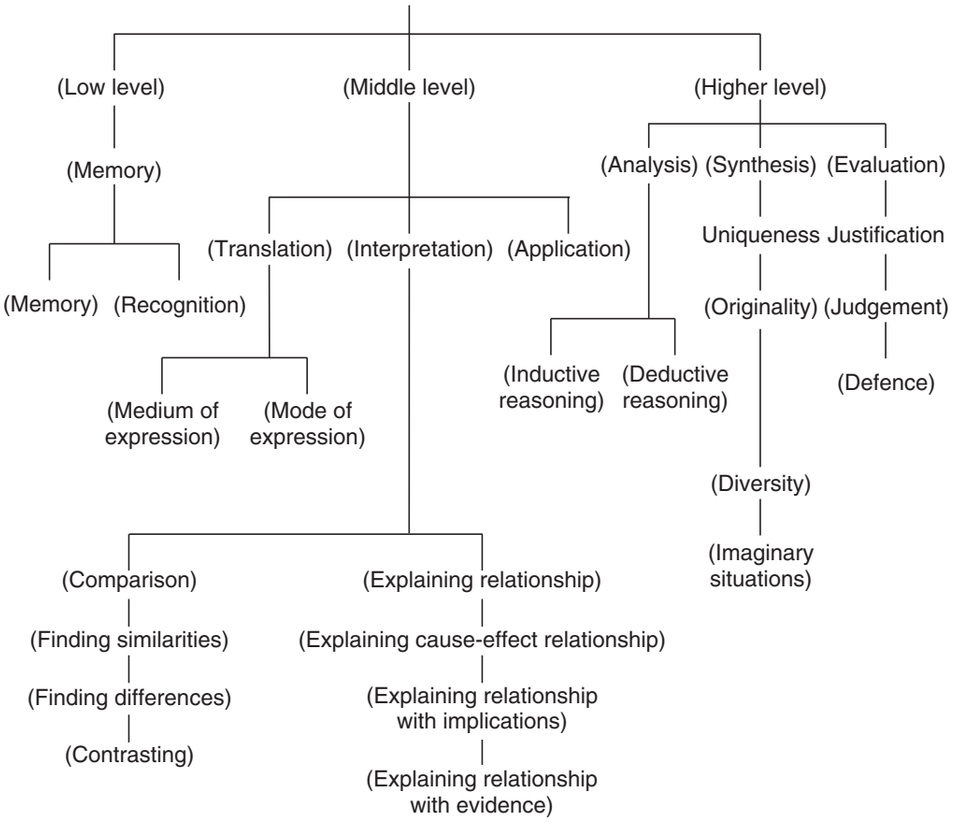
(6) Q is Middle Jokes also contributed.

(7) The questions should be evenly distributed in class.

(8) Yes/No or Suggestive Type questions is not to be used so far.

Question system can be asked a variety of questions. They are being displayed through charts below –

Table (Class-room questions)



14. Role-acting or exemplary or ground handling policy (Role Playing)

The performance of the method, which relates to the cognitive and social skills. The students' interest,

Notes

aptitude and attitude change can be brought. It is given to exemplary teaching. The character class in method acting and dramatic short - is divided into small groups and ask them to emulate the experiences of others is provided. Respectively, students have to play the role of both teacher and student.

Characteristics

(1) Students to express their inner feelings and emotions get the chance.

(2) The students enjoy using the time (it is also fun.)

(3) Students' attitudes change and develop.

(4) Is also useful in small classes.

(5) The method is related to human relations.

(6) By low and medium level of knowledge, awareness and the ability to use that influence.

(7) The creation of emotions, physical expression and helps Slagatmk development.

(8) By pupil teacher's life experiences are related to the development of skills.

(9) By the desired objective (cognitive and social) are obtained.

(10) Teacher - behavior is possible to review and improve.

(11) The history, literature, and science topics like Nagrikshastra educational policies is very important.

(12) It is experience that actual copy is created.

Limitations

(1) It is a formal method.

(2) Is more useful with small children in educational institutions.

(3) Students work in artificial environment, which is not possible fully to reality.

(4) It is unable to develop specific teaching skills.

Suggestions

(1) In this method, students are given information only on the situation of different and after this conversation the students and the subject should be left to further exempt.

(2) This method is very intimate, theories, and methods - must understand internalized.

(3) Before commencing the actual teaching work should give the opportunity to practice it.

(4) Eligible full-time teacher in the classroom should be the time to act.

(5) At the end of the acting eligible students and teachers, both should work together to review and should be detailed conversation on all sides.

Role-Acting step — by following the steps below 'role-acting' is done —

(1) Outline of the program.

(2) The students what they know - how and when vessels - How to play a role.

(3) Case or selected text.

(4) The inspection method to determine the behavior of the teacher.

(5) Teaching practice (actual vessel act II).

(6) To review the performance object.

(7) Suggestions for future improvements to the conversation.

Notes

15. Brain Storming Strategy

As it is clear by its name, this is a stratagy in which such means are used who strikes the mind of students. Students are presented with a problem before it on which all students are considered independently, conversation and debate that. The teacher writes on the blackboard ideas goes. Debate and thinking and conversation-to a point or there is such that the student was not able to solve the problem. Sally policy brain develops in students thinking and problem analysis, synthesis and evaluation of the training provided.

Characteristics

(1) It is based on educational and psychological principles.

(2) The affective and cognitive aspects are helpful to the achievement of higher purposes.

(3) It encourages students in the area of critical thinking and problem solving.

(4) Uses the creative capabilities of students.

(5) Collective thinking and conversation view, this method provides more valuable.

(6) It inspires students to think freely.

(7) It is the policy of creative teaching and promoting the fundamental ideas.

16. Sensitive Training Strategy

Training policy, education policy that is sensitive to its name **"by which students develop mutual respect made them sensitive to the problem."** It has ego (Ego) awakens and takes students to work with full power and capabilities.

"It is the ability of an organism of part of an organism to react to stimuli, degree of susceptibility to stimulation." ***—Laurance Urdang***

Characteristics

(1) This method recognizes that students can be given a greater knowledge by Interaction.

(2) It is a problem-centered policy.

(3) It increases students' knowledge.

(4) The group inspires students to sit and meditate. (Helps in the development of social abilities.)

(5) This method takes care of both cognitive and affective.

(6) This is the basis for the awakening of the senses.

(7) Can be used to easily analyze the behavior of students.

Limitations

(1) Teacher for the correct use of this method requires specific training.

(2) This method requires the teacher to work very cautiously.

(3) It is not useful for each episode.

(4) If the program is possible impairment if not properly conducted.

Suggestions

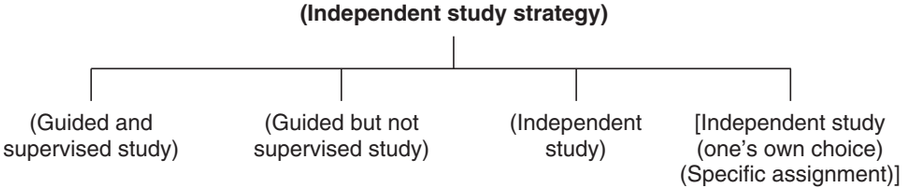
(1) Using sensitive training at least once in a month must.

(2) These tasks should only directed by the teacher and the students should get a prominent place.

(3) Teachers receive specific training should only operate.

17. Independent Study Strategy **Notes**

This method is also called as project work. The students themselves freely alone or small-work in small groups. Staying active in student self-study or search for a solution to a particular problem. The study described earlier inspection policy is a form of independent study policy. Independent study policy is as follows—



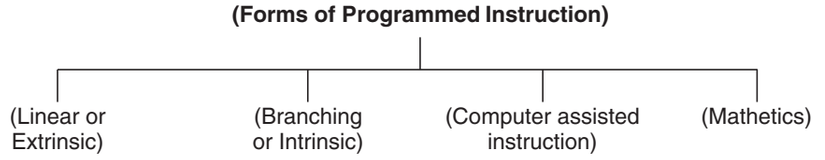
The policy used to study the trend is growing. This personal piety properties (Traits), values and develops cognitive abilities. Difficulties on the necessary guidance to the teacher receives. The modern methods of teaching method Is one. Its use in the students self-confidence grows.

18. Programmed Instruction Strategy[1]

The promoter of educational policy Skinner (**BF Skinner**) and Crowder (**Norman A. Crowder**) were. Students in this course-objects in Small steps are read and write its Response. Student response as well as through new knowledge and checks concerning the accuracy of your answers. The reinforcement of correct responses is provided. According to one scholar—

"It is a process of arranging material to be learned in a series of small steps designed to lead a learner through self-instruction from what he knows to the unknown of new and more complex knowledge and principles."

Programmed instruction under various forms of instruction—



Characteristics

(1) Students stay active.

(2) Students are enforcing correct response.

(3) Provides students the opportunity to learn that the psychological background.

(4) Changes in students' behavior is more important.

(5) The teacher needs to have very little.

(6) Students are much less mistakes while learning.

(7) Students are aware of their mistakes immediately.

(8) These objectives and principles are fixed.

(9) Reads according to the student's own pace.

(10) The designation of these programs are in logical order.

1. For detailed description see chapter: Programmed Instruction Strategy.

Notes

(11) From the beginning of these students are given stimulus.

(12) Which stimulates the differentiation is important.

Limitations

(1) Program spent a lot of money to be published from forming.

(2) It is not suitable for all disciplines.

(3) Specific training is required for program making.

(4) The affective and functional objectives is not possible.

(5) The students have to write their responses, which occasionally seems to be disgustingly.

(6) Text-the object is in-fact pursuing its usefulness is no longer needed.

Suggestions

(1) It is important for distance learning and open university policy.

(2) Used (Secondary/Higher Secondary Level) should be educational.

(3) Use the suffix, principles and regulations should be teaching.

19. Muse visits or educational tours (Educational Excursions)

Place in a very true way of learning Educational Excursions. Their strength is to develop inspection. Its importance has been said in relation to—

"Field trips (excursions) when properly conducted, satisfy two main concepts of educational theory, the motivation of the desire to learn and the actual learning."

Objectives

(1) The purpose of the grand tour experience of actual students (First hand observation and experiences) is to provide. Knowledge by all those items that can be given to students about the class can not be easily displayed.

(2) Children develop interest in various topics.

(3) To reach conclusions by looking at the practices adopted in the natural environment.

(4) Regarding the experimental or theoretical knowledge, practical knowledge to be displayed.

(5) Students to develop a sense of responsibility to understand and play it.

(6) To develop students' oversight powers.

(7) Students learn to utilize their leisure.

Merits

(1) Students in the lap of nature is actually derived from the direct knowledge.

(2) The students are alike gain experience, learn new knowledge they can use.

(3) Students to observe, describe direct experience, and experience to meet Waif.

(4) Develop in students a spirit of mutual cooperation.

(5) Students get knowledge of such things concerning possible changes in their approach.

(6) Educational visits, students and the community about the well-that internalized knowledge and learning processes that develop the region.

(7) Students to adopt healthy attitude towards progressive methods assists.

(8) Under all of the students theoretical knowledge to practical work gives free opportunity.

Notes

(9) That teaches students to utilize their free time.

(10) Gives the students familiar with the needs and problems of the community and helps them to reach a solution.

Limitations

(1) It must be held for at least one day, it is not possible in only one or two hours.

(2) It must be Spflta support for students and professors.

(3) Educational trips Accidents (Injury) can occur. Should pay attention to them and should take necessary precautions.

(4) Educational Excursions must have the proper amount.

Plan of Educational Excursions

Organizing Educational visits full function of their own responsibility. Complete all work in an environment of goodwill should be evenly distributed. Students should be provided with all the necessary information before traveling. If you already visit - path or display - it is possible to prepare a chart is excellent.

Contribution of Teacher

(1) First professor Waif their students should learn about their approximate age, what kind of prior knowledge and prior experience and qualifications are - Where and how the experience would be appropriate for them. Problematic behavior by children and related issues would be controlled and how should the topics discussed already.

(2) Professor should be allowed to visit the school president Waif. The first president of the place where the journey to go, with permission, all things must be fixed. Predestination is good especially the following points –

   (a) Estimated time of arrival at the Travel - location.

   (b) Be collected for space travel (The meeting place).

   (c) Full Tour (Visit) for the program.

   (d) Nirikshnartha study of students and list items.

   (e) Students to address questions or concerns.

   (f) List of essential features.

(3) the necessary things and contingent events should take full consideration.

(4) the grand tour of the major objectives of the acronym should be fully supported so that it can be expected.

(5) The professor must also planning how he would answer the questions? What types of questions that will own and how questions will be answered by experts. On the travel time for questions and conversation will be fixed? All these things determine the professor or travel organizer should have already—

(6) concerning travel trip after trip to space or time for conversation classes should set.

(7) Students should visit prior knowledge about the following—

   (a) Nature of visit, purpose and extent of the knowledge expenses.

   (b) Travel-related details, wear robes, exclusive content and special care.

   (c) Pre-trip travel for study-related investments.

   (d) After the visit to be a form of conversation.

Notes

(8) Collecting trip to visit students specialized knowledge of the subject by the teacher should be as follows—

(a) The major goal of the trip,

(b) Familiar with the inspection visit,

(c) Safety rules.

Between grand tour—The teacher introduces students to the Travel- Location of the president and organized the trip Way that each student well - like all commodities inspection, appear and perform all actions necessary to hear instructions. Teachers observe students carefully helpful in it self and all the security precautions that keeps students. At the end of the visit, Chairman of space provided by the facilities etc. should Display gratitude. Teachers observe students carefully helpful in it self and all the security precautions that keeps students. Chairman of the desired location by the end of must show gratitude for the facilities provided, etc.

After the grand tour—That he should go to the teacher and the students' questions and concerns related to initiate conversation to a reasonable solution. Put the light on the key aspects of the trip, students should be motivated to write the details of the trip. In his note book and required him to write new things viewed should provide instructions.

Responsibilities of the students in the grand tour—students travel purposes prior to travel and must have complete knowledge about the journey. They must be fully explained to them about Behavior. They must fully honor their behavior. After the inspection required by typing your problems and doubts should be resolved by asking him questions and conversation time. Required to travel between the responsible person or destroy the teacher must make the object. Muse Tour event means to acquire knowledge should be viewed as the necessary things to keep writing. Necessary for students to continue studying after travel is required.

Main Cautions

(1) Travel in space teacher/organizer should find the place full of the subject. If that is not possible to go and visit the former location of the desired features and difficulties should find out. Friendly management and instruction necessary to prepare them to him.

(2) Should be used for the proper and economical vehicle. Vehicle first aid (First Aid) should take all the stuff.

(3) Fuglemen if needed then must take.

(4) Students torch, Magaphone, tape recorders and cameras etc. should provide proper instructions about taking.

(5) Problemestics children should take full consideration.

(6) Students their garments, bedding, etc. with writing material move should give the necessary instructions concerning all.

Evaluations

(1) The visit by students to learn about the success of the check list (Check List) should be used instead.

(2) Students should be asked to report about the visit.

(3) Visit objectives and their attainment by students concerning travel through conversation can be evaluated.

20. Group Teaching Approach

Group learning approach in education is becoming quite popular. In this method, the various subdivisions of the subject to provide expert tuition, In a classroom teacher at the same time as a group of two or more

Notes

reach and - provide knowledge of their subjects. A teacher gives lectures and theoretical case concerning unlocks. Make plans to coordinate. Thus, through this approach, students can be taught more effectively. The main forms—(1) Shared Teaching, (2) Symposium type, (3) Panel discussion type.

21. Micro Teaching Approach

Pack and Tucker in 1973 stating that the definition of **Microteaching—**

"Microteaching is a combination of a conceptual system for identifying precisely specified teaching skills with the use of video-type feedback to facilitate growth in these teaching skills."

Microteaching is now very important place in the teaching of different subjects has been reached. This approach to training in the schools through various lessons taught as simply impressive. This method first about a skill well-is said to be internalized. Performance and patterns are evident by then. Through pupil teacher models the skill to observe. The lessons are prepared and taught in the classroom is the Video-taped or Audio-taped. When the pupil teacher/nine minutes to read, then the Supervisor 'is one minute left "are ordered and when the text is finished, the pupil teacher is to evaluate the chart. Thus ends the first phase of this approach to teaching. Teacher and pupil teacher teaching in a second phase consisting of teaching and discussion on the use of tape as needed. The debate about 8–10 minutes, depending on the pupil teacher mistakes and good points are given suggestions for improvement. Then the pupil teacher goes for about 15 minutes. This time he prepares his friendly tips to teach. It is called Planning Period or III. The pupil teacher teaches in the second round, which is called Reteach Session. takes. Thus, episodes of various disciplines in colleges teacher's knowledge can be provided through the Teaching Skill.

Education-Policy and Selecting Teaching Approaches

Wide variety of teaching strategies in teaching and learning-which of the approaches used in teaching to his teacher? Who's teaching-method is best? Questions are often similar. Often their own fault or the properties and characteristics of each method. So the policy is a bad policy is not easy to say good. Teaching-the suitability of the method depends on several factors. Like-Teacher Their qualifications and experience of the students' age and their mental level format of the episode, time and purpose of teaching, etc. Case. Teacher to use any method, students need to know. Students should have the opportunity to solve their problems and concerns, they freely deliberation and discussion should be provided to, and the 'learning by doing' theory should emphasize. So it can be said—"It is wrong to name one single method as the best method. A good teacher will so digest or absorb them all that he envolves his own method comprising good points of all the methods. He will not permit any of the methods to become his master but will remain a true master of all of them."

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Democratic educational policies based on democracy values remain.

(*ii*) Hegemonic educational policies are not based on the values of Authoritarianism.

(*iii*) Display method is very important in the field of teaching.

(*iv*) Lecture and Performance policies, linked intimately interconnected.

(*v*) Individually with the student teacher in the tutorial discussion and does not talk.

6.3 Summary

- Educational policies is made up of two words-Teaching and Strategies.Classroom teaching is an interacting process conditions to achieve the desired objectives are accomplished by students and teachers.

Notes

- Democratic Educational policies based on the values of education policies These policies Child - Child-centered teaching makes use of psychology.
- Authoritarianism values based on educational policies supremacist lives. These policies are more active in the teacher and the student are sitting idle. Means any text of the lecture is to teach speech.
- A subject teacher-especially in the classroom lecture and students listen passively live.
- Lecture and Performance is a close linkage between policies, so these two separate policies combined together and used the lecture-demonstration mode gives birth.
- Inspection-The study of the policy itself is not a complete method. It is therefore with most other methods.
- Yoga practices to build permanent learning in learning the 'Dutt strategy "is important. Its objective is to provide students practice.
- Review, revision or review called in Hindi. It means to look again, to remember the facts, is to review and reach significant conclusions.
- Teaching-the small class policy-divide into small groups and small-Going teacher in small groups, the group discovered the problems and difficulties that students and helps them reach the right solution.
- Students in search of historical research about any event is passed through the initial stage of development. Students in the policy in respect of the first explorers to the last explorers inventor or scientist are placed in position.
- The Q-standing educational policy is an ancient method of Socrates. This policy is called the Socratic method.
- Group learning approach in education is becoming quite popular. In this method, the various subdivisions of the subject to provide expert tuition.
- Microteaching premiums now an important place in the teaching of different subjects has been reached. This approach to training in the schools through various lessons taught as simply impressive.
- Wide variety of teaching strategies in teaching and learning-which of the approaches used in teaching to his teacher? Who's teaching-method is best? Questions are often similar. Often their own fault or the properties and characteristics of each method.

6.4 Keywords

- Policy—Guideline to do something
- Formal—Accessory

6.5 Review Questions

1. Write the characteristics of educational policies.
2. Classified the different teaching policies.
3. What are the merits and demerits of Display Method (Strategy)?
4. Describe the different parts of the Project.
5. Write down the characteristics of the review.

6. What are the differences between discovery and exploration?
7. What is Micro-Teaching approach?

Notes

Answers: Self-Assessment

1. (*i*) Scientific (*ii*) Generalized (*iii*) Policy (*iv*) Teaching (*v*) Techniques.
2. (*i*) True (*ii*) False (*iii*) True (*iv*) True (*v*) False

6.6 Further Readings

Books

1. Education Technology—*S.K.Mangal, P.H.I. Learning.*
2. The Basis of Technology Education—*Yogesh Kumar Singh.*

Notes

Unit–7: Learner–Centred Strategies

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand Keller Plan.
- Learn Programmed Instruction.
- Know Computer Assisted Instruction.
- Mastery Learning Strategy.
- Understand Assignments Strategy.

Introduction

Psychology in the 19th century influenced the learning and teaching process and student development are being prioritized. Naturalist philosophy gave importance to education system according to the nature of the student. Thus learner-centered education began. Naturalism is a special contribution to the education of teaching methods. Most teaching methods to develop student control occurred. The system has been used to develop the student's learning process. The location of the student and the teacher took a backseat. Students should develop naturally, which can be transformed his abilities and qualifications. Students' interests and the process of development of the teaching methods should be used. **Frobel** gave significance to Games - method because small children are more interested in the

game. Similarly, they are more interested in listening to the story. So the Story-method began. Students holding the assignments have been mentioned here.

Notes

7.1 Keller Plan

Keller Plan is similar to Mastery learning. Its development is based on the regulations of Skinner. This annex - response has been important learning principle. The strategy used in the United States is more at the college level. Keller plan they owned programmed learning dimensions and method of instruction is included suffixes. Under this student-controlled, automatic learning is used in Acts related accessories. Commenced a course is an agreement between the student and teacher that after how much work students to learn at their own pace, and they'll start to be able to Self-work too. Teacher tutorial - will be available to assist in teaching and small group discussion will hold. The students are directed by the teacher and motivations are also given. The main role of the student is under the scheme. He arranges his own study. It is used for higher classes, students are more mature and self-disciplined, so they are able to manage your own learning.

In Keller Plan, an order is used for self-study. Each student learns by their own method and pace which give the opportunity of individual learning. Written exam based on student mastery on the unit display. The next unit of study on pre-owned unit of study is required. Students failing to re-classify has to be owned only by teaching the next study unit.

Course—Course is commonly divided into 30 units; each unit is fixed at a week's time. Students are given time to study the Programmed Instruction material is also given. Text-books available at the library are given to them, the learning practice questions are provided. Other courses are for students to study other classes. To do this, the student finds that the other students are studying, while there is no formal classroom teaching.

Notes To study science subjects they have to work in the laboratory in which they have to do experiments and inspection. In these circumstances, senior students assist in their difficulties and provide guidance. Laboratory assistant also helps students.

When the student completes 30 units then he applies to the test. They are given a test of 10 short answer questions. If the student does not achieve satisfactory levels, in such a situation he has to study these units again. If the student has attained a satisfactory level, then he is given the next homework.

The student is given extra points for Lecture and demonstration if the student successfully passes the number of units fixed. Attendance at lectures and performances are required, but is considered a distinctive feature of her success.

According to Keller plan, 25 percent of the total course should be assessed to grade marks that should be included in the final test scores in which homework assessment should be included. Keller said this is a Follow-Up Test. He also said it is Readiness Test, as it prepares for the upcoming homework. This functions like norms in respect of course. Many test preparation are given and their success is also important. But failing students have to study again. They would be included in the tutorial teaching. Each student must Anupryvekshn success. Failed students have to provide counseling services. Initially, the Principal does consultancy work. Class-Teacher supports him when needed.

According to this plan, students are focused individually. Students who are unable to understand teacher's lecture and demonstrations, they are allowed to study the selected course-material. Teacher represents by makings all arrangements when needed. Student final success is tested. Remedial teaching is also provided.

Notes

Use of Keller Plan—Keller Scheme is used for the problems of teaching. It can also be used for more serious teaching problems. Learning problems are as follows—

1. Many first-year students in the class are failing because they are not well-prepared.
2. Students are not given the proper motivation to study.
3. Talented and disadvantaged students are ignored. Class-teaching is tailored to middle class students.
4. Courses are represented traditionally. Diagnosis and treatment are ignored. Individual differences are not taken into consideration.
5. Students come from different areas and backgrounds. Their former practices vary and they do not meet the requirement of prior courses. Therefore it is difficult to understand various subjects of different courses.

Problems of Self-Study—By self study method, students are given the opportunity to learn with their manner and at their own pace of learning. But they have their own problems. These are—

1. In Programmed Instruction series, each student is given the opportunity to learn at their own pace. Study objects related concerns are taken into account. All students have to study the same way, the gifted students are often not interested.
2. Laboratory activities and principles are often incompatible. So students have difficulty in learning course reasonably. Laboratory is not necessary for all courses.
3. To overcome the difficulties of students Tutorial-teaching is organized. Even Tutorial—Teaching is taught like normal classroom - teaching. So it does not improve. Tutorial - planning of teaching is not based on diagnosis.
4. According to the needs of students, teaching and testing is not provided. Reconnaissance should be from the beginning. Course related pre-requirement should be met.
5. Using students' test procedure to be students friendly. The teacher is not given complete information on testing.
6. In the Keller scheme, students are tested in three ways—verbal, theoretical and practical. Mathematics tests are used in the language of mathematics. After exercise test is given. True solution of the question is given to students as samples. This process is used in all types of tests.

Improvement in Keller Plan—Considering the problems and difficulties of teaching students has been improved. The following points were taken into consideration in the reform-

1. Priority to the needs of students.
2. In beginning of Classroom-teaching, to fulfill the course related pre - needs to try-out is given.
3. Students test should be arranged after preparing the students.
4. Tutorial-learning should be consistent with the system of diagnostic tests.
5. Gifted children should not be given Programmed instruction materials.
6. Teachers should be discussed with the students after the test.
7. The study should be regularly used to test for continuity.

7.2 Programmed Instruction

There are many forms of Programmed instruction. **Skinner** is considered as supremacist method for Programmed Instruction because this method is used by Programmed monitoring of students' responses. Freedom is not given to student responses. It is used for self-study. These individual differences are fully taken care of.

Programmed Instruction Format—This may explain the nature of Programmed Instruction—

Notes

1. Courses are to teach the student over small steps.
2. The response is to write with reading every post. With Response, student learns new knowledge.
3. Students with reading - as is required to check the correctness of the response. Its correctness enforces the student.

Act of Programmed Instruction—Skinner Programmed instruction method that has five basic act, whose research is based on the findings of Rendering psychology laboratory—

1. Small Steps
2. Active Responding
3. Immediate Confirmation
4. Self-pacing
5. Student Testing

Use of Programmed Instruction—Programmed Instruction is primarily used for the development of learning. By this method, the primary facts, rules and regulations are successfully realized. This cannot develop the emotional side. This is individualized to Instructional method. The individual needs of students are given the opportunity

Limitations of Programmed Instruction—Its major limitations are:

1. Programmed instruction cannot be used for all subjects such as history teaching, it cannot be used.
2. Its composition is difficult. It requires training and experience.
3. It can be used for low-level objectives of Cognitive side. Affective and action for the attainment of the objectives cannot be used.
4. In reading and writing responses, students always have to check their accuracy.

Suggestions for Programmed Instructions—Its major suggestions are:

1. It should be used to achieve the objective knowledge.
2. Courses having lots of facts that should not be used. Suffix, it should be used for the teaching of the Act and regulations.
3. It is more useful for secondary level students.
4. It is more useful in correspondence courses.

7.3 Computer Assisted Instruction

Computer system had been developed for the use of construction industry and the government but it has more influenced the education. More and more information by computer and can be made aware of the facts.

Did u know? 'Stolurow and Davis' used more complex pattern of teaching in (1965).

In this paradigm computer has taken teacher's place. His teaching process is divided into two-stage progression

1. Pre-Tutorial Phase
2. Tutorial Phase

Notes

The only objective of the first step is that how to achieve a particular student learning plan. The second step has two objectives.

1. Select the lesson plan and submit it.
2. To control students' responses.

Computer searches appropriate instructional objectives for the attainment of the students' learning plan according to their entering-behavior. Instructional searching may have one of the three results given below

1. Can choose a learning plan.
2. Can choose more than one learning plan.
3. Cannot select any lesson plan. If more than one plan is selected then more economical plan is followed in terms of time. It is more difficult when computer doesn't find any plan and no change in the behavior of students can be brought about any instruction because his entering behavior is not sufficient. For him pre-exercise may be made to raise the level of behavior. He could find computer instruction only if he has enough entering behavior.

Computer aided instruction used by the low levels of cognitive side objectives (knowledge, comprehension and application) can be achieved. Affective side cannot be developed. Different instructions are presented together for students having various entering behavior.

Self-Assessment

1. Fill in the blanks:

(*i*) The psychology influenced the learning and teaching process in ..... Century.

(*ii*) Keller Plan is ..... to Mastery learning.

(*iii*) ..... plan can be used for many problems of teaching.

(*iv*) There are ..... forms of Programmed Instruction.

(*v*) By using ..... more information and facts can explained.

7.4 Mastery Learning Strategy

Mastery Learning Strategy was developed by **B.S. Bloom**. It is considered as an instructional strategy. It is used to develop mastery learning and to achieve teaching objectives. Under normal classroom—teaching, reinforcement techniques, corrective and personal learning errors are included. Weak students of a subject are given extra time too. In this way this scheme of Bloom is considered as Group-based Instruction. Remedial teaching is done in the following. Bloom's Ownership learning method is used to follow the steps below:

1. Course of teaching and learning is divided into units.
2. It is identified by the learning unit of Instructional objectives that what objective will be achieved. The format of learning achievements is tried to understand.
3. The level of ownership is fixed by keeping each learning unit and its objective in mind. Its calculation is based on the number of terms of formative test. Ownership level should be 80 to 85 per cent.
4. Each learning unit should be taught in general classroom teaching. This learning is done collectively. This step is similar to traditional teaching.
5. The number of students who have acquired ownership level is recorded by means of achievement test. Such students are enforced for further studies. Students who could not obtain ownership level, they are given diagnostic test, which contain information about students learning difficulties.

Notes

6. Learning difficulties is based on a system of corrective instruction and they are given additional time for their studies. For this programmed disciplinary instruction material can be used. Books have been suggested for studies and extra time is given for this. Tutorial Classed are also arranged. Corrective technique is also used for the difficulties of the students so that they can receive ownership level. This type of learning is tested again.
7. Remedial teaching and instruction for each learning unit is tested at the end difficulties conclusion and Stratification of students is done. Similarly, all students are trying to gain ownership level.
8. The goal of formative testing is to provide remedial teaching and instruction while that of summative testing is stratification. Both exams are helpful in achieving ownership, thus supplement each other. Reinforcement of teachers and students is also provided. Students become aware of learning difficulties because of diagnostic test, from which the proper instruction is provided.

Task Who developed Mastery learning method?

7.5 Assignments Strategy

Homework also comes under teaching method. Most teachers use it in school subjects. Students get the opportunities individual learning, courses arrangements and assimilation. Also student gets the opportunity to revisit the learned course. It is based on psychology.

By Assignments Strategy, all the objectives of cognitive side can be obtained. The low-level objectives of functional side can be achieved. They can't be used for the development of the affective side. For homework, the importance should be given to learning objectives.

Principle— Based on following principle:

1. Principle of Interest.
2. Law of Exercise.
3. Principle of Individual Difference.
4. Principle of Reality.
5. Principle of Assimilation.
6. Learning by Doing Principle.

Characteristics— Its major characteristics are:

1. Used for the development of personal abilities and skills.
2. Study becomes habitual.
3. Develop original thinking and imagination power.
4. Right attitude towards study develops in students.
5. Students get the opportunity to learn their experience.
6. Opportunity to get individual educational guidance.

Precautions— The following precautions should keep in mind while giving homework:

1. Homework should be given related to courses taught.
2. The format and language should be clear.
3. The useful books should also be told.

Notes

4. Student's interest and capabilities should be kept in mind.
5. Access of homework should be avoided.
6. Teacher should give marks after evaluating homework and it should be returned soon.

7.6 Educational Games

Educational games are the recent activity in the field of teaching and instruction which is used to provide more learning experience. The process of education is considered as an experience-centered by teleology and students are prepared for their future. For this type of education "planning method" and "educational games" are considered to be the best techniques and legal system.

An Educational Game is **defined** as—"An Educational game is an activity among two or more independent decision makers seeking to achieve their objectives in some limiting content".

Educational Games are also called role play technique. An attempt is made to provide students the experience of real life situation due to which students can fully understand the human behavior for the circumstances of life. The main purpose of this method is human interactions in the social situation that routine human behavior in life. Most students learn human behavior and conduct of life from social situation. In these circumstances, the students play the actions required by toys. This exemplary teaching method is similar to dramatic technique.

In Educational games, the importance is generally given to cooperation, adjustment and the main features of the bond. In real life, winning and losing are social and relative. Some students are more successful than others, but it does not make sense of competition.

Objectives of Educational Games—Following are the objectives of Educational Games scheme:

1. Formulation of hypothesis to resolve conflict and to question.
2. To develop information to confirm hypotheses.
3. To create such a condition, whose experience and skills in real life situations transpose.
4. Taking decision related to values and to follow them. Games situations develop mastery of learning in students. Analysis of values and decisions by category is taught.

Procedures of Educational Games—The procedure of Educational Games is flexible. It is not a ensured process but it has given six steps:

Step First—To organize educational games in which students role play list is prepared which is arranged in a cyclic order.

Step Second—Deciding teaching episode and prepare for it in which skills are used to ensure the suffixes. Teacher provides student's role very intelligently.

Step Third—A role play program is made for students going to start and end.

Step Fourth—Teacher also ensures monitoring and evaluation of teaching method. In this way the script for this type of information would be prepared and is also decided.

Step Fifth—Teacher starts the program and also motivates work done by students and their achievements. Students have to play all the roles and learning session ends.

Step Sixth—Teacher improves his program according to student's activities and capabilities. He decides the type of improvements in program according to various roles played by student.

Characteristics of Educational Games—The characteristics of educational games are as follows:

1. Students have to actually work in the role play games. The circumstances of role play are social. This is terminating process.
2. The games are format in a manner that dynamics of human behavior can be taught which can be used to solve social problem and can make adjustments.

Notes

3. Such conditions are created in role play in which students have to decide, to deal with and to adjust.
4. There are some rules for specific circumstances of games which are followed by the student in roll play. The success of student is decided on the basis of these rules.
5. Role play profiles are also prepared in which social circumstances are explained. Students have to perform according to these profiles.
6. Teacher evaluates the success or failure of roll play. He also motivates and suggests students.

Examples of Educational Games – Educational Games method can be explained by following examples:

1. In schools and colleges students learns the importance of democracy by union voting process.
2. Democratic way of life has been accepted in India. Voting process has great importance in democracy. Society and the nation elect their representatives. This type of experience can be gained in school life only.
3. Elected representatives experience their role play and they work for public interest.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Mastery Learning Strategy was developed by B.S. Bloom.

(*ii*) Bloom's Strategy is not considered as 'Group Based Instruction'.

(*iii*) Homework also comes under the teaching method.

(*iv*) The goals of cognitive side can be achieved by Assignments Strategy.

(*v*) Educational games are the recent activity in the field of teaching and instruction which give the students to learn more.

7.7 Summary

- Psychology in the 19th century influenced the learning and teaching process and student development are being prioritized. Naturalist philosophy gave importance to education system according to the nature of the student.
- Keller Mastery Strategy is similar to learning. Its development is based on the regulations of Skinner. This annex - response has been important learning principle. The strategy used in the United States is more at the college level.
- In Keller Plan, an order is used for self-study. Each student learns by their own method and pace which give the opportunity of individual learning.
- There are many forms Programmed instruction. Skinner is considered as supremacist method for Programmed Instruction because this method is used by Programmed monitoring of students' responses.
- Computer system had been developed for the use of construction industry and the government but it has more influenced the education.
- Mastery Learning Strategy was developed by B.S. Bloom. It is considered as an instructional strategy. It is used to develop mastery learning and to achieve teaching objectives.
- Homework also comes under teaching method. Most teachers use it in school subjects. Students get the opportunities individual learning, courses arrangements and assimilation.
- Educational games are the recent activity in the field of teaching and instruction which is used to provide more learning experience. The process of education is considered as an experience-centered by teleology and students are prepared for their future.

Notes

7.8 Keywords

- **Instruction**—Commands
- **Computer**—Calculating Device

7.9 Review Questions

1. Give a brief introduction of the Keller Plan.
2. What are the advantages of Keller Plan?
3. Write the regulations of Programmed Instructions.
4. Explain the advantages and limitations of Programmed Instructions.
5. Explain Computer Assisted Instruction.
6. Define Educational Games. What is its goal?

Answers: Self-Assessment

1. (*i*) 19th (*ii*) Similar (*iii*) Keller (*iv*) Many (*v*) Computer
2. (*i*) True (*ii*) False (*iii*) True (*iv*) False (*v*) True

7.10 Further Readings


Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–8: Group-Controlled Strategies

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the Role Playing Strategy.
- Understand Educational Excursion or Field-trips.
- Get knowledge, Meaning and Definition of Educational Excursion.
- Get knowledge of Project Teaching Strategy.

Introduction

Philosophy determines the components of education. Philosophy of education is considered to be theoretical side. Views of various forms of education and teaching methods have. Teleology has given the development of the education in social competencies. **Kilpatrick** developed the planning method. The solution to the problems of society as students of disciplines to be given. Integrated curriculum developed. Students in small groups sharing and giving practical problem to determine the implementation of the solution is provided in planning law. This type of group teaching method is considered as group controlled assignments. This type of teaching methods are described here.

Notes

8.1 Role playing Strategy

This method is used in training institutions. Social skills are developed by it.

Notes Now examplary teaching is given more importance than Lesson-Demonstration because it is more impressive than Lesson-Demonstration.

Pattern— It is considered a dramatic method. Students practice the role of both teacher and student have to meet. Teachers to teach their peers to have a small episode. His other fellows play the role of students. Teaching activities are reviewed and suggestions for improvement are given. After that other teacher teach.

Provision— This method is based on the following acts—

1. More learned than myself to work.
2. Actual classroom teaching is the opportunity to practice them before.
3. Feedback technique is used.
4. Social skills are developed using psychometrically Act.

This is followed by a six-stage progression—

1st-stage progression Framework of the programme is prepared.

2nd-stage progression Outline is drawn, how to play a student as teacher and when the inspector's role.

3rd-stage progression Student-Teachers Select their episode. Pertaining to education, skills are featured certainly.

4th-stage progression Observation method of teacher's behaviour is selected.

5th-stage progression Teaching is practiced. Writing of its inspection is made.

6th-stage progression At the end of teaching is reviewed and suggestions for improvement to get it's reinforcement.

Features— Features of this method is as follows—

1. Life skills of teacher is felt by experience.
2. Teacher can understand very well the analysis of their actions, synthesis and evaluations.
3. Social skills are developed.
4. May be required to achieve the objectives.
5. Patterns of teacher's behaviour can be developed as per requirement.

Limitations— The limitations of this method are as follows—

1. It has artificial environment, teachers fail to give it the real way.
2. General can be used for development of teacher's behaviour. Development of specific learning skills can't be done by it.

Suggestion— The following precautions should be used—

1. It must be understand prior to use.
2. The existence of the teacher should be the role of the spokesperson at the time of discharge.
3. At the end of the review should be teaching spokesman, he should try to enforcing.
4. It should be practiced before real education-teaching.

Notes

8.2 Educational Excursion or Field-trips

Teaching learning process aims to produce learning conditions which enable the student learning experience. Teacher generates learning conditions in the classroom during verbal and nonverbal internal process in which students obtain learning experience from senses mostly. The student has to undertake more memory and imagination in it. Students quickly forget that knowledge to classroom teaching, because classroom—teaching is not the real experience and the students do not receive direct information. The Taj Mahal is to teach the student about his actual classroom experience—is not possible by teaching. Taj Mahal in Agra by moving only be shown if the students can have real knowledge, because students get the opportunity to realization! This teaching method is more efficient, which is called Field Trip.

Development of Educational Excursion—The teaching of history and geography before the 19th century was considered boring. But School Excursion has been developed by **Professor Rein**, in which the students rated the importance of learning through real experiences. Geography, natural scenery, historic destinations and other topics to be taken up by the manifestation of the wisdom of contents knowledge can be more interesting and understandable. Educational Excursion method is more effective for it. Boring subject like History is made lively, interesting and real by historical excursion. It is also used in the teaching of geography.

8.3 Meaning and Definition of Educational Excursion

Hen Johnson says that —

"The school excursion as developed by Professor Rein was prized for the reality which it imparted to geography, nature study, history and other subjects. It was also prized for the open air exercise which it brought, for the initiative and freedom it made possible, for the opportunity it created for social training."

Rein developed the school excursion method by which geography, natural studies, history and other matters as may be actual teaching. This method is invoked by the student in an open and free environment, thereby providing an opportunity for social training.

By the actual experiences of various subjects materials knowledge is more useful to provide educational tours. Industry, geographical situation, trade, banks, courts, government buildings have actual knowledge by local supervision.

In-service Training—Educational tourism is useful for additional training of education. Students who are interested in the work of the same knowledge through educational tours may be made, so that the actual experience. If the person is under preparation for the sugar industry for some time, then they should be placed in the sugar industry. Agricultural training farms for agriculture can be placed on actual experience.

Theoretical Basis of Field Trips—This technique is based on the following principles—

1. It is based on psychological principles. The manifestation of the opportunity comes in learning. Students are learnt easily by senses of views.
2. Students learn by actual experience, the situation gets.
3. It is based on social principles. Students develop a sense of cooperation.
4. Students meet the real situation for observation, imagination and exploration capabilities.
5. Students receive actual experience for feelings of beauty for sites and scenes.

This type of real experience really cast expensive. The educational technology and audio-visual materials are used for it. Actual experience is provided by sites and institutions with the help of models, charts, maps and film strips. Educational technology proves to be helpful in the interpretation of past events. Educational excursions are the satisfaction of the students' curiosity.

Notes

Planning of Field Trips— For planning educational tours and following its success should follow the steps—

1. To determine the specific objectives of educational tourism.
2. Select the arrangement, which can be the perfect way to achieve the objectives.
3. In keeping with institutional rules to get permission from the authorities.
4. Surely tourist arrangements should be. It is necessary to determine the following—(a) Date (b) Time (c) Number of students (d) Who will be the director (e) Determination the specific objectives of the tourism (f) Economic system.
5. To prepare guidance letter for every student.
6. Instructor should take permission by contacting the institutions in respect of the information and inform him to see the time and date of students.
7. The places to see, where to go and will be there and will have to eat what? It should be pre-determined.
8. What facilities and means of transport to be during tourism? It also has to be pre-determined.
9. Where to start, what time to meet tourism student, for it would give specific instructions.
10. Make sure that each student knows what it is to observe?
11. Each student will be directed to the program and the time of the follow-up.

Guide Sheet— Guide sheet should check before commencing educational tours. Observation is absolutely necessary and at the time of educational tour the instructor should see that the students are drawing to those points is by observing their article. Observation of the student will be able to do more sensitive and tourism objectives would be staying.

Names of institutions and their locations are marked in guide sheet which has been watched by students. Please note down the date, details of the observation time point and objectives of it. Guide sheet is prepared in the form of a chart. If possible, students can take their picture or photo to create. At the time of providing guide sheet, the instructor explains each point how will student use in overview of guide sheet. Students also have to write briefly describe each major point. These points must be prepared at the time of observation of the article.

The draft of tour is drawn only after certain and this guide sheet is prepared just after it. It is distributed among the students several days prior to travel. Director explains the method properly which is used. However, at the time of first observation the instructor gives instructions to students for using the guide sheet and also help them in drafting. Each day, night time points in relation to each student the opportunity to receive information from the instructors and provides suggestions for further observation day, the student can document significant points.

Use of excursions in teaching

The planning and implementation of educational excursions do the excursions to the attainment of the objectives of the student to gain knowledge possible. Tours must be arranged for specific learning situations. Educational excursions to effectively use should follow the five-stage progression—

(1) Prepare Students— Instructor's duty is to awaken the curiosity of tourism in students so that visual material that provides audio content for learning. In relation to specific points of the observation the instructor should already tell, to observe the sites and institutions, their pictures, films, charts, maps, etc. should reflect the time of teaching. Students should be apprised of the outline before organizing the tour.

(2) Conduct of Field Trip— Students should be given full knowledge regarding use and practical method of guide sheet. Description of important tourist destinations, pictures etc. of excursion should be inscribed on guide sheet at the time of organizing. Student should prepare full details regarding overview of excursion because details will be helpful to prepare the teaching content. The test will help students because all sites can't remember specific points.

Notes

(3) Follow up of Field Trip — After field trip as soon as possible to the students and the teaching points regarding the utility debate and conversation must be conducted. Every student must organize excursion on the basis of guide sheet. Knowledge of the facts is more useful to organize educational tours. Students should have the opportunity to read the article in the classroom. This stage of excursion helps to achieve specific objectives. Teacher clarifies all those points that student could not understand and could not face. Guide sheet provides an opportunity for students to practice. A debate is conducted in relation to classroom teaching.

(4) Testing Students — This step is more important and by which the rating for the attainment of specific objectives of tourism are evaluated and the development of student's abilities and skills are tested. Weaknesses of students is diagnosed and corrected immediately. Students are given the opportunity to work for checking their skills. Conditions and tests are conducted for the development of factual knowledge and attitude and objective test is used for it. Questions are also given for the meaning and definition of technical words.

(5) Review of Teaching — Tests are used to improve the students' errors. The teacher uses a creative technique. He treats students sympathetic. The teacher also gives the review of tour by which students become aware of the problem. The most important thing is that students can work satisfying manner, the instructor teaches them.

Examples of Educational Excursions —

Methodology of educational excursion is readily used in geography, history, natural study, botany, commerce, economics, civics, education, agriculture and statistics. Some examples are as follows.

Geography — Educatioal excursion has great impotance in the teaching of geography. Excursions can be organized for the following cases — (1) Mountain scenery, (2) Seaside, (3) Volcano, (4) Waterfall and Delta, (5) Dam plan, (6) Lifestyle of tribal.

History — This technique can be used effectively in history — Historical buildings, Tajmahal, Red fort, Qutubminar, Temple of Sarnath, The site of Buddha, Chittaurgarh fort, Kurukshetra, Amritsar jalianwala bagh etc.

Commerce and Economics — Excursions can be organized for rural industry, mandi, mills, food-storage, transportation, agriculture, and factories etc.

Education — Excursions can be organized for different kind of educational institutions universities, libraries, agricultural universities, training centers, educational and training centers for blind, deaf and mute.

Agriculture — Variety of agricultural areas and the agricultural universities and institutions excursions can be organized.

Statistics — Excursions may be organized for an overview of analysis of deliveries, centers and computer centers.

Importance of Educational Excursion

Educational excursions have following merits —

1. Classroom teaching is made interesting and understandable.
2. Students are made aware of the actual experience and the realization by the suffixes.
3. Natural, geographic and love of creations prepared by human and faith grows. Historical building such as a student the idea that the ancients saw how much time and effort have produced it?
4. Local diverse types of buildings, geographical scenery, factories and rural industries make him to receive daily survival knowledge.
5. Educational skills develop cognitive and emotional skills. Capabilities are developed in students for observation, imagination, investigation and decision.

Notes

6. Beauty sensations are developed in students from natural, geographic and historical excursion.
7. Social qualities of work in groups and team spirit develop in students from educational excursion. Students have the opportunity to internal activity.

Educational experiences from arrangement of educational excursions that are provided to students, in addition to the cognitive aspect is the development of affective and social characteristics, the classroom—teaching can't be developed.

Limitations of Educational Excursions

The following are some limitations with the characteristics of educational excursions too. The teacher should keep them—

1. Educational tours are offered by the information and knowledge of the facts, it is worthwhile to do so, but time, money and energy terms are more expensive. Only one or two excursions are possible in a year.
2. Excursions to other topics of classroom—teaching is hindered. Therefore, it should be provided in the holidays.
3. Grade students who are poor, it is unable to take part in excursions. All students don't get benefit of it.
4. Student takes educational excursion as an entertainment. It doesn't have educational importance. Student doesn't use the guide sheet properly.

Self-Assessment

1. Fill in the blanks:

(*i*) ..... determine the components of education.

(*ii*) ..... developed plan method.

(*iii*) The purpose of the learning process is to generate ..... circumstances.

(*iv*) ..... developd the methodology of school tourism.

(*v*) The teaching of history and geography was considered to be monotonous before ..... century.

8.4 Project Teaching Strategy

Project method is considered as innovative method of teaching. Its development is a result of socital trend in education. Education should be given to such type which would enable the life. It's promoter was the student of **W. H. Kilpatrick John Deewee**.

Did u know? This method is experience based. It lays special emphasis on the socialization of children. It can be used very well in the teaching of social subjects.

Format—It's format is as follows—

1. Problems related to students' life is presented in real terms. Students will experience the problem.
2. Plan is prepared for resoving the problem.
3. Various information are collected for it.

Notes

4. Teacher works as a guide only. Students themselves solve the problem themselves by studying the content material.

Act— This method is based on following acts—

1. Utility is given special importance in it. The problem is concerned with the lives of students.
2. Student is more active and learns by experience himself.
3. Student works naturally in independent environment. Learning situation is not artificial.
4. Students develop the social qualities and team spirit because they have to work in groups.

Form of Plan— Kilpatrick has divided the plans into four categories—

1. **Creative—** the student can perform a task.
2. **Artistic—** Solution of such problems and to develop the capabilities of their feeling of beauty.
3. **Problem—** Problems should be presented to the students, so that they can try to find the solution.
4. **Group Practice—** Students should be given the task so that they can be completed by exercise in mass.

Step of plan— The following are the steps to follow in all the plans—

First Step—Select the problem related to students' lives.

Second Step—Selection problem and understand its nature.

Third Step—Planning for solving the problem.

Fourth Step—Planning to implementation.

Fifth Step—Evaluation the planning.

Sixth Step—Preparation of the plan document.

Features— The characteristics described below—

1. Students get opportunity to learn by fundamental thinking, actions and experience.
2. Students are given new knowledge relating to life. So it is more useful, students take an interest.
3. Idea is to develop the capabilities of students.
4. Based on psychological and social regulations.
5. All subjects of school are taught as coordinated. It is high intelligibility.
6. Students with knowledge in the development of social qualities.

Limitations— It's limitations are as follows—

1. The subjects are not as systematic.
2. Plans to spend more is to give real form.
3. Text across all disciplines and contents can't be used for the planning method.
4. All social qualities can't be developed. All learning objectives can't be achieved.
5. It can't be used in higher classes.
6. The subjects are not as systematic knowledge.

Tips— The following considerations should be kept in its use—

1. Should be used in agricultural schools.
2. Should be used in Technical training institutions.
3. The problem of planning should be frugal.
4. It should be used as an auxiliary teaching method.

Notes

8.5 Historical Discovery Strategy

JS Bruner is the founder of this method. Discovering and exploring historical methods often used in the same sense, but both the methods are entirely different from each other. Historical discoveries are used for the facts related to social subjects, while the exploration method is used in the rendering of the scientific disciplines, suffixes, and acts. In Exploration method, learning material is perceived as objective while in historical discovery facts are interpreted and described as subjective. The exploration method is considered with the present and inspection is carried out directly while historical discoveries are related to the past and historical events and the results are evaluated on the basis of the remains.

Format—Following are the major formats—

1. After a historical overview of educational tour, it is described by the students.
2. Students are given the knowledge of his success or loss after describing any age or regime.
3. Students are required to discover new facts as fundamental but students discover the facts only for them at the school level.
4. The arrangements and description of facts are done in such a way that it seems to be aware of new facts.

Act—This method is based on the following Acts—

1. Students are provided the opportunity for activities.
2. Students develop a power of sense.
3. Students get the opportunity to think individually and independently.
4. Students' capabilities of maturity and description get developed.
5. Both the internal and external are necessary.

Features—The main features of this method is as follows.

1. Students' are given the opportunities to explore and conceive rather than cramming.
2. Creative thinking is developed in students.
3. Exploration and synthesis capabilities are developed.
4. The goals of cognitive and emotional sides are achieved.
5. Students not only discover the new facts but also remember the accumulated knowledge.


Task Write characteristics of historical discovery matrix.

8.6 Teacher and Students-Centred Strategies

'Socrates' is considered to have a significant contribution in this type of teaching methods. This teaching strategy includes the participation and functionality of teacher and students. Students can learn and concentrate only when they will be active in the classroom. Socrates' proposition is that all knowledge is contained in the student. Teachers will bring them out. Teachers cannot give any knowledge from outside, so he developed the Q method. Teacher answers the questions from the students and thus can bring out their knowledge. Teachers and students remain equally active through this type of strategies. Teaching process is controlled by both. They also have interactions. These methods are described here.

Notes

8.6.1 Question-Answer Strategy

Role—Socrates' method is also known as the method of questioning. This is the ancient method of teaching. Socrates—The famous philosopher of Athens was the founder of this. The idea was that the teachers should introduce the learning contents in such a way that the child can assimilate him to discern the truth. Socrates' learning process is divided into three stage progression—observation, experience and testing. Learning contents are presented in front of students in the form of questions through subjective methods.

Format—Question method consists of three steps—

1. Preparation of questions in an organized manner.
2. To present them in an appropriate manner to the children so that curiosity of knowledge can be generated in them.
3. Providing new knowledge by establishing a relation with their replies. The teacher understands the perception of children by their replies to questions and inspires them to learn.

Act—Following are the three levels of using the question method—

1. To prepare child-friendly questions according to their previous knowledge, mental ability and interest.
2. To provide questions for the mental development.
3. Another question is asked by relating his reply to first question which provides innovative knowledge to children.

Example—Chapter 'wheat yield'

Teacher : Where do India's most people live?

Students : In villages.

Teacher : What do people living in villages?

Students : Do farm work.

Teacher : What is high grain harvest?

Student : wheat and rice.

Thus teacher can develop the lesson convincingly with the help of questions and make his teaching efficient.

Features—main features are as follows—

1. The child's mental level, his needs and interests are taken into account in this method.
2. In question method, student becomes a little more active and his attention is focused.
3. New knowledge is provided by establishing a relationship to the prior knowledge of the child.
4. Boys are given more opportunities to think for themselves, causing them to holds curiosity to acquire new knowledge.
5. This method is based on the regulations of psychology.
6. It is more useful for primary and secondary classes.
7. This method is more emphasized during the training period in educational institutions and the students become more active.
8. There is no problem of indiscipline in the classroom; all students have to be active.

Limitations—The major limitations are as follows—

1. It is not useful for high classes but it has to be used in the lecture method.

Notes

2. This method is mechanical. Asking questioning produces boredom.
3. The teacher is not able to satisfy all kinds of questions.
4. The children may not realize this learning content as a whole

Suggestions—The major suggestions are as follows—

1. This approach should be followed by the same teachers, who can properly compose queries and questions which includes questioning-skills too.
2. Suffixes must also be clarified with the questions because it is difficult to understand the suffixes through questioning.
3. Questions should be evenly distributed in class.
4. To reduce stress in the classroom, questions should be for persiflage.

8.6.2 Heuristics Method

The English word Heuristics is derived from the Greek word 'Heuristiks'. It means—I will find out. Its main purpose is to awaken search trend. Its founder was **Armstrong**. This communication is based on the philosophy of **Spencer Hubert**" The children are told to reduce as much as possible, and they inspired to more likely to find themselves

This method is referred by **Polio** and **Dunker** (1945), in their script "Problem Solving". This method contains an error and attempt or exploration activities. This method is more economical and fast. Several options are included under this method to solve the problems. It also requires logic and imagination.

Objectives—It has the following objective—

1. Children's ability of problem solving is developed.
2. To develop the logic and imagination of boys.
3. To develop scientific views.
4. To develop self-acting and independent thinking.

Format—The problem of students is presented. Almost all the students try to solve a problem. Each student is provided the complete freedom to think and work individually. Various techniques are used to solve the problem. They explore the facts of the problem and think about the possible solution. Discussion is also carried on when required and they go the library to read books. Teacher inspires for these activities. Teacher replies to students and makes them familiar with the necessary resources and tools.

Features—It has following features –

1. Students observe and develop a sense of curiosity which develops the scientific approach.
2. The spirit of self-dependency develops in students.
3. Teacher comes in contact with each student, examines their actions and gives them suggestions.
4. In this method, the student has to be more active. Therefore, it is based on modern Arrangement Act.
5. It is based on psychological Acts. It is an opportunity to learn by working.
6. Develops the students' reasoning and imagination power.

Limitations—It has following limitations—

1. It can't be included in the primary classes. It can be used successfully in higher classes.
2. It takes more time for teaching and learning facts. It is more wastage of time. Many efforts of students become wasted.

Notes

3. The teacher cannot successfully use this method, because it is an exhibition of discipline problems.
4. Its use is only possible to fewer students, while the number of students in the class is usually higher.

Precautions—Following things should be taken care of while using this—

1. In fact, many of the achievements are possible.
2. There are many vast possible interactions and their relationship is complex.
3. The structure of learning material is not fixed.
4. Exploration method is full of risk. Several efforts are in vain. Wrong solutions are more likely to get accepted.

8.6.3 Group Discussion

Group discussion has no common definition. It is believed to be a democratic method, because the students have to be more active. Teacher acts as the inspector and director. It is always the student-centred. It is usually of two types—

1. By Teacher—in this case, the environment is a supremacist.
2. By Students—this situation is fully democratic.

Format—This format is as follows—

1. Group discussions are of two forms—formal and informal. Formal program is already made. Specific rules are followed in it.
2. Group discussion is organized on issues related to an educational problem and the course.
3. The students have to select the leader who makes the program while organizing it.
4. This importance is given to the students' questions and answers.

Act—This method is based on following acts—

1. This method gives the opportunity to develop functionality and originality.
2. Each student has an equal right to ask questions and give answer.
3. Democratic acts are followed.
4. Social and psychological are significant

Features—Following are the main features of group discussion—

1. There is more opportunity for criticism. Incorrect Approaches are contradicted. Opportunity is given to use a wide act for problem solving.
2. Students who are weak in problem solving and decision making, this method is more useful to them.
3. Group discussion is more useful for the development of views.
4. Creative skills are developed in students with the help of this method. They use their power of decision making in order to find the solutions of the problems and various techniques are used for decision making.

Use—Social learning gets more opportunities in this method. Higher goals of the cognitive sides can be achieved through group discussion. It is not used to obtain goals of lower levels. Interests and views of students are also developed along with the knowledge. It gives opportunities to get mature.

Limitations—It has following limitations—

1. Students seem to have more diverse discussion.
2. A few students remain speaking.

Notes

3. Students are divided into groups so that they become rivals. There is criticism among them.
4. There is more criticism due to pre-rivalry.

Suggestions—Following precaution should be taken while using it—

1. All the students should be given the opportunity to speak. Less speaking students should be encouraged. For this, points can also be determined.
2. Only Creative and meaningful criticism should be given the opportunity.

8.6.4 Sensitive Training Strategy

It is difficult to define sensitive training because it includes various methods. It is used for the training of small groups. It has the following three main goals—

1. How people react to their behaviour, this ability to appreciate and praise should be developed.
2. The capability to see and analyse the relations of other persons should be developed.
3. The ability to do skilled activities in special circumstances should be developed.

Students group can meet at most twice in a week and at least thrice in a month. The program of discussion is fixed in the group. Instructor does not participate in the discussion. The emphasis is on the development of student's mutual relations. It is the duty of the instructor to regard the activities of the discussion and to provide instructions when needed.

It also called T-Group. It is significant for developing social skills. T-Group has following feature—

1. T-Group develops the capabilities of pupil-teacher for using diagnostic process related to him and other partners of his group.
2. Capabilities of tolerance and adjustment are developed in pupil-teachers.
3. The capabilities of properly play the personal relations are developed in pupil-teachers.

Both the T-Group and sensitive training give more emphasis on inter-relations.

All the goals of psychological side can be achieved with the help of this training method. It is used for achieving the goals of higher level of cognitive side. Students play an important role in this method.

8.6.5 Review Strategy

It is considered as democratic strategy of teaching. Its main purpose is to develop the skills of soft criticism in the students. The students need to be more active. The teacher acts as director. After making them aware of the primary role of subject, teacher gives directions for learning and observation of books, reference books and other texts. Normally each student has different review case. Sometimes a single review case is given to all the students. Students have to use library more likely. Books and reference books are observed for the specific case. Students review the merits and demerits of this case. Teacher's help is provided when needed.

Types of Review—There are four types of reviews—

1. Verbal Review—lectures, speeches, and books, newspapers and critics are often.
2. The written review—Text—objects, ideas and books are reviewed.
3. Problem Review—Review of the problem is the problem of the research activities.
4. General Review—student text, narrative, story and the novel is reviewed.

Features—Following are the features of this strategy—

1. This composition is more useful and effective for teaching in higher classes.
2. Students develop exploration and synthesis capabilities.

Notes

3. The tendency to overview and use library and reference books increases.
4. Students develop feelings of cooperation actions in the study.
5. This matrix is particularly useful for researchers. Every researcher has to review the cases on available literature.
6. The tendency of self-study develops in students.
7. Essay contest, discussion, internal assessment, session—is also useful for letters etc.

Limitations—This method has following limitations—

1. It is less useful for teaching in Primary and secondary classes.
2. Most students relied on the guidance of the teacher and the teacher consult with each student for every problem.
3. It is more wastage of time.
4. This is useful and effective for all types of students.

Suggestions—Following precautions should be taken while using this strategy—

1. To make it more effective, every student should have different cases.
2. While providing cases, teacher should remember that enough literature is available in the library for them.
3. The teacher should give the list of reference books and case review.
4. Those cases should be reviewed in respect of which the primary role of the students is good.
5. Teachers should also determine the time of the review.
6. Teacher should observe the students work during the review period.

8.6.6 Brain Storming Strategy

This teaching strategy is completely democratic. The assumption is that a group may consider more than a alone student. The format of this teaching method is problem—centred. The students are given a problem and are told to discuss that problem and try to present the idea came in their mind. It is not necessary that all their thoughts should be meaningful. The group is encouraged and the analysis, synthesis and evaluation of problem is done.

The basis of this teaching strategy is both the educational and psychological. Brain storming is related to the goals of low and high levels of emotional side. This can also be used for the attainment of the objectives of high level of cognitive side. This teaching strategy helps students to develop good ideas. Creative tests are more useful and meaningful for the evaluation of this strategy because more opportunities are given to develop creative skills in its teaching circumstances.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Planning method is considered innovative method of teaching.

(*ii*) JS Bruner is the founder of Historical discovery strategy.

(*iii*) 'Socrates' is not considered a significant contributor in teaching methods.

(*iv*) 'Socrates' method is called as the method of questioning.

(*v*) Group discussion has no common definition.

Notes

8.7 Summary

- Philosophy determines the components of education. Philosophy is considered as the principle side of education. Philosophy has given various education and training methods.
- The purpose of teaching process is to create learning circumstances in which students can get the experience of learning. Verbal and nonverbal interactions of class-teaching generate the learning circumstances in which students get the experience to learn from senses.
- Rein developed educational excursion by which geography, nature study, history and other subjects can be taught actually.
- The planning and implementation of educational excursions do the excursions to the achievement of objectives and the student can receive possible knowledge.
- The method of educational excursion can be easily used in geography, history, nature studies, botany, commerce, economics, civics Education, agriculture and algebra etc.
- Planning method is considered innovative method of teaching. Its development is a result of social trend in education.
- 'Socrates' is considered to have a significant contribution in this type of teaching methods. This teaching strategy includes the participation and functionality of teacher and students.
- Socrates' method is also known as the method of questioning. This is the ancient method of teaching. Socrates—The famous philosopher of Athens was the founder of this method.
- The English word Heuristics is derived from the Greek word 'Heuristiks'. It means—I will find out. Its main purpose is to awaken search trend. Its founder was Armstrong.
- Group discussion has no common definition. It is believed to be a democratic method, because the students have to be more active.
- It is considered as democratic strategy of teaching. Its main purpose is to smooth the skills of students in the criticism.

8.8 Keywords

- Strategy—Method, Planning for work-out
- Group—A number of more then two people

8.9 Review Questions

1. Write the format and features of role playing strategy.
2. Explain educational excursion.
3. Write the meaning and definition of educational excursion.
4. Elaborate the use and importance of educational excursion.
5. Explain the format, acts and features of historical discovery strategy.
6. Discuss Question-Answer Strategy
7. Explain brain storming.

Notes

Answers: Self-Assessment

1. (*i*) View (*ii*) Kilpatrik (*iii*) Learning (*iv*) Rein (*v*) 19th
2. (*i*) True (*ii*) True (*iii*) False (*iv*) True (*v*) False

8.10 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–9: Phases of Teaching–Pre-Active, Inter-Active and Post-Active

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the Phases and Operation of Teaching.

Introduction

Stages of teaching are divided into three parts. In pre-active stage, teacher plans to impart knowledge to students. In interactive stage, this stage includes all those behaviours, activities or things done between the time of the teacher's entry in the classroom and the time when the lesson or subject content has been delivered by him. In post-active stage, teacher evaluates the task learned after teaching has been finished.

9.1 Phases of Teaching

According to **Jackson (1966)**, phases of teaching can be divided into three parts—(1) Pre-active stage 2. Inter-active stage 3. Post-active stage.

(1) Pre-active stage—In pre-active stage, teacher plans teaching for providing knowledge to students. In this stage, all the activities of teacher are included which he does before entering the classroom. This stage is also known as Teaching Planning Stage. In this stage of teaching, teacher selects the teaching plan and employs it so that he could achieve the intended goals. At this time teacher thinks to make his teaching organized and successful. Related literatures are studied and others are discussed. Hence it is also called as conceptualize stage

(2) Inter-active stage—This stage includes all those behaviours, activities or things done between the time of the teacher's entry in the classroom and the time when the lesson or subject content has been delivered by him. In this stage, teacher and students are in front of each other. Teacher gives verbal and non-verbal inspiration, explains different facts of the lesson, asks questions and tells the

Notes

answers. In addition to this he helps them to achieve their goals. In this stage, teacher implements the already prepared teaching. The teacher uses a variety of teaching approaches, array compositions, teaching tips to actual format the teaching preparation done in pre-active stage.

(3) Post-active stage – In this stage, teacher evaluates the task learned after teaching has been finished. Evaluation is based on goals. For evaluating, various evaluation methods are used by the teacher.

> *Notes* By evaluating teacher wants to know that whatever he has taught in the classroom had an impact on the students and to what extent their behavior have changed and what type of changes should be done in future to achieve the desired behavior.

Paradigm is represented by the following three conditions below –

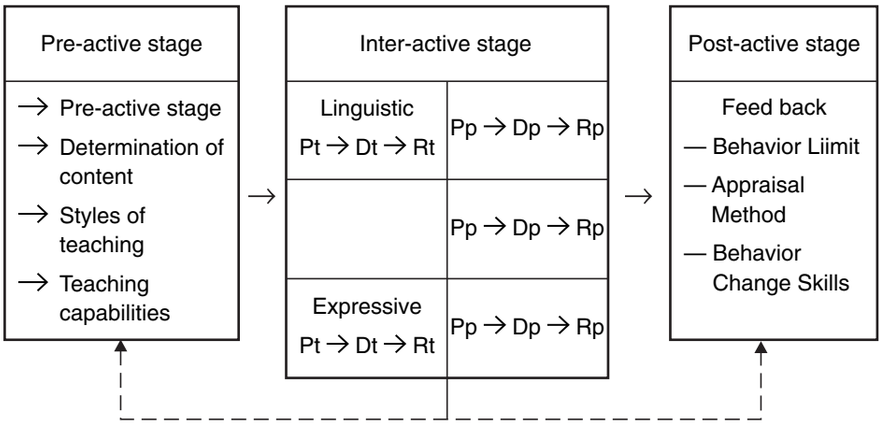


Fig. Learning/Achievement
Paradigm presented by Tolllman

Symbols used in the given pattern

Pt = Perception of teacher of student's behavior.

Dt = Diagnosis by teacher of the pupils interest etc.

Rt = Response or action taken by the teacher in the light of diagnosis.

P_P = Pupils perception on the teachers behavior.

D_P = Pupils diagnosis of Teacher's State of interest what is he saying and is inferred from teacher's behavior.

R_P = Reaction of pupil to the action of teacher.

Pt Dt Rt = Act of teaching/learning.

P_P D_P R_P =Taking Instruction.

Self-Assessment

1. Fill in the blanks:

(*i*) Stages of teaching according to scientists are divided into ..... parts.

(*ii*) In pre-active stage, Teacher plans ..... for providing knowledge to students and prepares to teach.

Notes

(*iii*) ..... are fixed by teacher before entering the classroom.

(*iv*) ..... is based on goals.

(*v*) At this time teacher ..... to make his teaching organized and successful.

9.2 Operations of Teaching

The above three stages have specific activities through which teacher completes his teaching work. These are explained as below:

I. Teaching Operation in Pre-active Stage

Teachers are required to pre-stage the following actions

(1) Formulation of Goals— The teacher fixes the goals of learning before entering in the classroom. The objectives are defined in terms of practical changes. Here, he decides as to at what level of sophistication or abstraction he is going to fix up the goals.

(2) Selection of Content— Teacher selects content or course based on teaching goals. At the time of the selection of content, its nature, level, format, language and symbols as well - with the level of students, age etc are taken care of. Teacher decides what lessons to teach and why teach, how was the students' prior knowledge, what level of motivation and how the assessment will be provided.

(3) Styles of Teaching— After the selection of content, teacher decides how and in which style the selected content should be taught. Teacher sorts the different points of lesson in a psychological and consistent manner so that students can learn it more easily.

(4) Selection of Teaching Strategies— In this stage, teacher provides knowledge based on student's age, maturity, capabilities etc. and also thinks, which array composition should be used for teaching student so that they can easily learn. All training institutions provide knowledge subject composition because teachers can select appropriate composition and teaching can be done in a proper manner

(5) Selection of Teaching Tactics— Before entering the classroom, teacher should decide that which teaching tips, techniques and supporting material will be used by him to clarify the different points in the content. Also he should decide when to ask questions in the classroom, when to lecture and at what time which audio-video material will be used. The teacher must plan in advance how to evaluate the teaching and through what techniques

"In pre-active phase, teacher selects objectives, plans the curricula, arranges the classroom and studies the readiness of the pupils." **–*Jackson, 1966***.

II. Operations of Teaching during Inter-active Stage

Inter-active stages include all the activities of classroom. The major activities are—

(1) Sizing-up the Class— Teacher puts a cursory glance at the students sitting in the classroom as he enters in the classroom. Thus he comes to know the sensation of class size, where good and students are sitting in the classroom, from where he will be supported in teaching process and who will not be able to support him. Thus he takes the physical planning of the class.

On the other hand, students also try to understand, how much qualified he is and can he teach with effectiveness.

Did u know? Teacher should be aware in the classroom. Teacher's gestures, costumes, speaking etc., should be effective, only then the student can be impressed and learn something new.

Notes

(2) Diagnosis of Learner—Immediately after the sensation of class size teacher tries to determine the level of the students, foreknowledge, qualifications, skills, attitude and hobbies and how students should be taught, how and at what level. Teacher diagnoses the student's ability etc. by manifestation or collets information and starts teaching responses according them.

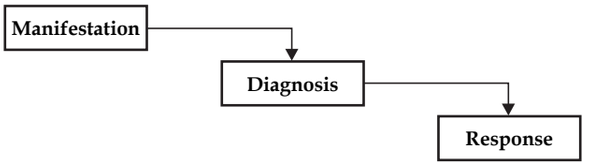


Fig. Learning Process Chain

(3) Achievement or Action Operations—In teaching, these are related to the actions and reactions or the teacher and student achievement inside the class. These activities are divided into verbal and non-verbal interaction. The selection of stimuli, their presentations, feedback and reinforcement, and development of teaching strategies are the most important activities

(*i*) Selection of Stimuli—Teaching is based on Stimuli and Responses (S-R). Teacher presents verbal and non-verbal stimuli. The success of teaching process depends on these stimuli. Therefore, teacher should use such stimuli which can be proved to be effective. In the field of stimuli selection, teacher must know that the use of which stimuli results good in which conditions. Thus teaching should be properly done by creating desired activities and conditions.

(*ii*) Presentation of Stimuli—The teacher should be careful while presenting the stimuli after its selection. Firstly he should have the knowledge of stimuli and how to present it in the class. If stimuli are presented incorrectly, then his responses will be incorrect. So the form, context and order of stimuli should be taken care of.

(iii) Feedback and Reinforcement—Reinforced Feedback refers to such conditions which increase the likelihood of specific responses. Through these desired behaviour or Response is made permanent. These are of two types—(*a*) Positive Reinforcement (*b*) Negative Reinforcement.

(*a*) Positive Reinforcement—The desired behaviour is likely to be increased again and again such as praise, rewards, meet new knowledge, certifications etc.

(*b*) Negative Reinforcement—It is used to prevent unwanted behaviour such as punishment, scolding-reprimand.

Feedback and reinforcement or Response powers up, make changes and correct or modify the behaviour. These are used to bring intended changes in the student's behaviour.

(4) Development of Strategies of Teaching—Teacher uses a variety of teaching techniques for giving knowledge to students to make their learning activities more useful. While expanding teaching activities, content presentations, learning the type and background of students (pre - knowledge, age, class, etc.), their needs, motives, attitudes, etc., should be taken care of when choosing the right devices and will be able to expand.

III. Operations of Post-active stage of Teaching

This condition is related to the evaluation of teaching. Whatever is taught by teacher assessment is that students know to what extent it is learnd. At this stage the following actions is more important.

(1) Designing the Exact Dimensions of Behavioural Change—Teacher defines the actual behaviour change after finishing teaching which is called as Criterion Behaviour. For this, teacher compares the actual changes in student's behaviour to the expected change in behaviour. Teaching process succeeds and its goals are achieved if there is a desired change in the behaviour of most students. Converse results points towards failure of teaching.

Notes

(2) Selecting Appropriate Devices and Techniques—Teacher selects the reliable, objective and valid techniques for evaluating the change in student's behaviour. During this evaluation, such methods should be selected which also can evaluate the cognitive, affective and dynamic aspects. Nowadays more attention is being paid to Criterion Tests.

(3) Changing the Strategies in Terms of Evidence Gathered—Teacher knows about the drawbacks and limitations of their teaching because of evaluation. Teacher improves his teaching policies, compositions and methods and makes them more effective by gathering evidences about the evaluation.

The above phases and operations are inter-related. A good Teacher tries to make his teaching effective by organizing these phases in his activities.

The above phases and operations are summarized in the figure given below—

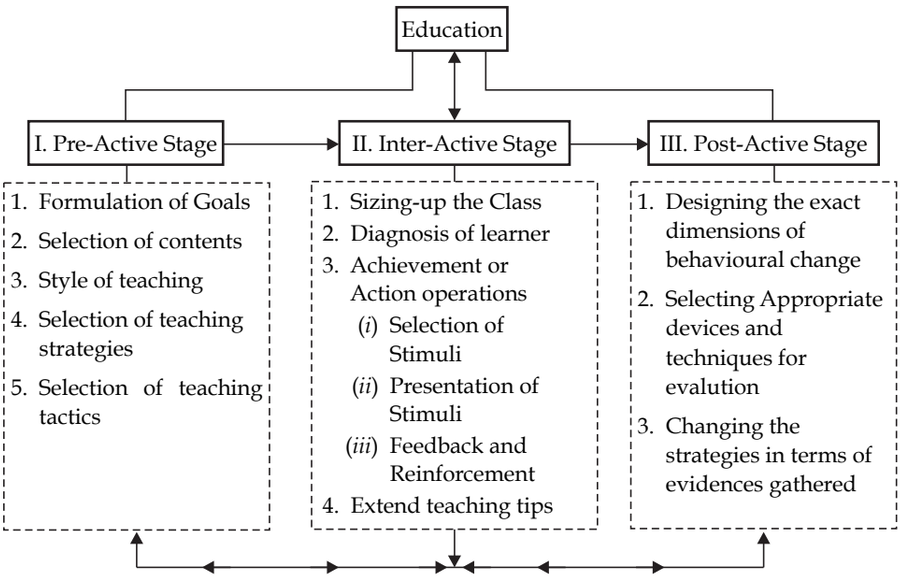


Fig. Learning Stages and Activities

Task Define 'Designing the Exact Dimensions of Behavioural Change'.

Importance of Teaching Operations

The process of teaching is a collective form of various teaching operation. Therefore, these are very important. The success of teaching depends on the successful operation of these actions. Point given below reflects the importance of teaching operations:

1. Teachers should be directed what to do before entering the class, at the class time and after class.
2. Teaching activities tend to aid in understanding the nature of teaching variables.
3. The effectiveness of teaching can be increased by organizing them.
4. They create a mutual relationship between learning and teaching.
5. These activities promote the use of micro approaches.

Notes

6. Reflections from the memory to the level (keeping these activities in mind) of teaching can make learning effective.
7. Different terms of learning can be exposed to students and teacher by having knowledge of these activities.
8. Serving teachers can develop their teaching skills by having knowledge of these activities.
9. Activities of teaching provide the scientific basis for the drafting assignments.
10. Teaching gives direction for concerning appropriate methods for evaluation.
11. These actions lead teachers and students to the actual ground striving to improve the education system.

Self-Assessment

2. State whether the following statements are True or False:

(i) After fixing goals, teacher selects the contents according to the goals fixed.

(ii) All actions taken by the teacher in the classroom are not included in Inter-active stage.

(iii) Teaching is based on stimuli and responses.

9.3 Summary

- In pre-active stage, teaching plans teaching for providing knowledge to students. In this stage, all the activities of teacher are included which he does before entering the classroom.
- This stage includes all those behaviours, activities or things done between the time of the teacher's entry in the classroom and the time when the lesson or subject content has been delivered by him. In this stage, teacher and students are in front of each other.
- In this stage, teacher implements the already prepared teaching. The teacher uses a variety of teaching approaches, array compositions, teaching tips to actual format the teaching preparation done in pre-active stage.
- The teacher fixes the goals of learning before entering in the classroom. The objectives are defined in terms of practical changes.
- After the selection of content, teacher decides how and in which style the selected content should be taught.
- Teacher puts a cursory glance at the students sitting in the classroom as he enters in the classroom.
- In teaching, these are related to the actions and reactions or the teacher and student achievement inside the class.
- Teaching is based on Stimuli and Responses (S-R). Teacher presents verbal and non-verbal stimuli.
- The process of teaching is a collective form of various teaching operation. Therefore, these are very important.

9.4 Keywords

- Context– A situation in which something has happened.
- Form– Structure.

Notes

9.5 Review Questions

1. Explain teaching operations.
2. Explain teaching phases.
3. Give a brief description of the following
   (*a*) Selection of Stimuli (*b*) Presentation of Stimuli
4. What is the importance of teaching operation?

Answers: Self-Assessment

1. (*i*) Three (*ii*) Teaching (*iii*) Goals (*iv*) Evaluation (*v*) Thinks
2. (*i*) True (*ii*) False (*iii*) True

9.6 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–10: Levels of Teaching

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand Memory level teaching.
- Understand Model of Memory level teaching.
- Learn things related to Understanding level.
- Learn Reflective Level of Teaching.
- Understand Morrison's Model of teaching at understanding level.

Introduction

Teaching is a process of completing various tasks in the classroom which has a goal to motivate the students to learn. Teacher can make his teaching powerful by the effective use of resourses if teaching goals are very clear. Under the circumstance of teaching process 'Content' is an important

Notes

approach, without which teaching is not possible. "Teaching approach may lead the same content to thoughtful situation from a thoughtless situation". Therefore, the circumstances of the teaching process on a continuous sequence of thoughtless actions can be divided into stages or levels. In other words, the whole teaching process can be divided into three levels:

1. Memory Level
2. Understanding Level
3. Reflective Level

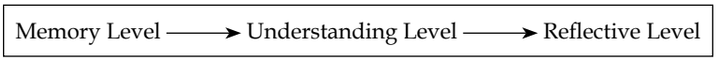


Fig. Levels of Teaching

10.1 Teaching of Memory Level

Memory level teaching is thoughtless. Such learning situations are developed at this stage that the student could easily memorized the contents taught. At this stage, the emphasis is on recall and cramming. Meaningful and related content is easy to remember, while redundant objects are difficult to remember. Memory does not belong to cramming of equal facts and information. Even mentally backward child remember things easily. The cramming memory gives the knowledge of facts but it doesn't give their understanding. Poetry readings, word-meaning and their practice, forms in Sanskrit, tables, counting, linguistic spelling, grammar, historical events are more effective on the memory level teaching. Therefore, a complete rejection of memory level is not possible.

Notes This level has its own importance and field. Understanding and Reflective level of teaching can't work properly without this level. So this level provides the foundation for other speculative levels.

Since almost facts are crammed at memory level so the process of forgetting is quite active. Nowadays crammed facts are not useful in the daily lives of students. At this stage there is no way for thinking and reasoning. Students are passive and class moves on practical manner. The atmosphere of classroom is quite formal and the student cannot get teacher's inspiration.

In the memory level teaching, the importance is given to hint learning, series learning and (S-R) operation. Query method does not have any importance. To explain the memory level format, a paradigm is being presented below. It was developed by **Herbart**. The table below briefly explains the paradigm.

10.2 Model of Memory Level Teaching

Paradigm side	Memory Level Teaching
1. Focus	To develop the following capabilities in students— (*a*) Mental aspects of training. (*b*) Providing knowledge of the facts. (*c*) Remember learning facts. (*d*) To recall facts learned and resubmit them

Notes

2. Syntax	The memory level teaching system has been divided into following 5 stages which is called **Herbart's** five positional systems.
	(*a*) Introduction and preparation and statement of purpose
	(*b*) Presentation
	(*c*) Comparison and Association
	(*d*) Conclusions and Generalization
	(*e*) Experiment and Practice
3. Social System	(*a*) Teacher is more active and dominating in the classroom
	(*b*) He presents contents in front of students, control their actions and provides inspiration.
	(*c*) Students have accessory position.
	(*d*) Student quietly follow teacher by assuming him ideal.
4. Support System	(*a*) Assessment is both written and unwritten.
	(*b*) Emphasis is on cramming ability in test.
	(*c*) Recall and recognition are important in objective examination

10.3 Suggestion for Teaching of Memory Level

For creating more viable and effective memory level teaching, following points are given below to create a meaningful content.

1. Contents should be create in meaningful.
2. Contents should be presented in aggregate form.
3. Contents should be presented in sequence.
4. Should be given more time to practice.
5. Should not teach at the time of fatigue.
6. Fixed Ratio Schedule of Reinforcement
7. At this stage teaching should be kept only for the purpose of acquiring knowledge.
8. Should be repeated in a rhythm.

10.4 Understanding Level of Teaching

Understanding in the field of education is a very broad term. **Morris L. Wiggi** uses it to explain the following three points

1. Seeing Relationship.
2. Seeing the Tool use of Facts.
3. Seeing both Relationship and Tool use.

It is necessary for Understanding level teaching that memory level teaching has already been done. Understanding level teaching cannot succeed without this. At this level teacher understand the generalization, regulations and facts and makes the learning process more meaningful and worthwhile.

Notes

Did u know? The teacher presents contents with the students in such a way that they get opportunity to understand more and more, and necessary understanding can develop in students. Both teachers and students remain quite active in this type of teaching. Understanding level of teaching is goal-centered and in-sighted.

For evaluation, both essay and objective type methods are followed. These may be both factual and descriptive. Objective tests use remembrance, knowledge and short answer methods. Paradigm developed by **Morrison** comprehension level is being shown through a table below.

Self-Assessment

1. Fill in the blanks:

(*i*) Teaching is a ..... of completing various tasks in the classroom.

(*ii*) ..... level teaching is thoughtless.

(*iii*) Understanding in the field of ..... is a very broad term.

(*iv*) Meaningful and related ..... is easy to remember.

(*v*) Under the teaching process Content is an important .....

10.5 Morrison's Model of Teaching at Understanding Level

Paradigm side	Understanding Level Teaching
1. Focus	Mastery of Concepts
2. Syntax	The understanding level teaching system has been divided into 5 stages (1) Exploration (2) Presentation (3) Assimilation (4) Organization (5) Recitation
3. Social System	(1) Teacher is a behavior controller. (2) Both the teacher and student remain active. (3) Student can present their views. (4) Both the external and internal motivations are useful. (5) Teacher remains active in the first two steps of social system while both the teacher and students remain active in last three steps of this system.
4. Support System	It uses written, oral, essay and objective support methods. Special emphasis is given explanations of suffixes.

Suggestion for Teaching at Understanding Level

(1) Teacher's behavior should be sympathetic towards students and they must be given necessary independence.

Notes

(2) Understanding level teaching should be arranged after memory level.

(3) Every step should be completed in a sequenced manner.

(4) Students should be given the motivation.

(5) Should expand the aspiration level of class.

(6) Solve the problems according to the education system.

10.6 Reflective Level of Teaching

Thinking is as important to human development. At this level, teacher increase thinking, logic and imagination in students so that the student could solve their problems later through these approaches. At this stage, education involves both the memory and understanding levels. The thinking level of education cannot be successful without these levels.

Thinking level of education is problem-centered. Teacher presents any regarding problem in front of students and students start thinking by getting motivated and active. This is fundamental thinking with critical approach. It is the teacher's responsibility to develop creative abilities in students by giving them the opportunity to develop their thinking behavior.

It is supreme level of education and completely thoughtful. Students search for new knowledge by expressing their learning, perception, thought, belief and knowledge, consideration and reasoning to solve the problem. It is a productive state of creation, discovery, research and creation.

At this level students search for problem solutions with self-interest, voluntarily meditate, contemplate, reason and imagination and make themselves more confident and active. At this stage teachers should be qualified, experienced, expert and effective.

Paradigm developed by **Hunt** for reflective level of teaching is being shown through a table further.

Task Give some suggestions for understanding level of teaching.

10.7 Hunt's Model of Reflective Level of Teaching

Paradigm Side	Reflective Level Teaching
1. Focus	(1) To develop fundamental and independent thinking power in students.
	(2) To develop consideration and reasoning power to solve problems
	(3) The capability to solve a problem depends on its nature. It can be individual and social. It has four steps.
2. Syntax	(1) Creation of difficult situation
	(2) Creation of imagination
	(3) Use sense, meditate and contemplate for imagination
	(4) Test of imagination and problem solving
3. Social System	(1) Classroom environment is completely open and free.
	(2) Students are active and self-motivated
	(3) It is the basis of student's socialization.
	(4) It is an atmosphere of cooperation, social sensitivity and sympathy.
4. Support System	(1) Written support is more useful.
	(2) Aptitude, problem solving, creativeness are testing of viable.

Notes

10.8 Suggestions for Reflective Level of Teaching

The following are suggestions for teaching thinking level—

1. Before teaching this level, it is necessary to have the knowledge memory and understanding level.
2. Every related step should be follow.
3. Aspiration level should be high.
4. They should have sympathy, love and sensitivity.
5. Attention should be paid towards cognitive development.
6. Students should be given more opportunities to develop consideration and reasoning power.
7. Democratic learning environment should be maintained.
8. Students should be motivated more and more for positive thinking.
9. Maintains democratic learning environment.
10. Students should be encouraged to thinking more and more perfect.

The table given below presents a comparative study of memory, understanding and reflective levels of education—

10.9 Comparative Study of Memory, Understanding and Reflective Level of Teaching

Points	Memory Level	Understanding Level	Reflective Level
1. Starter	**Herbart**	**Morrison**	**Hunt**
2. Nature of Teaching	Thoughtless	Thoughtful	Independent, fully thoughtful
3. Goals	Epistemic	Understanding and experimental	Analysis, synthesis and Evaluation
4. Contents	Factual	Interpretive	Reflective
5. Class Environment	Passive	Critical	Controversial
6. Learning	Stimulus, response	Reinforcement, insight	Self-objectivity, rules
7. Learning Structure	Signal, sequence	Relations, discrimination, suffix	Problem Solving
8. Tactics	Lectures	Question	Discussion
9. Motive	External	External or Internal	Internal
10. Relation with Brain	No relation between Memory level and brain	There exists a perspective relation	Development of basic and creative abilities
11. Test	Oral/Written, Objective- Refresher and sentence completing	Oral/Written, Objective— Knowledge, Multi selection, True/False, short answer	Essay type-such as explain, evaluate, describe
12. Evaluation	Experience is erased from answer sheet	Students experience is based on the use of other words	Sufficient rule for practical solutions to the appropriate data has been upgraded.

Self-Assessment

Notes

2. State whether the following statements are True or False:

(i) Thinking is as important to human development.

(ii) Reflective level of education is problem-centered.

(iii) It is the highest level of teaching.

10.10 Summary

- Teaching is a process of completing various tasks in the classroom which has a goal to motivate the students to learn.
- Memory level teaching is thoughtless. Such learning situations are developed at this stage that the student could easily memorized the contents taught. At this stage, the emphasis is on recall and cramming.
- Since almost facts are crammed at memory level so the process of forgetting is quite active. Nowadays crammed facts are not useful in the daily lives of students
- It is necessary for Understanding level teaching that memory level teaching has already been done. Understanding level teaching cannot succeed without this.
- Thinking is much important to human development. At this level, teacher increase thinking, logic and imagination in students so that the student could solve their problems later through these approaches. At this stage, education involves both the memory and understanding levels.

10.11 Keywords

- **Cramming**—To learn something again and again.
- **Understanding**—Better knowing.

10.12 Review Questions

1. Explain the Model of Memory level teaching.
2. What do you understand by Memory level teaching?
3. Specify the Model of Memory level teaching.
4. What is meant by Understanding level of Teaching?
5. Give some suggestions for Memory level teaching.

Answers: Self-Assessment

1. (*i*) Process (*ii*) Memory (*iii*) Teaching (*iv*) Content (*v*) Approach
2. (*i*) True (*ii*) False (*iii*) True (*iv*) False (*v*) True

10.13 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh*.

Notes

Unit-11: Micro Teaching

CONTENTS

Objectives

After studying this unit, students will be able to:

- Familiarize with History of Micro Teaching.
- Understand the Assumptions of Micro Teaching.
- Understand the Principles of Micro Teaching.
- Learn Indian Model of Micro Teaching.
- Understand the Advantages and Limitations of Micro Teaching.

Notes

Introduction

Micro teaching is a new symbol of hope and excitement in the field of teaching and training and is a challenging voice call for teachers and trainers. Micro teaching has come as a boon for training colleges. As a result, today's teachers have started to talk about developing teaching skills. Micro teaching is kind of laboratory approach in which teachers practice their teaching skills that harms no one. This method is able to meet all conditions of the laboratory.

11.1 History of Micro Teaching

Micro teaching is a new method of controlled practice in the field of training. It was developed at Stanford University. **Acheson, Bush** and **Allen** introduced the first controlled '**Compressed Study-Practice Orders**' in which each teacher was teaching a small lesson to 5 to 10 students while others perform various role plays. Later they started using video tape recorder to make desirable changes to teaching behavior of a teacher. While working in the field of teaching competence **Harry Garrison introduced 'Stanford Teaching Competence Program**'. In 1967, **Clenvas** performed many experiments in the field of micro technology. Thus, **Allen** (1964), **Acheson** (1964), **Orm** (1966), **Tuckman, Alan** (1969), **Rasnik and Kiss** (1970), **MacLeez and Anvn** (1971) and many researchers made important contributions in the field. These researches-forms and reports began to attract the whole world. **D. D. Tiwari** (1967) first in India used the word 'Micro-technology' in the field of education-training. Although the 'micro teaching' means today was isolated from micro teaching. **Shah** (1970), **Chudasma** (1971), **Singh**, **Maskar**, **Pangutra** (1973) and **Doshaj** undertaken this sector in the year 1974.

The first publication in the field of micro-education in India in 1974 was published by **Pasi** and **Shah**. The first micro-teaching about scientific information provided. Later **Bhatacharya** (1974), **Pasi**, **Lalita** and **Joshi** (1976), **Singh Garewal** (1977) and **Gupta** (1978) worked in this area. In 1978, a National Proposal for the Project was started on 'micro-teaching' at Indore University. Teachers and educators of various colleges and universities worked on micro-teaching. This research was completed in cooperation with Delhi's 'National Council of Education, Research and Training' (NCERT).

Notes In India, research of Micro-teaching is being processed majorly in Delhi, Indore, Baroda, Saharanpur and Dehradun.

In Dehradun in 1979, **Kulshreshtha**, **Goswami** and **Mishra** working in the field of micro-teaching, served on many educational reforms as India's first monograph Mini Teaching A New expirement in Teacher Education, New Delhi in collaboration with N C E R T published.

Now in India micro-teaching and considerable work is being done on Mini Teaching.

11.2 Definitions of Micro Teaching

Micro-teaching is an **experimental** and **analytical** method of education training through which teacher's teaching-skills are developed. **Allen** (1968) defined is as follows: "Micro teaching is training related suffix in a situation of pre-service and in-service teachers for the commercial development. Micro-teaching presents a plan for teaching practice that reduces the complexities of normal classroom and teachers receive feedback in large part for their teaching practice." **V. M. Shore** defined is as follow: "Micro teaching is a practice of small time, few students and of fewer teaching practices."

Notes

MacLeez and **Unwin** (1970), "The micro-teaching student teachers usually simplified by the use of television closed environment for the process of the performance-related feedback is immediately available ..... Micro teaching is generally considered to be the nature of the study represented complications typically abstract concept or actual reduction to practice reading the feedback process on the basis of classroom teaching is provided".

According to **D. W. Allen**, "Micro-teaching is scaled down teaching encounter in class size and class time."

According to **Clift** and **Others**, "Micro-teaching is a training procedure which reduces the teaching situation to a simpler and more controlled encounter achieved by limiting the practice teaching to a specific skill and reducing time and size."

According to **Bush**, "Micro-teaching is a training procedure in which teacher prepares a lesson by using his teaching skills carefully, interact with a small group of actual students on the basis of lesions prepared. As a result he gets the opportunity to achieve observations on videotape." (In the Indian Model of Micro technology, human observers has been recommended to replace video tape.)

Allen and **Ryan** said that micro teaching is based on the following five basic principles:

(1) Micro-teaching is the actual teaching.

(2) In this teaching of the common complications class-education is reduced.

(3) Only a special task and a skill is emphasized at one time.

(4) It is possible to control to exercise procedure.

(5) Feedback is provided soon.

In the words of **Prof. B.K. Passi** "Micro-teaching is a training technique which requires pupil-teacher to reach a single concept using a specified teaching skill to a small number of pupils in a short duration of time."

In the words of **L.C. Singh** "Micro-teaching is a scaled down teaching encounter to which a teacher teaches a small unit to a group of five pupils for a small period of five to twenty minutes."

Micro Teaching is by **N.K Jangira** and **Ajit Singh**: "Micro-teaching is a training setting for the student teacher whose complexities of the normal classroom reaching are reduced by practising one component skill at a time, limiting the content to a single concept, reducing the class size to 5-10 pupils and reducing the content of the lesion to 5-10 minutes for teaching practice."

According to **Srivastava, Singh** and **Roy** (1978), "The meaning of the word Micro can be a complex one because it divided into small means micro units in which teacher is trained very carefully. Therefore, Micro is the correct word."

Grifiths (1973) after analyzing the various definitions says, "As Micro-teaching is very flexible and adaptable process, it is not fair to bind it in a specific definition".

Did u know? Micro teaching is a developing trend under which content, teaching-time and teachers are reduced while teaching skills of pupils teachers are very well developed. (Dr Kulshrestha, 1979)

11.3 Assumptions of Micro Teaching

The basic assumptions of Micro teaching are—

(1) Teacher's behaviour pattern is necessary for effective micro teaching.

(2) Motivation plays a critical role in the transformation of the expected behaviour.

Notes

(3) Teaching is a therapeutic procedure or plan.

(4) Teaching-objective observation of actions is required for best training.

(5) Teachers must be given adequate opportunity to improve.

(6) Teaching process can be upgraded by improving individual's teaching skills.

(7) Micro-teaching is a very small and simplified form of teaching.

11.4 Principles of Micro Teaching

Allen and **Ryan** (1968) explained that micro teaching is based on the following five basic principles:

(1) Micro-teaching is the actual teaching.

(2) In this type of teaching the common complications class-education is reduced.

(3) Only a special task and a skill are emphasized at one time.

(4) Exercise procedure is more controlled.

(5) Feedback is provided soon.

11.5 Micro Teaching: An Educational Process

It is a scaled down teaching technique, scaled down in terms of class size, lession, length and teaching complexity.

Micro teaching process contains the following terms—

(1) Teacher offers practical knowledge and principle of micro teaching to pupil teachers. It is known as **Introduction session**.

(2) Teacher specifically states the teaching skills which are to be developed and interpretation of **psychological bases** to pupil teacher.

(3) Teacher presents an ideal lesson on micro teaching for pupil teacher.

(4) Teacher and pupil teacher closely analyze the shortcomings and discuss the characteristics of the ideal text and determine its learning–skills.

(5) Teacher provides pupil teacher the needed time to prepare '**micro-lesson plan**' and assists them personally.

(6) According to instruction, class teacher teaches micro-lesson for 5 to 15 minutes (The lesson is recorded on a tape recorder), it is called teaching session.

(7) After teaching class teacher discusses the micro lesson with teacher in detail. Both good and bad point viz. shortcomings and strengths of pupil teacher's teaching skills are discussed at this time and he is suggested to re-prepare the lesson.

(8) After this critical session, pupil-teacher changes the teaching plan according to the recommendations and re-teach the necessary amendments. This is known as "session of re-creation of lesson".

(9) Thus pupil teacher teaches the re-created lesson to other students of the class. This teaching is also recorded on tape recorder. It is called re-teaching session.

(10) Re-criticise session come after re-teaching session.

The micro teaching process can be explained as on next page—

Notes

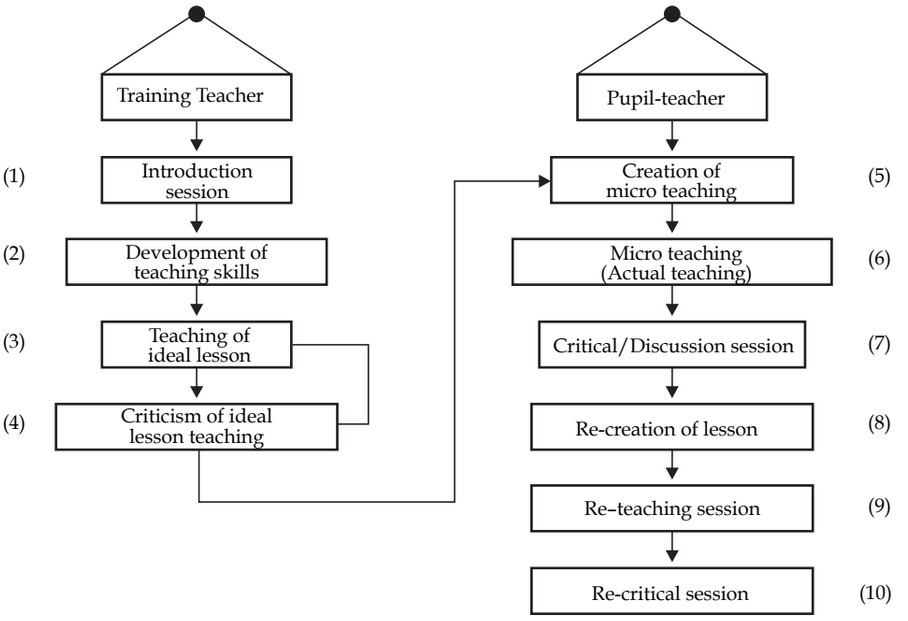


Figure — (Process of Micro Teaching)

11.6 Micro Teaching Cycle

The process described above continues until the pupil teacher gets the excellence in specific teaching skills. The collection of teaching, lesson planning, re-plan, feedback, re-feedback and re-teach makes a cycle which continues until the pupil teacher gets the excellence in specific teaching skills. This cycle is called as **Micro Teaching Cycle**.

Based on above details of Micro teaching cycle, various sessions can be presented by figure given below—

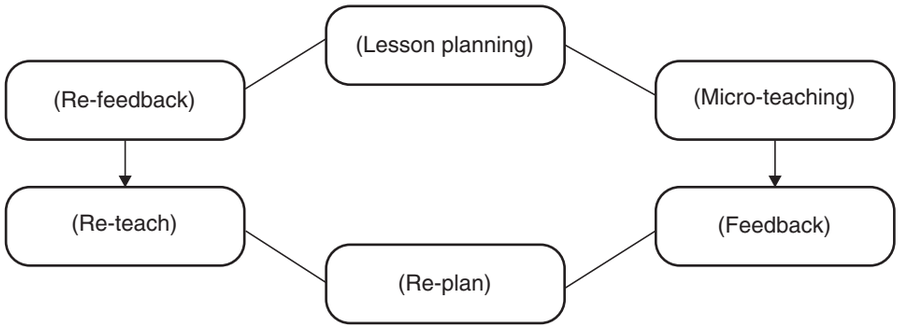


Figure — Micro Teaching Cycle

Task What is Micro Teaching?

Self-Assessment

Notes

1. **Fill in the blanks:**
   (*i*) Teacher offers practical knowledge and principle of micro teaching to pupil teachers. It is known as …… session.
   (*ii*) …… teaching is a very small and simplified form of teaching.
   (*iii*) Micro teaching is the ……. Teaching.
   (*iv*) Micro teaching is an experimental and ……. Teaching method.
   (*v*) Micro teaching is a ……. process of controlled practice in the field of teaching.

11.7 Micro Teaching Process: A Brief Description

In the process of micro teaching, pupil teacher is told about teaching skills and then specified by the performance. Pupil teacher observe the skills through patterns and obtain specific information by conversation. Then lesson is prepared and taught. Its video or audio is recorder through tape recorder. When lesson ends, it is discussed with the inspector. This way is used to evaluate pupil teacher and suggestions for improving the lesson are given. Then pupil teacher re-plans his lesson and teacher other students of the same class and feedback session starts. This type of training is given to pupil teacher in universities to improve their teaching skills.

Techniques used in Micro teaching

Micro teaching was developed **Stanford University**. Following techniques were used there

Teaching session	5 minutes
Feedback session	10 minutes
Lesson re-creation session	15 minutes
Re-teach session	5 minutes
Re-feedback	10 minutes
Total time	45 minutes

Following techniques were used at **Ulster University**

Teaching session	15 minutes
Feedback session	7 minutes
Lesson re-creation session	8 minutes
Re-teach session	15 minutes
Re-feedback	15 minutes
Total time	60 minutes

D. A. V. College, Dehradun after several experiments, the following methodology was adopted by **Mishra**, **Kulshreshtha** and **Goswami** and found it more viable.

Teaching session	6 minutes
Feedback session	6 minutes
Secondary Feedback session	4 minutes
Lesson re-creation session	7 minutes
Re-teach session	6 minutes
Re-feedback	6 minutes
Total time	35 minutes

Notes

11.8 Indian Model of Micro Teaching

In India, the Indian model of Micro Teaching has been developed as a result of efforts of NCRET, CASE and Indore University. It has the following characteristics:

(1) Discussion method is used in place of costly thing (such as video, closed circuit TV etc.)

(2) Costly inspection and feedback tools used in foreign are replaced by trained inspectors.

(3) The micro-teaching sessions are conducted in simulated conditions in which fellow B.Ed trainee has the main role.

(4) Micro-level assessment of teaching and learning in the Indian circle pattern is as follows—

Number of students	5 to 10
Type of students	Students of school or B.Ed. students
Inspection and feedback	Principal or fellow of B.Ed. student
Teaching time	6 minutes
No. of skills	One on one
Content	Single teaching step
Total time	36 minutes

(5) Total time of Micro teaching cycle of Indian Model is 36 minutes. Its time division is as follows:

Teaching	6 minutes
Feedback	6 minutes
Re-plan	12 minutes
Re-teach	6 minutes
Re-feedback	6 minutes
Total time	36 minutes

(6) This model is cheap and more flexible.

(7) Indian paradigm has sufficient space to coordinate skills.

11.9 Advantages of Micro Teaching

There are many advantages of training process of micro teaching—

(1) Micro teaching simplifies the teaching process.

(2) Pupil develops his teaching skill by focussing according his capabilities and tries to learn them.

(3) Feedback adopts and completes all approaches.

(4) Objective evaluation is done for pupil teacher.

(5) Pupil teacher has a right to keep his side in the feedback and kept active in feedback session.

(6) Inspector acts as a consultant for pupil teacher.

(7) It reduces the complexities of class-reaching.

(8) This method fills the pupil teacher with self-confidence.

(9) This method teaches more in less time.

(10) Through this method pupil teacher is taught to teach smaller classes, fewer students and smaller teaching step rather than directly teaching a class. This proves to be very helpful for him.

Notes

11.10 Limitations of Micro Teaching

Although micro teaching bound many steps of teaching process but it has some limitations, for example—

(1) This leads to controlled and compressed learning that is beyond the limits.

(2) This teaching takes off the classroom teaching.

(3) At a time only one teaching skill develops which consequently seems to be difficult to integrate them later.

(4) It takes more time.

(5) It is difficult for pupil teacher to get feedback soon.

(6) There is adequacy of motivation in order to develop excellence in teaching skill.

(7) It ignores the diagnostic and remedial work.

Due to above limitations a number of modifications and improvements are being made in micro teaching method. Mini teaching is an example for this.

11.11 Uses of Micro Teaching

In Micro-teaching method learning process is used by taking care of its various aspects.

Principle and practice are integrated in this method. This method is proficient for the excellence of art of teaching on the basis absolute principle of the step. The uses of micro teaching were explained by **Ramdev Kathuria (1979)—**

(1) Micro technology develops commercial maturity.

(2) Due to micro teaching the teaching process becomes completely clear to pupil teacher and they understood their teaching work.

(3) In micro teaching pupil teaching gains excellence on his teaching skills. Consequently, in the short time they are able to efficiently use the desired skills.

(4) In micro teaching, pupil teacher gets organized, objective, specific and immediate tasks.

(5) In micro teaching, teaching skills are practised in simple situation instead of complex situations.

(6) In Micro teaching full attention is given to the individual variation of pupil teacher.

(7) Micro teaching is more effective in changing behaviour of pupil teacher.

(8) Integration of theory and practice is possible in micro teaching.

(9) It is done in a situation of simulation then it is possible to get the proper training without get the actual school.

(10) This method is useful for reducing the rigidity in the behaviour of in-service teacher and bad habits of teaching.

(11) In the micro-teaching method, it is possible self feedback and criticise own teaching.

(12) It gives a new form to inspection method.

(13) This method inspires teachers for present and future experiment. Teacher tries to become able and spends more time for continuous study.

At the end we can say that micro teaching is a perfect way to provide training to pupil teacher at teacher training colleges which is used to produce good teachers. Teachers employed in teacher training colleges have to explain the correct knowledge and its proper use in order to prove this method viable.

Notes

Self-Assessment

2. Multiple choice questions:

(*i*) To whom teaching skills are provided?

(a) Pupil teacher (b) Student

(c) Teacher (d) None of these

(*ii*) What type of teaching process exits in micro teaching?

(a) Difficult (b) Simplified

(c) Moderate (d) All of the above

(*iii*) What develop commercial maturity?

(a) Training (b) Teaching

(c) Micro teaching (d) All of the above

11.12 Summary

- Micro teaching is a new method of controlled practice in the field of training. It was developed at Stanford University. Acheson, Bush and Allen introduced the first controlled 'Compressed Study-Practice Orders' in which each teacher was teaching a small lesson to 5 to 10 students while others perform various role plays.
- The first publication in the field of micro-education in India in 1974 was published by Pasi and Shah. The first micro-teaching about scientific information provided.
- Micro teaching is an experimental and analytical method of education training through which teacher's teaching-skills are developed.
- Micro-teaching is a training technique which requires pupil-teacher to reach a single concept using a specified teaching skill to a small number of pupils in a short duration of time.
- In the process of micro teaching, pupil teacher is told about teaching skills and then specified by the performance.
- In India, the Indian model of Micro Teaching has been developed as a result of efforts of NCRET, CASE and Indore University.
- Micro teaching bounds many steps of teaching process.
- In Micro-teaching method learning process is used by taking care of its various aspects. Principles and practices are integrated in this micro teaching.

11.13 Keywords

- **Pattern** – Format
- **Skill** – Ability

11.14 Review Questions

1. Write the Ellen's definition of micro teaching.
2. Write the basic assumptions of micro teaching.

3. Write the principles of micro teaching.
4. Draw and explain sessions involved in micro teaching.
5. Write the characteristics of Indian model of micro teaching.

Notes

Answers: Self-Assessment

1. (*i*) Introduction (*ii*) Micro (*iii*) Actual (*iv*) Content
(*v*) New

2. (*i*) (a) (*ii*) (b) (*iii*) (c)

11.5 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh*
3. Micro-Teaching: The Theory and Practice—*Naresh Kumar Yadav, Air Education of India*
4. Micro Teaching and Learning Paradigm—*Ramdev Prasad Kathuria, Vinod Pustak Mandir.*.

Notes

Unit–12: Simulated Teaching (Simulation)

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the meaning and definition of real teaching.
- Know the reality of teaching content and method.
- Do practical steps of learning, to understand the characteristics and limitations.

Introduction

Several methods for creating useful and effective teacher training have been developed. Simulated Teaching is one of them. This method is called simulation or customized training. **Kersh** first villages in the area of training used in teaching. In 1966 **Cruck Shank** in the U.S. is used to make effective teaching practice. Is the real meaning of role play simulation. Literally, it means exactly-To imitate. Like all true teaching in a given situation to make artificial reality is called teaching.

12.1 Simulation: Meaning and Definition

Histrionically also used in teaching means customizing. Histrionically method is introduced to students knowledge of the situation, after which, through conversation and discussion subject is extended.

Notes

Customized teaching method is considered by the Second World War. Used to train for war, real war is not possible. Therefore, different array compositions of war and war-like techniques to train artificial conditions is constructed and Training is provided. In this process, an action is presented in lifelike artificial conditions.

The teaching method used nowadays in business management, administration, medicine, teaching and training in the field of business.

Simulated Teaching

The precise method of teaching learning and training through the act of pupil teacher problem—Ability to resolve behavior develops and provides training to teach him very well.

Reality by acting in teaching and specific communication skills for the development of a complete artificial conditions are teaching. The behavior of learners sorted and organized learning in artificial conditions—experiences while maintaining desirable change is brought about by the spontaneity.

According to **Wing** "Creating artificial conditions is the When the student teacher to meet specific customized materials have to be the desired response." He Consider the actual circumstances that represents simulation.

According to **Cruick Shank** "Practical teaching is to create artificially a real situation in which your current or future actions by the participants resolve problems Sambndhti experience possible."

According to **Trancy** and **Anwin** "A simulation of a situation or environment by customizing often represents the actual conditions that is less complicated and less time-consuming."

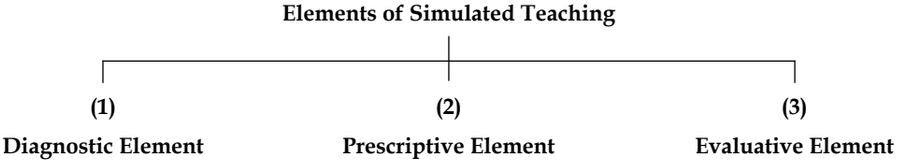
Customized learning implies the use of simulation training." Customized teaching a teacher training technique, which the student teacher is to develop teaching skills. By this method, the student teacher teaching practice skills in simulated situations are given."

Did u know? In fact it is customizing the student teacher teaching a class Special discharge their role as students A student teacher, the teacher plays the role of Inspector live in one or two student teachers. And proficiency in a particular skill to do the work of teaching in these artificial conditions. (Kulshreshtha 1975)

Thus, they are ready for effective learning in real situations.

12.2 Elements of Simulated Teaching

According to **Cruick Shank** there are three main element of Simulated Teaching—



(*i*) **Diagnostic Element**—As a doctor does diagnose the patient's illness symptoms, as well as a teacher helps students diagnosed their weaknesses and strengths. The teacher tries to overcome these weaknesses diagnosed and Strengths in the future to maintain their places as loudly.

Notes

(*ii*) **Prescriptive Element**—Students' weaknesses and strengths diagnose difficulties, on the basis of their qualifications and skills that students attempt to treat and Students are striving to bring behavioral change.

(*iii*) **Evaluative Element**—To evaluate the achievement of remedial actions which the teacher activities, they all come under the process of evaluation. This indicates that the evaluation of teaching pre-determine how, and to what extent determine which would have been received. Accordingly, when you're not satisfied, diagnosis, treatment and evaluation of the process is repeated.

12.3 Procedure of Simulated Teaching

Three major types of real-time training in teaching roles have had to juggle. They are—

(1) Teacher (2) Student (3) Inspector

These three types of roles alternately play teacher. In the process, the first to play the role of teacher educators. The fellow students play the role of teacher. The role of the teacher is the teacher teaches the lesson. In it teaching session is of 6 to 15 min. Student count also from 5 to 15. Like fellow inspector one or two teachers are evaluated. Teacher at the end of the text on the Properties inspector to discuss defects and Encourage teachers to improve their teaching.

Self-Assessment

1. Fill in the blanks:

(*i*) Real meaning of Simulation is .....

(*ii*) The use of Simulation teaching method is considered from ..... world war.

(*iii*) Customized teaching is a technique of Teacher .....

(*iv*) A pupil teacher who is in the role of Teacher teach the .....

(*v*) At the end of the lesson ..... discuss the merit-domerit of the teacher.

12.4 Steps of Simulated Teaching

(1) Orientation—First, all information is provided regarding teacher education a reality. The real meaning of the teacher and the Samprtyy is clear, its importance and use are explained and the procedure is explained.

Students, teacher, student and observer's role is to explain the role and appropriate training is provided for subsistence.

Therefore, there are three main functions under the stair—

(1) Provide accurate information to the students learning.

(2) **Role selection**—What role do under it, the decision is taken. How will the roles, roles that are discussed on how to play this.

(3) **Select the teacher role play**—Who is the teacher who will act on it, are discussed and the teacher, student and teacher of the inspector is selected.

(2) Selection of Skills for Practice—The stair under which it certainly is—who will be trained in teaching skills. Teaching skills and their importance when selecting the focus is on utility. Such skills are available, whose use in the teaching of all subjects to be taught in school as possible. Interpretation skills are selected, the discussion and deliberation is done. Key elements are introduced to their nature, the teacher creates lesson plans based on the selected teaching skills.

Notes

(3) Determination of Sequence—Reality by learning skills that are selected based on their exercise program after Lesson planning is made. To what skills will be first, what skills will be when it is used to determine the order. This step is used to determine the order in which the teacher and the order in which they practice different teaching skills which will role.

(4) Determination of Observation Techniques—It is used to determine what type of teaching skills for the practice of observing the system will be stored. Ex Audio Cassette the will be used. Thus, the equipment to observe and practice teaching skills and what methods will be used, it is decided Here it is also certain that the observations in which the points will be observed, and Which method will be adopted to nourish.

(5) Organisation of First Practice Session—When the entire system is held the first practice session. Nutrition practice session immediately after the page is given by supervisors and suggestions for improvement are necessary. The session lasts until the turn of the teacher does not come to practice.

(6) Providing Mastery Over Teaching Skills—Each teacher teaching skills then keep practicing until he receives the full dexterity skills. Him to a second teaching skills are put to practice skills..And also to master is the third practice teaching skills. Thus, the sequence continues.

Notes Description of the main steps of simulation is given here. It can be changed according to the requirement and facilities.

12.5 Characteristics of Simulated Teaching

(1) The student work naturally in artificial conditions.

(2) The students have the opportunity to be master in various skills.

(3) There are many opportunities for students to rehearsal.

(4) The pupil - teacher who is playing teacher's role get immediately feedback after completing the lesson.

(5) This method is simple, easy and very useful.

(6) By using this method confidence of teacher awaked.

(7) Without teachers teaching in school as part of the school are learning opportunities, thereby increasing their experiences and increasing interest in teaching.

(8) School is not being addressed because of the problem, the method teaching practice teaching method is accurate.

(9) Actual teaching practice in the school is not teaching. Therefore, students would not harm any of the studies.

(10) Actual teaching of teachers face many difficulties. Much lower than the actual conditions in real educational problems are revealed.

(11) In reality teachers teaching different learning skills are mastered, thus teaching them in full, efficiency is relatively simple and intuitive.

(12) Develop the ability to sort the text is presented.

(13) Interest in this method, and rich in inspiration and enthusiasm.

(14) Reality of teaching in the classroom teacher is learning the right way to behave.

Notes

12.6 Limitations of Simulated Teaching

(1) Practical training at the beginning and end time of the teacher and consequently some difficulties sometimes they can be discouraged.

(2) Many times inspector who plays the role of teachers, lack of experience in the right way can not subsist.

(3) Teacher evaluation sometimes makes false marking, which may lead to mutual misunderstandings.

(4) Students often internalized teacher who plays the 'boys' play experience difficulties in the classroom, which do not act as a real classroom.

(5) Many teachers do not fully follow the instructions or do not understand the true teaching of the key elements to create the ideal situation is difficult.

Task Write limitations of simulated teaching.

Stone follows the true interpretation of the importance of simulated teaching—

Simulated Teaching Technique—Artificial state, often in the same room teacher learning, self-learning and practicing skills in classroom teaching skills is to collect. Artificial conditions for learning by teaching exemplary teacher training, The first stage progression by making it easy for teachers to focus on the actual situation without learning complex skills enables. It is understood that only fair to inform students of classroom teaching and how does one control, Just as a pilot exercise simulated control is provided When he is not flying in the air, then told him how it should be.

Use

(1) Develop the ability to ask questions in teaching.

(2) Used in order to develop a potential questions.

(3) General practice of classroom teaching.

(4) Sort text presented as the ability to develop.

(5) Follow the steps in problem solving teaching is consistent manner.

(6) Classroom learning capabilities to present in summary form.

(7) Deductively to lecture capabilities.

Self-Assessment

2. State whether the following statements are True or False:

(i) Teaching skills and their importance when selecting the focus is on utility.

(ii) Nutrition practice session immediately after the page is given by supervisors.

(iii) Acquiring skills on one another to practice teaching skills are taught.

(iv) Students do not receive many opportunities for rehearsal.

(v) Exemplary Teaching in artificial conditions, teacher training for teaching.

Notes

12.7 Summary

- Several methods for creating useful and effective teacher training have been developed. They are simulated teaching.
- Like all true teaching in a given situation to make artificial reality is simulated teaching
- The precise method of teaching and training is learning Resolve the problem of teacher behavior through the Act seeks to develop the competency And provides training to teach him good
- As a doctor does diagnose the patient's illness symptoms, as well as a teacher of students diagnosed their weaknesses and strengths helps.
- First, all information is provided regarding teacher education a reality. Teaching them the true meaning and it is clear meaning, its importance and use are explained and the procedure is explained.

12.8 Keywords

- Simulation—Emulation
- Supervisor—Observer

12.9 Review Questions

1. Write precise definitions given by various scholars of simulated teaching.
2. Describe the elements of the simulated teaching.
3. Explain the steps of simulated teaching.
4. Write the characteristics of simulated teaching.

Answers: Self-Assessment

1. (*i*) Role Play (*ii*) Second (*iii*) Training (*iv*) Lesson (*v*) Inspector
2. (*i*) True (*ii*) False (*iii*) True (*iv*) False (*v*) True

12.10 Further Readings

Books

1. Education Technique—*S.K Mangal, P.H.I Learning.*
2. The Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit-13: Flander's Interaction Analysis System

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know teaching behavior.
- Understand the Flander information system for the analysis of the interactions.
- Know the rules of inspection.
- Learn the basic concepts of Flander.

Notes

Introduction

Meaning—The various actions the teacher in the classroom, teachers and students in the classroom as a result of the inter-actions between the different types are. **The interconnection procedures are key attributes of teacher behavior. Teacher attitudes are reflected in the analysis of these inner processes. "Teacher behaviour may be defined as a function of the characteristics of the teacher, his environment and the task in which the teacher engages."**

13.1 Teaching Behaviour

Teacher behavior, **learning behavior** is different from the concept. Teaching practice includes a variety of activities, whose principal aim is the 'teaching - learning' objectives. Write on the blackboard, decode, display, asking questions, responding, to provide guidance, to praise, to motivation, to encourage students to class actions, behavior assessment, etc., are examples of teaching practice. (Singh, 1992)

In the words of another scholar—

"The teaching behaviour conceived in this way becomes a system of activities or acts or operations which can be analyzed in terms of each specific activity or act or operation. It employs the intellectual process in a well organised form."

On the other hand, teacher behavior, teacher personality characteristics, his mastery of his attitudes, his sensitivity and his verbal and nonverbal behaviors are included.

"As a matter of fact the term teacher behaviour is very wide and it may include teaching behaviour with all activities or acts or operations relevant to the achievement of specific goals of teaching."

According to **Ryans**, "Teacher attitudes, behaviors or actions that individuals can be defined as what they do. And the actions of their needs, especially for such learning activities which relate to direction or guidance".

There are two features of teacher behavior—

(1) Teacher's behavior, their circumstances, are based on factors and characteristics.

(2) Is possible to observe the behavior of the teacher is impossible to observe the behavior of the teacher, so the measurement is also possible.

Withal (1949), **Flander** and **Amidon** (1960), **Medley** and **Mitzel** (1948) and **Galloway** (1968) was shown in Systematic Observation through the efforts of teachers to study behavior. Through systematic approaches, systematic inspection is done. "**Systematic inspection, a process which is used to observe classroom practices**." In other words, systematic inspection technique under certain rules of behavior by a teacher or teaching activity are analyzed. Efficiency and its ability to estimate teacher teaching her Effectiveness can be gauged. But the teacher's objective evaluation of teacher behaviors and interactions with students that can be done by.

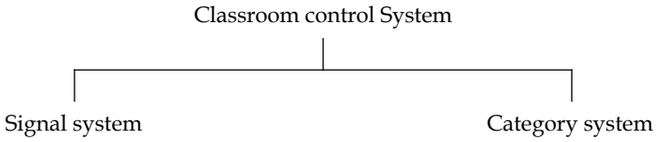
Notes Meaning of Interaction Analysis is a system by which the events happening in classrooms are observe and systematic and objective scientific analysis is done.

It is a kind of specific research activities, which support all the actions and practices of classroom inspection, marking and are being analyzed.

According to **Over**, "Systematic observation represents a useful means of identifying, classifying, studying, measuring specific variables as they interact within the institutional learning situations."

Notes

From last 60 to 65 years Academic classroom behaviors to the classroom observation systems are used, they can be divided into two categories—



Signal system is a list of teacher behaviors. Inspector, teacher forebodings which the behavior occurs in the showroom.

Range of different behaviors in the system in order to write a proper classes are being held. Class three or less than three seconds each time the event is also depicted and It is to note that it is seen how the event comes to class or category.

Anderson in 1935, **Helen** and **Brewer** in 1945 and **Mary Fransis** in 1946 started working in the field of classroom inter-process analysis. **Lipit** and **White** in 1943 with the help of **Kert Livin** studied the effects of different types of leadership. **Vidal** in 1949 decreed the literal statements are divided into seven classroom environment to study and develop a seven-sectional Index. **Robert Bales** in 1950 to analyze the interactions used as a research technique.

N.A. Flander in 1951 study the behavior of the teacher, the class system is composed of ten. The system was developed in **Minnesota University** adjoining which is the most prevalent.

Richard Over in 1967–68 Improve the system's range of **Flander and Develop Reciprocal Category System** This system holds the action response in 19 categories were both categories. So Over kept its name to the reciprocal square system. The teacher and student, both actions are placed.

Brown,Ober and Sour in 1968 developed the method of Taxonomy of Cognitive Behaviour

Bentlay and Milber in 1970 developed **Equivalent Talk Category System** Cognitive behavioral studies were made of the ten category. With the help of these ten categories 'Cognitive Interaction' are inspected and evaluated.

All the actions and practices of classroom interaction analysis with the help of inspection, marking and scientific evaluation is appropriate. The effectiveness of the teacher and the classroom through social and emotional environment is measured.

Did u know? In India **Varma** and **Ansari** in 1975, **Deva** in 1978, **Vasishta** and **Agarwal** in 1979 Teachers to analyze their own behavior to study interactions Supervised the research work in the field of manufacturing systems.

Gradual development of monitoring systems to analyze interactions **Dr. R. A. Sharma** following table is displayed through—

Observational Approaches for Interaction Analysis

Originator	The Purpose of the Study	Contributions
(A) Sign System		
1. Medley and Mijal (1958)	Inspection by graduate teachers studied	Verbal and nonverbal inspection
2. D. G. Ryan (1960)	Teacher's, Features	The study of the nature of teacher's Features
3. Brown and colleagues (1967)	Perception-level behavioral pattern	Levels of reflections to be used to

Notes

(B) Category System		
1. Right Stone (1935)	New method for the study of schools	Format posts
2. H. H. Anderson (1945–46)	Teachers observe the interactions of	Article behavior pattern I/D ratio
3. Bidal (1949)	Social, emotional learning behavior in the environment	Seven class teacher educators and student-centered
4. Belz (1950)	Social and personality psychology education	Article interactions or time
5. Medley and Mijal (1958)	Inspection of graduate teachers studied by	Textual inspection system
6. Hafs (1959)	Teacher's actions	
7. Ned A. Flander (1963)	Ten square method to observe verbal and nonverbal	Hundred classrooms
8. V. O. Smith and colleagues (1962)	Analysis of classroom dialogue	Class describing events
9. Balk (1963)	Language in the classroom	The usefulness of language
10. Kogan (1965)	Student - teacher behavior pattern	New sections inserted
11. Hugh (1966)	Training effect	Class improved methodology
12. Ameedon (1966)	The importance of teacher behavior	Flander class improved methodology
13. Ober (1967)	Views of classroom behavior	Reciprocal square method (R.C.S.)
14. Galloway (1968)	Non-Verbal	Non-verbal activities article

13.2 Interaction Analysis

Teacher behaviors or actions 'Systematic Observations Techniques' which is analyzed by analyzing the interactions known as Interaction Analysis.

Interaction analysis means each event occurring in the classroom to provide objective and systematic inspection and Each event is to be analyzed. This method accounts for each event is occurring in the classroom.

Objectives of Interaction Analysis

1. To study the characteristics of the teacher.
2. To study the behavior of the teacher through inspection.
3. Bodh level to study the nature of the behavior.
4. Teacher in social and emotional environment to analyze interactions.
5. Teacher and student behavior study.
6. Analysis of classroom work.
7. Training to analyze the impact and nonverbal communication.

13.3 Flander's Interaction Analysis System

Ned A. Flander in 1959 developed a specific system based on class **Verbal** Analysis system, Sort the classroom under the supervision of the various events that the scientific manner.

Flander for the study of classroom behavior During the systematic teaching of verbal interactions And scientific studies to the entire verbal behavior are mainly divided into three parts

Notes

1. Teacher talk
2. Pupil Talk
3. Silence or Confusion

1. **Teacher Talk**—By the teacher during classroom teaching and action whatever task are placed in the teacher's statement. These are included only verbal behavior. The teacher is divided into seven sections Flander statement. These are divided into two parts:

   (*i*) Direct class (*ii*) Indirect class

Direct class teacher arranges its dominance in the teaching process in the classroom while the **indirect** class teacher, indirectly enhances the learning process.

Flander indirect behavior is divided into four distinct categories—

(*i*) **Accepts Feelings**—Students readily accept the feelings and perceptions. The negative and positive, as can be remembered and prediction.

(*ii*) **Praises or Encouragement**—Praise or encourage students according to their actions and to provide reinforcement.

(*iii*) **Accepts or Uses Ideas of Students**—Students to accept the ideas, opinions, explain, and use.

(*iv*) **Ask Questions**—By teachers facts, information, and methods and materials related to the students to ask questions.

Direct behavior is classified into three distinct categories—

(*i*) **Lecturing**—Material, process or fact to present their views and make a speech.

(*ii*) **Directing/Instructing**—Students are required to provide instruction and guidance.

(*iii*) **Criticizing and Showing Authority**—Changes in students' attitudes and criticize the authority to prevent unfair practices to perform

2. **Pupil Talk**—Verbal behavior displayed by the students in the class, activities, student responses come under statement. According to Frlander It is divided into two parts—

   (*i*) **Pupil Talk Response**—Teacher's action, it is directed and answer questions from students.

   (*ii*) **Pupil Talk Initiation**—The student's own initiative for negotiations. He asks the question, ask for clarification and offers his thoughts. He has presented his views on freedom and development.

3. **Silence/Confusion**—Speak all together for some time in the classroom, the classroom is in chaos, in which anyone or anything, do not understand the class is silent.

13.4 Construction of Interaction Matrix

Sort them by observation of classroom practices are written in a table or matrix interactions. The following points are clear from this table—

(*i*) How is the behavior of the teacher in the classroom?

(*ii*) How many students are active?

(*iii*) How much and how do teachers encourage students.

(*iv*) Student and teacher shortcomings in the practices, how they can be improved.

(*v*) How is class-teaching as a whole?

Self-Assessment

Notes

1.Fill in the blanks:

(*i*) Teacher behavior, learning behavior, ... Is.

(*ii*) Sort inspection is a process in which classroom practices ..... Is used.

(*iii*) Helen and Brewer's ..... Thus began the process in the field of analysis in the classroom.

(*iv*) Through inspection ..... The behaviors are studied.

(*v*) Systematic observation of classroom practices, and a table ..... Is written.

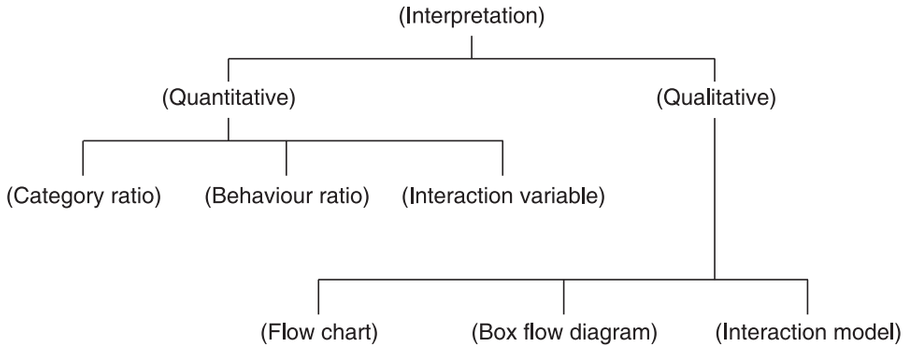
13.5 Flander's 10 Category Analysis

Ten class method or interaction analysis method developed by Flander have two parts—

(1) Encoding Procedure—Observers on the basis of teaching in the classroom or on the basis of text, sound, tape marking is different interconnection procedures. Text is inspected at least 20 minutes. If the same type of interactions is quite moving his notation is used many times.

Interactions for the construction of the table is a matrix of 10 × 10 boxes and observers that the marking on the basis of their inspection.

(2) Decoding Process—Marking is necessary to interpret the data obtained. Is to analyze the behavior of the teacher. Thus, the interpretation of data—



1. **Quantitative Interpretation**—Quantitative interpretation of these sources is explained under each post. Here we write these Formulae in terms of number of categories.

1. $\underset{\text{TT}}{\frac{\text{Teachers Statement}}{\text{Teacher Talk}}} = \frac{1+2+3+4+5+6+7 \text{ Class Frequency}}{\text{Total Frequency}} \times 100$

2. $\underset{\text{ITT}}{\frac{\text{Indirect Teacher Statement}}{\text{Indirect Teacher Talk}}} = \frac{1+2+3+4 \text{ Frequency}}{\text{Total Frequencies}} \times 100$

3. $\underset{\text{DTT}}{\frac{\text{Direct Teacher Statement}}{\text{Direct Teacher Talk}}} = \frac{5+6+7 \text{ Frequency}}{\text{Total Frequencies}} \times 100$

4. $\underset{\text{IDR}}{\frac{\text{Indirect-Direct Ratio}}{\text{Indirect-Direct Ratio}}} = \frac{1+2+3+4 \text{ Frequency}}{5+6+9 \text{ Frequency}} \times 100$

5. $\underset{\text{PT}}{\frac{\text{Student Statement}}{\text{Pupil Talk}}} = \frac{8+9}{\text{Total Frequencies}} \times 100$

Notes

6. $\frac{\text{Silent/Confusion}}{\text{Silent/Confusion}} = \frac{\text{10 Frequency of the class}}{\text{Total Frequency}} \times 100$

7. $\frac{\text{Student Initiation order}}{\text{Pupil Initiation Ratio}} = \frac{9}{8 + 9\ \text{Frequency}} \times 100$

PIR

8. $\frac{\text{Actions teacher ratio}}{\text{Teacher Response Ratio}} = \frac{1 + 2 + 3}{1 + 2 + 3 + 6 + 9\ \text{Frequency}} \times 100$

TTR

9. $\frac{\text{Teacher Question Ratio}}{\text{Teacher Question Ratio}} = \frac{4}{4 + 5\ \text{Frequency}} \times 100$

10. $\frac{\text{Text-Object Interpellation Ratio}}{\text{Content Cross Ratio}} = \frac{2(4 + 5) - [(4 - 4) + (5 + 5) + (5 - 5) + (4 - 5)]}{\text{Total Frequencies}} \times 100$

CCR

11. $\frac{\text{Steady State Ratio}}{\text{Study State Ratio}} = \frac{\text{The Sum of Ten Stable Orbits}}{\text{Total Frequencies}} \times 100$

SSR

12. $\frac{\text{Students Steady State Ratio}}{\text{Pupil Steady State Ratio}} = \frac{(8 - 8) + (9 - 9)\ \text{Classes}}{(8 + 9)\ \text{Avdytti}} \times 100$

PSSR

13. $\frac{\text{Former Teacher Response Ratio}}{\text{Instantaneus Teacher Response Ratio}} = \frac{\text{TTR89}}{\text{Total Frequencies}} \times 100$

ITRR

14. $\frac{\text{Questions Teacher Ratio}}{\text{Instantaneus Teacher Question Ratio}} = \frac{(8 - 4) + (9 - 4)\ \text{Avdytti}}{(8 - 4) + (8 - 5) + (9 - 4) + (9 - 5)} \times 100$

15. $\frac{\text{Odd cycle}}{\text{Vicious Circle}} = \frac{(6 - 6) + (6 - 9) + (9 - 6) + (9 - 9)}{\text{Total Frequencies}} \times 100$

VC

The calculated results are interpreted with the aid of formulas.

Task What is the process of Encoding?

2. **Qualitative Interpretation—** Interpretation of classroom behavior analysis is expressed qualitatively. Charts and diagrams are interpreted through the medium of this type. It is qualitatively interpreted in three ways.

   (*i*) Flow Chart— Interpret quantitative data from the analog clock is recorded in the flow chart. The total range of frequencies is determined. Commonly (5-5) was observed in the range most instances, but there are prospects of frequencies in other categories. All categories are not included in the flow chart. Only the lowest frequencies are fixed.

   (*ii*) Box Flow Diagram— Watch analog flow chart is difficult to understand the behavior of the teacher. So Casket insulated flow chart is marked by the teaching behavior. It indicated class and small big, fat thin are made clear is that all behavior. It is recorded to determine the frequencies.

   (*iii*) Interaction Model— Frlander qualitative interpretation of the teaching practices developed for the interaction paradigm. The conclusion in the context of teaching behavior is explained. Saddhant flow responses in the order determined in accordance with the teaching, the matrix is expressed with the help of external verbal behavior.

Notes

(Interaction matrix)

		1	2	3	4	5	6	7	8	9	10	(Total linewise)[1]
(Teacher talk)	1. Accepts feeling											
	2. Praises or encouragements											
	3. Accepts ideas of students											
	4. Ask questions											
	5. Lecturing											
Direct effect	6. Directing instructing											
	7. Criticism and rights demonstration											
(Student talk)	8. Response											
	9. Student initiation											
	10. Silence/Confusion											
(Column/Total)												

Interaction Matrix

Objective method of analysis is the analysis of interactions interaction paradigm. The second of three events marking is analyzed. The nature and practice of teaching, both studied and analyzed the interactions are expressed in terms of learning behavior represents Visudha.

13.6 Rules for Observation

Rule 1. When it became clear that the behavior is related to which category, farthest from the fifth class of the category should note the order number. If the number 2 and 3 in the category unmistakably asserts, the fifth category, the category most far have 2 numbers, so the 2 numbers must record each category. Similarly, if there is ambiguity in the 5th and 7th class category number 7 should be noted. Category 8-9 of 9 in category marking should be confusion.

Rule 2. If the teacher talks if the trend continued direct or indirect constant observation by the observer must not change suddenly category By the teacher may not receive a clear signal of change.

1. The percentages in this table is determined by filling the shape of categories. Be sure to keep these things in mind when marking.

Notes

Rule 3. Do not use your own approach to the inspector.

Rule 4. If more than one second in three categories which are active all categories should be recorded. If a category does not change the three second number is the same class must be repeated.

Rule 5. If silence is more than 3 seconds to record the 10th Division.

Rule 6. If silence is more than 3 seconds to record the 10th Division.

Rule 7. If the teacher to the student's answer and the answer is correct, then this behavior repeated Category 2 is maintained.

Rule 8. The idea of the student teacher to listen and debate the relationship of Category 3 will accept this behavior.

Rule 9. If a student by another student begins its negotiations after talks.. Between the 9th and 8th grade class 10 is written.

Rule 10. All right Yes or OK etc are related to category 2.

Rule 11. Inspection should be given to the situation than words.

Rule 12. If a student teacher, then it's no fun without a targeted range of 2.. and mocks her with a student, it is maintained by Category 7

Rule 13. If the student has to speak a little to the question if the assembled class record is 8.

13.7 Flander's Basic Assumptions

1. Teacher's behavior influenced the student.
2. Teacher's classroom behavior of students affects more. Student behavior is influenced by the behavior of teachers.
3. Teacher-students relationship is important in the process of education.
4. The teacher is more interested in democratic practice.
5. Observe the behavior of the teacher in the classroom, marking and can be objectively measured.
6. Learning environment of the classroom is also important.
7. The teacher's behavior can be improved by the use of feedback.
8. Use of verbal behavior in the classroom is more. Represents the entire behavior of the classroom verbal behavior.

13.8 Characteristics of Flander's Interaction Analysis

1. Teacher in the classroom behavior of this method is objective verifiable manner.
2. There is a system of feedback
3. It is a reliable method for evaluating classroom teaching.
4. Use this as a teaching assistant microscopic method is used.
5. Teaching practice time required by this method may be given to the teacher's teaching practices.
6. The system has a clear conception of teaching practices change in the teacher's teaching effectiveness.
7. This system is used to analyze the teacher's teaching,.. teachers make their own assessment of the merits and defects of the information may be able to overcome his guilt.
8. The system of teacher training and in-service teacher education teacher change in behavior his teaching skills can be enhanced.

9. Teaching and teacher, brings both improved this method.
10. It can also be used successfully in simulation.
11. It is a scientific and objective method.
12. It is able to observe subtle micro classroom behavior.
13. It has proved very beneficial in various research activities.

Notes

Self-Assessment

2. Multiple Choice Questions:

(*i*) Who developed ten categories?

(*a*) Flander (*b*) Arastu

(*c*) Pluto (*d*) Marsal

(*ii*) In which form classroom behavior analysis can be explain and expressed?

(*a*) Positive (*b*) Qualitative

(*c*) Negative (*d*) Objective

(*iii*) Interaction analysis technique is which technique of the interaction paradigm?

(*a*) Small (*b*) Large

(*c*) Objective (*d*) Explanatory

13.9 Limitations of Flander's Method

1. This method is used only in the classroom with verbal behaviors, but not with nonverbal behaviors.
2. In this method, curriculum, and teaching points or text on any type of case is ignored.
3. This method of studying classroom practices that amount in 10 categories, which are treated fairly limited. 10 classes in total volume study of classroom teaching practices, not possible. In this method, promiscuous behavior may go unnoticed.
4. In this method, very little attention is given to the student statement and the statement pursuing teacher. It's not fair.
5. It requires trained inspectors.
6. Using this system seems to be a lot of time and energy.

13.10 Modification in the Flander's Interaction Analysis System

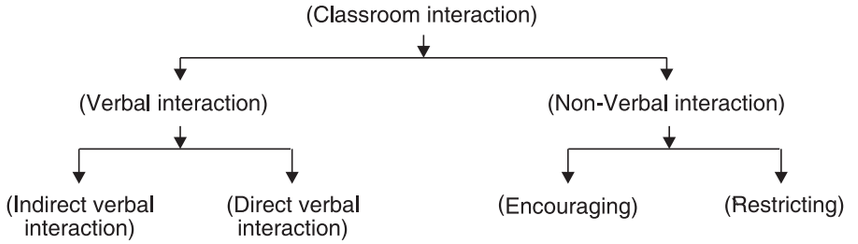
Keeping in mind the limitations of the method of analysis of interactions Frlander over 1968 in the 'reciprocal square method', Kogan in 1965 and in 1966 a new system **Hulf** and **Charles M. Meedon** the **Globe** in 1969 in the method presented their amend the same.

Globe efforts are the most popular. The name of the system—I.D.E.R. System. It's both verbal and nonverbal interactions are measured.

13.11 Galloway Supervision System : I.D.E.R. System

The system developed in 1969 by **Charles M. Globe**. **Globe** in the teaching of both verbal and nonverbal behaviors of the system is measured. He follows standard interconnection process is displayed—

Notes



The interconnection of both verbal and nonverbal processes in the system shown in Figure above four components are used, Therefore these components on the basis of the first letter of the name of the system is placed IDER system—

I = Indirect (Verbal) Interaction,

D = Direct (Verbal) Interaction,

E = Encouraging (Non-Verbal Interacting)

R = Restricting (Non-Verbal Interaction)

Inspected the following classes in his system kept **Globe**—

Galloway inspection system (IDER) category or categories

(A) Indirect Direct Interconnection Process class literal-The following 10 components placed—

1. Accepting students' feelings.
2. To encourage.
3. Students use display ideas.
4. Questioning.
5. Preaching.
6. To provide guidance.
7. Criticism and to show the authority.
8. Student talks.
9. Students Initiation.
10. Silence or confusion.

(B) Incentives, disincentives class nonverbal inter-process class- The following 10 components placed—

1. Acceptance / rejection
2. Agreement / disagreement.
3. Show implementation or neglect.
4. Personal or general.
5. Responsible / Non-Responsible.
6. Be passion or remain neutral.
7. Be determined or to be rude.
8. To rejection or neglect.
9. Ignore.
10. Pleasant or annoying.

Notes

Encoding Procedure

In this system, both verbal and nonverbal classroom are inter-process inspection. Flanders in this system are similar to the rules of inspection. There is also a class interval is 10 seconds and the total observation time of 20 minutes. In this system each class. Through verbal and nonverbal interconnection points in the process of terminating the rail line marking and signs are used by fire. Inspection of the article is added to the class start and end.

13.12 Decoding Process

Verbal and nonverbal behavior of the system for the 20 × 20 matrix table is used. According to **Dr. R. A. Sharma** "There are 400 cells in this Table. Each section displays the order flow of the two actions. Two classes, the two volumes are Sambndhti the teacher to evaluate the behavior of the flow.

It also explains how the matrix is followed by action. This table displays the aural section of sustainability practices. This table is prepared on the basis of inspection class system. The verbal and nonverbal sections separated pairs are depicted in the table of frequency".

The frequencies listed in the table above procedure IDER table is crafted pieces. The IDER table is classified into four parts and components of the practice is to calculate the percentage.

If you need a qualitative analysis 'flow-chart' is made on the basis of the qualitative analysis is the study of teacher practices.

Self-Assessment

3. State whether the following statements are True or False—

(*i*) Flander method in class the teacher's behavior is objectively verifiable manner.

(*ii*) This incredible method of evaluation of classroom teaching.

(*iii*) Globe inspection system was developed in 1969.

13.13 Summary

- Teacher behavior can be defined as those teacher's behaviors or actions which they are carried out, such actions, especially in the classroom or learning concerns with the direction and guidance.
- Different behaviors in the class system in order to write a proper classes are held. Each class three or less at the time of the event is also depicted and it is seen to note that this event is which class or category.
- Bentlay and Milber in 1970 developed Equivalent Talk Category System.
- Classroom behaviour by the teacher during teaching tasks and actions are whatever is placed in the teacher's statement.
- Interpretation of classroom behavior analysis is expressed qualitatively. Charts and diagrams are interpreted through the medium of this type.
- Objective method of analysis is the analysis of interactions interaction paradigm. The second of three events marking is analyzed.

Notes

13.14 Keywords

- **Confusion**—Misunderstanding
- **Flow**—Effluent

13.15 Review Questions

1. What do you mean by teaching practice?
2. What is the purpose of the interaction analysis?
3. Flander's indirect and direct behavior is divided into how many categories?
4. Write type of inspection rules?
5. What is the basic concepts of Flander?
6. Explain decoding process?
7. Write down the characteristics of Flander's interaction.
8. What is the limitations of Flander's method?

Answers: Self-Assessment

1. (*i*) Conception (*ii*) Inspection (*iii*) 1945 (*iv*) Teacher (*v*) Matrix
2. (*i*) (*a*) (*ii*) (*b*) (*iii*) (*c*)
3. (*i*) True (*ii*) False (*iii*) True.

13.17 Further Readings


Books

1. Education Technology—*S.K. Mangal, P.H.I. Learning.*
2. The basic premise of Technical Education—*Yogesh Kumar Singh.*

Notes

Unit–14: Reciprocal Category System = RCS

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the verbal behavior of Reciprocal category system.
- Understand Ober's Encoding Procedure.
- Understand Analysis and Decoding Procedure.

Introduction

Several limitations of Flanders's Ten Category System has been mentioned, which were reformed and modified by other scholars in the Ten Category System. **R. C. Ober** has also a great contribution towards this. **Ober** (1968) modified **Flander's** Ten Category System and introduced Reciprocal Category System. In Ten Category System article is prepared by one sided encoding while it is two-sided in the Inter-Process Communication. For example, five categories will be marked for every three seconds while teacher is speaking. Also, five categories will be marked for the next three seconds but students' responses are not drafted. The teacher asks the students to sit. Six categories are marked but students sit, this response is not drafted. Four categories are marked when teacher asks a question, but students' responses such as raising their hands. It is not drafted in the encoding. Sometimes student asks a question or aspects clarification from the teacher, then 9 categories are marked but no category of teacher's response is marked in the encoding. Two categories are marked when teacher praises the students while students' response towards this praise is not drafted.

Interaction is done through face to face communication in class teaching. Self-initiation and responses takes place simultaneously, but there is one sided drafting in the **Flander's** Analysis System.

Notes

Speaking-listening, writing-reading and performance-inspection. Communication flow is not drafted completely, flow is drafted incompletely. Interconnection process is Transactional.

Notes In 1968, Ober developed Transactional Analysis Method which is also called as Reciprocal Category System.

List of Ober's Reciprocal Category System is given here.

14.1 Reciprocal Category System = RCS

Verbal Behavior

Teacher Category **Student Category**

1. **Environment Liveliness** — To reduce stress, to praise and encourage actions. 11
2. **Accepts Feelings** — Provide positive reinforcement. 12
3. **Accepts Ideas of Students** — To ask for clarification, to develop student actions, to include the students' actions in his communication. 13
4. **Ask Questions** — Asking question regarding course. 14
5. **Response** — Answering questions, providing information related to course, self-answering his own questions and presenting his ideas. 15
6. **Self-Initiation** — Presentation of information and facts. To present course related ideas. 16
7. **Directing Instructions** — Giving instructions to some actions and behaviors which have to be followed by the students, utilizing teacher rights. 17
8. **Criticizing** — Telling whether students' action are right or wrong. 18
9. **Environment Cooling** — To improve behavior deciding whether it is right or wrong, showing rights and criticizing. 19
10. **Silence and Confusion** — Being quiet for a moment, or speaking of everyone due to which encoder can't take any decision. 20

Ober has improved the categories of Encoding System, which can be used to observe classroom interactions. But he didn't improve the Meaningful Process as much as Flander did. Ten Category System is used in the most researches.

14.2 Ober's Encoding Procedure

Ober's category system is an extended form of Flander's system. Also in this process, analysis is done through two processes – encoding and decoding, the encoding process is included in a similar manner to that of Flander. The only difference is that actions of both sides of communication flow are encoded within three second such as teacher told the student to sit down and students had their seat. For this, (6 or 16) categories are marked in a sequence. Teacher asked a question and students raised their hands. For this, (4 or 14) categories are marked within three seconds. Teacher says a student to give answer and the student stood up, (6 or 16) categories are marked. Student started giving answer, teacher said yes or yeah, (8 or 18) categories are marked within three seconds. The format of drafting is as follows:

Notes

Teacher's action	Category	Student's Action
Teacher asked a question	4, 14	Student raised his hands
Teacher told student to answer	6, 16	Students raised their hands
Teacher accepts answer	8,18	Student starts answering
Teacher accepts answer	8, 18	Students takes three more seconds to answer
Teacher praises	2, 12	Student feels the praise
Teacher said to be seated	6, 16	Students sit

Did u know? In Ober's Analysis system, encoding period should be of 20 minutes. Encoding article is marked vertically in which communication flow shows that which classes are followed by which ones.

14.3 Analysis and Decoding Procedure

Similar to the Flander's, a 20 × 20 Analysis table is created in order to analyze the communication flow to class teaching. In the analysis table, 10 categories are combined from top to bottom. Every section of table displays communication flow. The above drafting is included in the table in the following manner. There are 400 sections in this 20 × 20 table while Flander's table consists of only 100 parts. It is divided into four communication flows. Each contains 100 sections. The process of creating this table is given as follows:

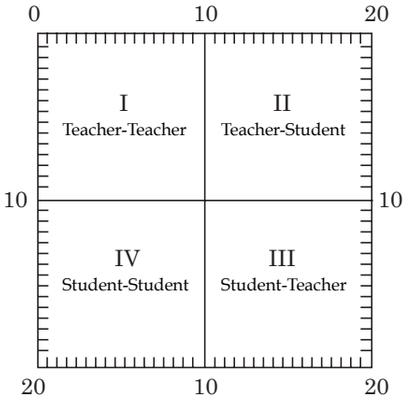
Construction Method of 20 × 20 Analysis Table

Sl. No.	Clause	Class and Combination	Frequency	Time
1.	(4–14)	1, 4	1	3 Seconds
2.	(14–6)	14, 1	1	3 Seconds
3.	(6–16)	1, 6	1	3 Seconds
4.	(16–8)	16, 1	1	3 Seconds
5.	(8–18)	1, 8	1	3 Seconds
6.	(18–8)	18, 1	1	3 Seconds
7.	(8–18)	1, 8	1	3 Seconds
		18		

Thus, 20 × 20 Analysis Table is created by encoding categories after marking the category combination in the required section. Transitional Analysis is done in this table.

Notes

20 × 20 Transitional Analysis Table



Transitional Analysis table divides the communication flow of classroom into four Transitions. These four flows are—

Flow	Meaning
1 Teacher-Teacher	No interaction in the communication
2. Teacher-Student	Interaction field in communication flow
3. Student-Student	Communication flow among students
4. Student-Teacher	Communication flow interactions

Task In how many transitions, Transitional Analysis table divides the classroom communication flow?

This table displays classroom communication flow into four Transitions. This Transitional Analysis displays the format of communication flow more widely as compared to Flanders and is useful in decoding.

Self-Assessment

1. Fill in the blanks:

(*i*) ..... modified Flanders Ten Category System.

(*ii*) In Ten Category System, article is prepared by one sided encoding while it is ..... in the Inter-Process Communication.

(*iii*) Interaction is done through face to face ..... in class teaching.

(*iv*) Self-initiation and responses takes place .....

(*v*) Interaction process is .....

14.4 Summary

- Several limitations of Flanders's Ten Category System has been mentioned, which were reformed and modified by other scholars in the Ten Category System. R. C. Ober has also a great contribution

towards this. Ober (1968) modified Flander's Ten Category System and introduced Reciprocal Category System.

Notes

- Interaction is done through face to face communication in class teaching. Self-initiation and responses takes place simultaneously, but there is one sided drafting in the Flander's Analysis System.
- Ober's category system is an extended form of Flander's system. Also in this process, analysis is done through two processes—encoding and decoding, the encoding process is included in a similar manner to that of Flander.
- Similar to the Flander's, a 20 × 20 Analysis table is created in order to analyze the communication flow to class teaching. In the analysis table, 10 categories are combined from top to bottom.

14.5 Keywords

- **Reciprocal**—Inter-related
- **Process**—Method

14.6 Review Questions

1. Who introduced Reciprocal Category System?
2. Write the verbal behavior of Reciprocal Category System.
3. Explain Ober's Encoding Procedure.
4. Explain the process of analysis and decoding.
5. What is difference between R.C. Ober's Reciprocal Category System and Flander's Analysis System?

Answers: Self-Assessment

1. (*i*) Ober (*ii*) Two-sided (*iii*) Communication (*iv*) Simultaneously (*v*) transitional

14.7 Further Readings

Books

1. Education Technology—*S.K. Mangal, P.H.I Learning.*
2. The Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–15: Models of Teaching

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the concept, meaning, definition and characteristics of teaching models.
- Understand the models of teaching and teaching strategies.
- Have the knowledge of families of teaching models.

Introduction

There was a time when learning theories were give importance in the field of education. Gradually on the basis of experience and research, it was discovered that learning theories are unable to solve the problems of teaching. So, academics and psychologists are trying to understand the nature of teaching by using technical theories. As a result, teaching theories are developing. In this area, names of **Cronback**, **Gagne** etc. are remarkable.

15.1 Meaning, Definition and Characteristics of Teaching Models

Notes

No teaching theories is developed yet in this field of education which is perfect and is placed in the category of universal theory. Models of Teaching are such efforts or arrangements which are leading us towards Teaching Theory. Some people also call them imperfect teaching theories. In fact, these models provide raw material and scientific basis for the development learning theory.

Model- **Coombs** and **Associates** have written while defining model—

"Model is an abstraction of the world ... a model of the world which is tested by comparing its consequences to the observed data".

According to **HC Wyld**—"To confirm in behavior, action and to direct one's to action according to some particular design or idea is called model."

According to **Bhatnagar** and **Bhatnagar** (1977), "The process given according to a design in order to achieve a behavior of Teaching or learning or teaching-learning theories is called a model."

Models of Teaching—"Teaching Model is the first step towards the development of teaching theories. They provide scientific basis to teaching theories. These are postulates which are used by teachers to make his teaching effective."

According to **Hyman**—"The model is a way to talk and think about instruction in which certain facts be organized, classified and interpreted."

B. R. Joyce called teaching model as Instructional design, "Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental situations which cause the student to interact in such a way that specific change occurs in his behavior."

According to **Joyce** and **Weil**—"Teaching model is a comprehensive theoretical portion about teaching learning and describing goals of learning, curriculum, setting and procedure. These are the different approaches to teaching and different kinds of strategy for teaching and learning."

According to **Bhatnagar** (1973)—"Teaching model may be considered as a combination of learning goals, environmental manipulations and other processes."

Teaching models are also called as prototypes of Theories of Teaching because these provide the essential facts and suffix for the development of teaching theories. Teaching uses teaching theories in order to make his teaching effective.

The word—model is used as an ideal or as a small form of an object. Students are made to adopt ideals through these model by bringing an ideal in front of them. In the second case, the small size of the object is referred to as a model. As a person firstly creates a model of the structure of a building, dam or a project, checks it functioning then starts the actual building, Dam or project if everything is fine.

Similarly, teaching-Paradigm are introduced in the field of teaching for skilled teaching arrangements which are called as Teaching Model. Teaching model is a way to thinking about teaching.

According to **Paul D. Eggen**—"Models are prescriptive teaching strategies designed to accomplish particular instructional goals.

According to **N.K. Jangira** and **Ajit Singh**—"A model of teaching is a set of inter-related components arranged in sequence which provides guidelines to realize goal. It helps in designing instructional activities and environmental facilities carrying out of these activities & realization of the stipulated objectives."

Jangira and **Singh** further writes—"The model has the support of a rationales justified by a viable theory. It tells about what the model stands for and why it purports to accomplish this. Empirical support towards the workability of the models also contributes one of the requirements to justify them."

Notes

Notes "Teaching Model is a free, dynamic, versatile and well organized multi-way process containing various predetermined format suited to different learning process, methods, policies and techniques in order to achieve pre-determined objectives of the teaching process under which tutor tries to bring desired changes in the educational environment along with the desired change in the behavior." (Kulshreshtha and Singh 1980)

15.2 Characteristics of Models of Teaching

The following characteristics of the above parameters on the basis of model of teaching can be—

1. Model of teaching highlight the various methods to create appropriate educational environment.
2. Models of teaching arrange learning experiences on the basis of their beliefs.
3. Models of teaching directs the interactions between students and teachers.
4. Model of teaching act as guides for teachers – how to teach, which course material and instruction materials should be chosen for which class, how to improve the chapter, which educational policy, law or tips should be used and how to evaluate students' achievement.
5. Models of teaching remain striving to improve the teaching process completely.
6. There are certain fundamental basis of every model of teaching.
7. These provide desired experience for both teachers and students.
8. Models of teaching improves the students' interest.
9. Generally, models of teaching are based on the personal opinions of teachers, philosophy, ideology and values.
10. Each model is influenced by some kind of philosophy.
11. Each model uses certain educational formulas.
12. Models of teaching focus on social needs and assist in the development of human abilities.
13. These are based on the philosophical theories and psychological rules.
14. Models develop by consistent practice, experience, practice and experiments.
15. Teaching Model is called as the practical side of teaching process which develops the teacher's personality.
16. Models of teaching give full assistance in developing teaching as an art.
17. Model of teaching is a framework to build educational environment and activities.
18. Models of teaching play a key role in determining specific instructional objectives for the specific teaching and learning methods.
19. These are striving toward the qualitative advancement in teacher's personality.
20. These are created on the basis of teaching-learning principles.
21. Models of teaching are able to answer certain basic questions.
22. It is a systematic form of facts through which changes can be brought in student's behavior.
23. Models of teaching specifically describes such environmental conditions in which the students' responses are observed.

Notes

24. Each Model of teaching tells what student will perform after the instruction sequence.
25. Each Model of teaching has a fixed mechanism.
26. Models of teaching presents feedback criteria.
27. Models of teaching are able to improve the whole learning process.
28. Models of teaching develop through practice and attention. Hence thinking is also its basis.
29. Models of teaching use student's interest, level and other qualities.
30. Models of teaching are helpful in developing teaching as an art form.

15.3 Models of Teaching and Teaching Strategies

Model of teaching and teaching strategies have similar functions. Teacher generates educational environment by using these two means. The feedback process is an essential function of the learning process. Educational strategies only determine the strategies. These are not related to teaching feedback. In teaching models, feedback process is one of the most important activities. It is necessary and essential element in every teaching model. In Teaching Models, feedback system is called as Support system. Therefore it can be said that the models of teaching are relatively more extensive than teaching strategies.

Models of teaching can be called as the findings of experience and experiments. These formats include the following actions:

1. To provide behavioral form to the changed behavior or achievement.
2. Selecting the correct and appropriate stimuli in which student can perform desired responses.
3. Specification of circumstances.
4. To fixed the standard behavior or feedback standards.
5. To specify and select teaching methods for interaction conditions between students and teachers in the classroom
6. Improving teaching strategies, methods and models according to needs.

Self-Assessment

1. Fill in the blanks:

(*i*) The ..... of confirming behavior according to some particular idea is called model.

(*ii*) Teaching Model is the first step towards the ..... of teaching theories.

(*iii*) Model of teaching highlight the various methods to create appropriate ..... environment.

(*iv*) Each Model of teaching has a fixed .....

(*v*) Model of teaching and teaching ..... have similar functions.

15.4 Assumptions of Teaching Models

The following are the key assumptions of teaching model:

1. Teaching model is a strong instrument to create the appropriate learning environment effectively.
2. Teaching model provides a real and practical framework for learning experiences.
3. Every model uses several teaching strategies, methods and techniques for a successful teaching.

Notes

4. Every model keeps striving to enhance the interconnection process between teacher and students and keeps the teaching process active.

15.5 Elements of Teaching Models

Every teaching model consists of four basic elements—

(1) Focus—Every teaching model must have a fixed objective, which is called as the focus of that model. These focuses are influenced by the teaching objectives and goals and keeps striving for the development of these skills and abilities.

(2) Syntax—Syntax refers to those points of teaching models which generate actions according goals or objectives determined in the various educational phases. In other words, syntax of teaching models shows that how teaching actions, strategies, techniques and interactions should be sorted to achieve the desired objectives. It is related to the presentation of course material.

"It involves a description or structure of teaching activities during different phases of teaching."

"The syntax refers to the structure of phasing of the model i.e. kinds of activities one will like to organize at well define stages of the whole teaching programme."

(3) Social System—Each model has its own social system, which tells us how to organize actions and interactions between students and teachers in which students have controlled behavior. Further, desired change can be brought to them. Social System tells about the techniques which give us motivation. Each model assumes that each class is a society and there should be certain social system to control and improve that society due to which education systems keep going smoothly.

(4) The Support System—According to a Scholar—"The support system is the most important summary variable that operates and determines the success of teaching."

Evaluation system is the fourth important element model of teaching. It tell us – to what extent we have received the teaching goals and to what extent the students' behavior can be changed. Thus, the system tells the story of the success or failure of teaching method. In other words, the process of improving and modifying teaching by investigating its usefulness is called as the support system.

Did u know? Various models guides various support system according to its goals.

15.6 Developing Models of Teaching

Development and improvement of teaching model is still in its infancy. Therefore teachers should think very much to make his teaching efficient. We can approach towards certain model by means of developmental psychology, social theory, behavioral modification in different theories and system approach etc.

It is sure that these models will provide a new direction to both the teaching and courses and bring the two sides much closer.

"Models of teaching build up an optional relationship among educational objectives, curriculum design, and instructional strategy as one to one relationship. They are in balance when they support the same educational ends. **(*Joyce & Weil, 1972*)**

In India, names like **D. Bhattacharya** and **Dr. P.N. Dave** are notable who have stepped towards the development of models.

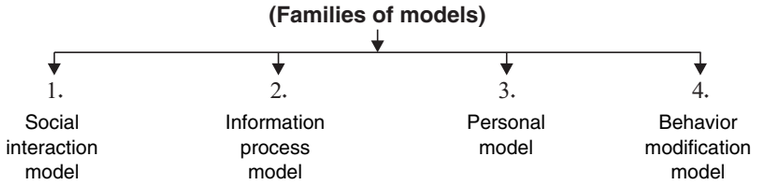
15.7 Families of Models of Teaching

Notes

Various scholars have imagined different types of families of teaching models. **John P. Dececco** classified teaching model into four basic psychological categories or families. **Schefler** has provided system concerning three families of these models. **E.C. Hayden** described four categories of teaching models. **Marsh Weil** and others divided entire model into three major sections or families, these are—

1. Information process model family.
2. Social model family.
3. Personal model family.

Travers has divided these teaching models into three families according to his system. Joyce & Weil has given the most famous explanation. They have developed more than 20 models. On the basis of main features and nature, these model are mainly divided into four families. These are



According to another scholar, family models of teaching models are being represented through the following chart—

Dr S.S. Mathur has explained the four categories or families of these model in the following terms—

(1) Social Interaction Model—This model emphasizes the individual's relationship with society. It focuses on the process by which facts are discovered through socializing. These model tend to improve the ability of creating good relationships to others. They emphasize to improve the democratic actions and the ability to create a good society. But this model not only emerges the purpose of social relations but also gives importance to the development of the individual's mind and soul and to learn course contents.

(2) Information Process Model—This family emphasizes on improving the students' capacity of information reporting methods and the system which could increase their capacity. Information reporting methods points to such categories which are followed by person to handle stimuli obtained from the environment, to organize the data material, to understand problems, and to use verbal and nonverbal symbols. Some models focus on the person's ability to solve the problem by means of productive thinking abilities while other models focus on common sense. Some focus on the teaching method which are obtained from teaching subjects. These models also focus on social relationships.

(3) Personal Model—Model's third family is person oriented and is focused on the development of self-employment. It focuses on the process by which individuals create and organize their particular situation. Furthermore, it emphasizes the individual's emotional life. It is expected that good inter personal relationships were built if people as assisted to build productive relation and to understand themselves as an able person and it will be efficient to obtain more effective knowledge.

Task Specify the social interaction model.

(4) Behavior Modification Model—The fourth type of model has been developed on the basis of those efforts which are done to develop efficient arrangements for sequencing of learning actions and to make changes in the feedback for the development of behavior. **Mr. Skinner** is the originator of the model.

Notes

We keep this type of model under the behavior modification because they focus on the modification of external behavior of the learner and describe them in terms of direct behavior, not in terms of the behavior, which is contained in and is not visible. Skinner's theory which is also called as apparent instruction, is used in many areas such as education and other areas from military training to patient's treatment.

The families of models described above are not separated from each other. A few of them describe the methods for the development of teaching actions, although they belong to different families yet most of them emphasize on the similar methods. In addition, the model of the same family - things related to the objectives and learning activities in which they are formulated, are the same. Different people give different meanings to educational activities. In this context, we can say that every task we perform is a personal one. Similarly, most of the experience especially educational are intellectual or to acquire knowledge.

Increased efficiency in education can be said to have dominated the teaching model. When teacher's ability to use the model effectively increases then the efficiency is also increased. Good teachers develop new models of teaching and test them during their teaching period.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Teaching model provide real and practical framework for learning experiences.

(*ii*) Every teaching model doesn't have a fixed objective.

(*iii*) Each model has its own social system.

(*iv*) Information Report Method emphasizes on family model.

(*v*) Every task we perform is an individual one.

15.8 Summary

- "To confirm in behavior, action and to direct one's to action according to some particular design or idea is called model."
- "The process given according to a design in order to achieve a behavior of Teaching or learning or teaching-learning theories is called a model."
- "Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental situations which cause the student to interact in such a way that specific change occurs in his behavior."
- "A model of teaching is a set of inter-related components arranged in sequence which provides guidelines to realize goal. It helps in designing instructional activities and environmental facilities carrying out of these activities and realization of the stipulated objectives."
- Educational strategies only determine the strategies. These are not related to teaching feedback. In teaching models, feedback process is one of the most important activities.
- Every teaching model must have a fixed objective, which is called as the focus of that model. These focuses are influenced by the teaching objectives and goals and keeps striving for the development of these skills and abilities.

15.9 Keywords

- **Development**—Advancement
- **Model**—Pattern

Notes

15.10 Review Questions

1. Write the definition of teaching model. Describe its characteristics.
2. Write assumptions of teaching models.
3. What are the basic elements of the learning model? Describe.
4. Categorize teaching model.

Answers: Self-Assessment

1. (*i*) Process (*ii*) Developed (*iii*) Educational (*iv*) Mechanism (*v*) Strategies
2. (*i*) True (*ii*) False (*iii*) True (*iv*) True (*v*) False

15.11 Further Readings

Books

1. Education Technology—*S.K. Mangal, P.H.I Learning.*
2. The basic premise of Educational Technology—*Yogesh Kumar Singh.*
3. Socio-Economic Model of Education—*S.S. Yadav, P.D. Mina, Sub Lime Publishers.*
4. Micro-Teaching and Learning Model—*Ramdev Prasad Kathuria, Vinod Pustak Mandir.*

Notes

Unit–16: Glasser's Basic Teaching Model

CONTENTS

Objectives

After studying this unit, students will be able to:

- Obtain information about the Glasser's Basic Teaching Model.
- Know the importance and utility of teaching model.
- Understand inductive model of teaching.
- Understand inquiry model of teaching.

Introduction

This model was developed by **Robert Glasser** in 1962. In this model it is assumed that "Teaching is that specific action which is focused on learning and thus such actions are practiced due to which Intellectual integration of the students and their ability to make independent decisions are recognized.

16.1 Glasser's Basic Teaching Model

Bruce Joyce and **Morsha Well** termed this model as classroom meeting model. The teaching process has been divided into four parts according to this teaching model. They are—

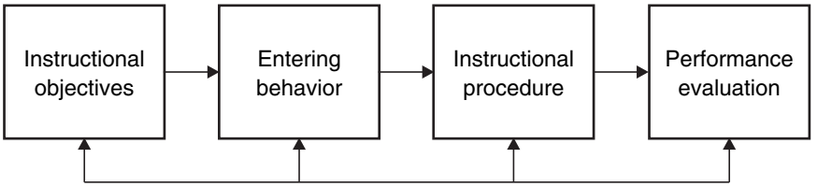
(1) Instructional Objectives.

(2) Entering Behavior.

(3) Instructional Procedure. **Notes**

(4) Performance Evaluation.

Glaser has represented these four parts as given below:



Glasser's Basic Teaching Model

In this figure, four parts of teaching process are given and these are attached with a feedback loop.

(1) Instructional Objectives—These are such objectives which are determined by the teacher before teaching. These objectives are written practically. They provide a sense of the range of learning objectives. For these purposes the teacher teaches. They provide a fixed direction to teaching.

(2) Entering Behavior—Before starting the teaching process, students' prior knowledge, level of intelligence, learning abilities are evaluated. The entire teaching process is based on prior behavior. Teaching level is determined by keeping students prior or elementary behaviors.

(3) Instructional Procedure—Instructional process is concerned with methods included in teaching. Under this step teaching process, teaching methods, teaching aids, etc. are used. Teaching experience are provided in the same step. It is the interaction state of teaching.

(4) Performance Evaluation—The primary objective of evaluation is to determine the extent of the instructional objectives. It is decided how evaluation should be done and how to evaluate the success / failure of teaching, vairous tests are included for this which provides feedback to students and teachers. Performance evaluation should be true, reliable, valid, objective and effective.

Notes In teaching process, the four steps are completely attached to each-other and every step influences each-other.

This teaching model can also be displayed as follows—

Basic Syntax	—	Formulation of educational objectives, pre-determination of instructional process, performance evaluation
Response theory	—	Interactions
Social System	—	Democracy, importance of teachers and students, equal opportunities for them
Support System	—	Audio-visual aids, literature—books, Magazines

Self-Assessment

1. Fill in the blanks:

(*i*) Robert Glaser developed his model in .....

(*ii*) Bruce Joyce and Morsha Well termed this model as .....

(*iii*) Such objective which are determined by teacher before starting teaching is called as ..... objective.

Notes

(*iv*) Instructional process is concerned with methods included in .....

(*v*) The primary objective of ..... is to determine the extent of the instructional objectives.

16.2 Importance and Utility of Teaching Models

Teaching models play a major role to make teaching learning process effective. The importance of teaching models is as follow—

1. These models are helpful in meeting the goals and objectives to improve the teaching system. These make teaching more meaningful, purposeful and effective.
2. These model improve classroom teaching and are successful to bring the desired change in behavior of students by developing appropriate environment.
3. There educatoinal process remains ordered and perfect due to models through which educational activities remain more systematic and organized.
4. Better teaching is provided in schools by using specific models in various subjects of teaching according to needs.
5. Educational models makes teaching scientific, controlled and objective oriented due to which it become easy to bring desired changes in the behavior of students.
6. Different learning theories are rendered on the basis of teaching models.
7. Teaching model provides spacious areas to the teacher for the research work in the teaching process. This offer new dimensions and new areas.
8. It is also possible to study different educational environments and different situations related to teaching and learning actions.
9. Model of teaching give rise to the potential of students' cognitive, practical and personal growth.
10. Educational model assume that course material is an important instrument for achieving education goals.
11. It is possible to render new models by using these models suited to Indian conditions.
12. They are helpful in achieving one or more specific objectives of teaching.
13. They have practical nature and learning is achieved from them.
14. They emphasize the process of specialization in the field of teaching.
15. They are helpful in selecting appropriate stimuli which are included for desired change in students' behavior.
16. They provide guidelines for the use of vaiour teaching strategies, techniques and methods.
17. Every model presents a specific criteria evaluation.
18. These improve teaching by bringing changes.
19. They make the teaching process more effective.
20. Teachers have the inspiration to develop effective models according to the conditions of schools.
21. Educational evaluation system is developed.
22. They develop many innovative and useful teaching theories in the field of education.
23. They provide scientific nature to the teaching process.

Notes

Did u know? Article represents in writing. The goal of this step is to increase knowledge. In the fourth step, student practice for suffixes. In this step, students are assisted in developing the suffix.

16.3 An Inductive Model of Teaching

Hilda Taba is the originator of this model. It has been developed for teacher education due to which pupil teacher can analyze the problems of learning and can solve them on the basis of diagnosis.

(*i*) Focus—Its main objective is the development of mental processes and the realization of theories.

(*ii*) Syntax—In this model, situations are created for the development of mental processes which develops and realize the suffixes. The use of rules, suffixes and views are taken into consideration. In teaching matrix, actions are presented in such a order that the suffixes are possible to be understand. The sequence of teaching process presents its syntax. Group discussion is not allowed in this process. Information and facts as presented in a complex form. Certain steps are followed in this syntax. The order of these steps is-

(*a*) A list of teaching actions is prepared in the first step.

(*b*) Teaching actions are divided into sections in the second step.

(*c*) Teaching actions are explained in the third step.

(*d*) The directions and relations of teaching actions are determined in the fourth step.

(*e*) The direction of the relationship of these actions is interpreted in the fifth step.

(*f*) These are concluded on the basis of explanation in the sixth step.

(*g*) The concepts of the results are rendered in the seventh step.

(*h*) Concepts are explained and facts and data are presented to them in the eight step.

Confirmation and generalizaiton of concept is done in the last step.

(*iii*) Social System—In this model, classroom environment provides more opportunities for students' activities. Teacher begins his activities with students' activities. The sequence of teaching is pre-determined. Teacher controls the behavior and actions of students. There is a spirit of collaboration in the classroom. At each step the teacher acts as a director. Teacher uses the question for the development of cognitive side. Teacher prepares students for the new experiences. Such experience is provided which can develop cognitive side.

(*iv*) Support System—For this model, **Taba** gives importance to such teaching format which can be used for knowledge of social subjects. The emphasize is give to realization of facts, data and information. Therefore, the objective test are included in the evaluation. Written exams are not helpful in this.

(*v*) Application—'Taba' considered it more useful for the development of thinking abilities. It is included for the development of mental activities. Its priority is to develop utility-thinking abilities. This model is used to make students realize information, facts and data. This model is considered as more useful model for teaching social subjects. It is also include in the teaching of science couse material.

Task What is the purpose of inductive model?

Notes

16.4 An Inquiry Model of Teaching

Richard Suchman developed this teaching model. Individual capablities are developed in this model so that they can adjust and development social abilities.

(*i*) Focus — The main objective of this model is to develop individual abilities and realization of theories.

(*ii*) Syntax — Three steps are followed in this model. First step includes identification of problem in which students experience stress. The second step includes compiling information about the problem. Students collects interaction data of the environment from teacher. It provides direction to resolve the tense situation and to present the. In the third step, both student and teacher together decide on the issue of the appropriate matrix. It develops resoning effects and abilities to establish relationships among them.

(*iii*) Social System — The classroom has an environment such that teacher and students support each other. The teacher's attitude is critical. The teacher controls all actions. The teacher tries to generate intellectual atmosphere. The teacher encourages students to collect information. Teachers remains more active in the second and third step and also assist the students to collect information.

(*iv*) Support System — This model is used for teaching various types of problems related to course content.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Teaching model play a major role in creating effective teaching learning processes.

(*ii*) Better teaching can't be provided in schools by using specific models in various subjects of teaching according to needs.

(*iii*) Richard Suchman developed inquiry of teaching.

16.5 Summary

- This model was developed by Robert Glasser in 1962. In this model it is assumed that "Teaching is that specific action which is focused on learning and thus such actions are practiced due to which Intellectual integration of the students and their ability to make independent decisions are recognized".
- Before starting the teaching process, students' prior knowledge, level of intelligence, learning abilities are evaluated.
- The primary objective of evaluation is to determine the extent of the instructional objectives. It is decided how evaluation should be done and how to evaluate the success / failure of teaching.
- There educatoinal process remains ordered and perfect due to models through which educational activities remain more systematic and organized.
- Educational models makes teaching scientific, controlled and objective oriented due to which it become easy to bring desired changes in the behavior of students.
- Every model presents a specific criteria evaluation.
- These improve teaching by bringing changes.

16.6 Keywords

- **System —** Method
- **Instructional —** Indicative

Notes

16.7 Review Questions

1. Describe the basic teaching model of Glaser.
2. Highlight the importance and use of teaching models.
3. Explain inquiry teaching model.
4. What do you mean by inductive teaching model?

Answers: Self-Assessment

1. (*i*) 1962 (*ii*) Class-Room Meeting Model (*iii*) Instructional (*iv*) Teaching (*v*) Evaluation
2. (*i*) True (*ii*) False (*iii*) True

16.8 Further Readings

Books

1. Education Technology – *S.K. Mangal, P.H.I Learning.*
2. The Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–17: Taba's Inductive Thinking Model

CONTENTS

Objectives

After studying this unit, students will be able to:

- Develop a sense of principles and mental abilities.

Introduction

Hilda Taba is the originator of Taba's Inductive Thinking Model.

17.1 Structure

(*a*) The structure consists of three major steps—

1. Identification of problem
2. Compilation of information
3. Selection of teaching skills

(*b*) Structure presents the sequence of teaching actions –

1. To prepare a list of teaching activities
2. To divide them into sections
3. To explain them
4. To determine their direction and relationship
5. To find conclusions based on these directions
6. To find conclusions based on explanation
7. Rendering of Hypothesis

8. Their interpretation and data presentation
9. To generalize and confirm hypothesis.

Notes

Did u know? Hilda Taba is the originator of Taba's Inductive Thinking Model.

17.2 Social Method

1. Students remain active.
2. Teacher controls the classroom behavior.
3. There is mutual cooperation between student and teacher.

Notes Taba's Model is different from Bruner's Model.

Assessment

Assessment is evaluated by objective test.

Task Who controls classroom behavior?

Self-Assessment

1. Fill in the blanks:

(*i*) The structure consists of ..... major steps.

(*ii*) ..... presents the sequence of teaching actions.

(*iii*) There is mutual ..... between student and teacher.

17.3 Summary

- The structure consists of three major steps.
- Structure presents the sequence of teaching actions.
- The teacher controls classroom behavior.
- The assessment is evaluated by objective test.

Notes

17.4 Keywords

- **Structure**—Construction
- **Model**—Sample

17.5 Review Questions

1. Which are the three major steps in structure? Write.
2. Present the order of the actions of teaching.
3. What are the specialty of social method?

Answers: Self-Assessment

1. (*i*) Three (*ii*) Structure (*iii*) Cooperation

17.6 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P. H. I. Learning.*
2. The Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–18: Advance Organizer Model

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand main elements of advance organizer teaching model.

Introduction

David Ausubel is the originator of Advance organizer teacher model. This model is based on verbal learning and information processing. **David Ausubel** has been highly impressed by Bruner's Academic Discipline Concept. By presenting the details of the model, **Bhushan and Varshney** (1994) says, "In this model, we develop knowledge in front of students by organizing them in such a way that they can learn new knowledge with the meaningful method by interacting with the knowledge they already kept in their mind. Meaningful knowledge means that the knowledge learned can be used in other circumstances i.e several problem of his daily life can be solved in a simple and natural manner based on the previous experience. According to this principle, teacher presents a subject matter related to concepts in an organized form in such a way that subject matter is easily understandable to student.

18.1 Main Elements of Advance Organizer Teaching Model

(1) Focus – Main focuses of this model are –

1. To make aware of the concepts and facts.
2. To establish relations in knowledge.
3. To create interesting and meaningful text.

(2) Syntax – In syntax, firstly actions are normally present for meaningful sense of text, then it is presented in a specific form in order to learn the text. Three main process are included in this type of model

1. Presentation of advance organizer.

Notes

2. To present the learning material/learning task.
3. To strengthen cognitive organizer.

Notes There are three main phases in this model.

(A) Presentation of Advance Organizer—

(*a*) The objective of the lesson are specified.

(*b*) The presentation of the organizer is done. For this

(*i*) Definitions of the variables are marked.

(*ii*) Examples are offered.

(*iii*) References are presented and are repeated if needed.

(*c*) Learner is made aware of related knowledge and experience.

(B) Presentation of Learning Material/Learning Task—

(*a*) Organizer is fully clarified.

(*b*) Logical order of learning content is interpreted, so that there should not be any doubt.

(*c*) Taking care by concentration and to maintain concentration.

(*d*) To present learning material.

(C) To Strengthen Cognitive Organizer—

(*a*) Use of integrative reconciliation principles.

(*b*) To make students active to gain information.

(*c*) To clarify text of complex approach and to make it simple and easy.

Task How can we strengthen cognitive organizer?

(3) Social System—As said above that this model believe that abstract ideas can also be presented in an effective way. Teacher have more important role in it. He is more active and have full control over the class. Class remains disciplined and organized. Teacher presents an appropriate environment for effective teaching and motivates students when needed. Whenever needed, he helped. There is interactions between teacher and students.

Did u know? In this model, teacher presents abstract concepts in front of students in an effective way and analysis the students related concepts and texts and they become successful in gaining new information easily by establishing relationship.

Bruce and **Weil** summarize social system as follows—

"The model has high structure. Teacher defines roles and controls social and intellectual systems."

(4) Evaluation System—In this model, evaluation is done on the basis of instruction. Both the verbal and written exams are used for evaluation.

Advance organizer model is an effective method for teaching abstract learning contents. This model is helpful in obtaining the high level objective of cognitive phase. This model is being used in the sectors of problem solving and transfer of learning.

Notes

Self-Assessment

1. Fill in the blanks:

(*i*) ……was the originator of Advance organizer teacher model.

(*ii*) David Ausubel has been highly impressed by …….. Academic Discipline Concept.

(*iii*) In syntax, firstly ……..are normally present for meaningful sense of text.

(*iv*) Teacher presents an appropriate environment for effective ,……..

(*v*) Both the verbal and …… exams are used for evaluation.

18.2 Summary

- David Ausubel is the originator of Advance organizer teacher model. This model is based on verbal learning and information processing.
- Meaningful knowledge means that the knowledge learned can be used in other circumstances i.e. several problem of his daily life can be solved in a simple and natural manner based on the previous experience.
- In syntax, firstly actions are normally present for meaningful sense of text, then it is presented in a specific form in order to learn the text.
- this model believe that abstract ideas can also be presented in an effective way.
- Teacher presents an appropriate environment for effective teaching and motivates students when needed. Whenever needed, he helped. There is interactions between teacher and students.
- Advance organizer model is an effective method for teaching abstract learning contents. This model is helpful in obtaining the high level objective of cognitive phase.

18.3 Keywords

- **Concept**—Idea
- **Model**—Sample

18.4 Review Questions

1. Who is the originator of Advance organizer model? On what principles does it based on?
2. What do you mean by meaningful information?
3. Explain the majors elements of Advance organizer teaching model.

Answers: Self-Assessment

1. (*i*) David Ausubel (*ii*) Bruner's (*iii*) actions (*iv*) teaching (*v*) written

Notes

18.5 Further Readings


Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–19: Bruner's Concept Attainment Model

CONTENTS

Objectives

After studying this unit, students will be able to:

- Get information on key elements of the concept attainment model.
- Learn more about the characteristics of the concept attainment model.

Introduction

JS Bruner and his colleagues developed the concept attainment model. Teachers provide accurate information about the nature of content to students by using this model. This model is effectively used in the the clarification and interpretation of new concept. "A concept is a symbol that stands for a class of group of objects or events that possess common properties. Concepts greatly simplify our thinking processes. They make free us from having to level and categorize each new object or event we encounter."

The objective of this model is to enhance the student's ability of inductive reasoning and to improve the students' concept. **Dr Anand** (1966) writes by expressing his ideas about the origin of concepts in human, "Bruner and his colleagues has the perception that the human lives in an atmosphere, that has so many variations and complexions that human can not understand it without classification. Therefore every human tries to understand the objects founded in the his environment and classifies objects. As a result of the classification of objects,concepts are developed in them. These concepts evolve naturally, yet training is necessary for the development of the right concept.

Notes This model is considered to be a good means of developing the concept.

Notes

19.1 Main Elements of Concept Attainment Model

The description of main elements of concept attainment model are being given below—

(1) Focus—The main objective of this model is to develop students' inductive reasoning. Its basis is psychology. Under this, students get the knowledge of various concepts on the basis of thinking ability by dividing various events, persons and goods, etc. into different sections.

Bruner and his colleagues have outlined the following four objectives of this model—

(*a*) To provide students the knowledge about the nature of concepts so they can gain the efficiency to categorize the ojects on the basis of their qualities and their characteristics.

(*b*) To make students able so that right concepts can be developed in them.

(*c*) To develop specific concepts in students.

(*d*) To develop strategies related to thinking in students.

(2) Syntax—In syntax, skills are developed in four steps. These are—

(*a*) **Collection of data**—Data related to some event or person is presented in front of students. With the help of these data, students restricts various types of qualities to the concepts for developing different concepts.

Did u know? At this stage, information is provided to students so that students can gain the knowedge of concept by means of examples.

(*b*) **Strategy Analysis**—At this stage, students analyze the information obtained. Mostly these are based on analysis or 'normal to specific' formula.

(*c*) **Presentation**—In this step, student analyzes different types of concepts on the basis of his age and experience and prepares a report in writing.

(*d*) **Training**—This step includes the use and practice of learned concept, their explanation and the origin of concepts on the basis of unorganized information.

(3) Social System—Teacher motivates the students and guides them in analysis and origin of concepts. Teacher has an important role in this model because he puts the data in front of students, creates plan and guides students. The main objective of teacher is help students in the origin of concepts.

(4) Evaluation System—In the evaluation of this model essay type and objective exams are used and information is provided by them through evaluation, correction and modification.

In this model, students have to obtain the prior concepts, not to discover new concepts. Evaluation system is very useful for understanding of concepts

Task Describe evaluation system.

19.2 Characteristics of Concept Attainment Model

(1) This model is more productive when concepts are tried to learn and understand on the basis of examples.

Notes

(2) This model can not be used to improve generalization, to provide the knowledge of facts, to answer why, and to specify reason.

(3) This model is more useful for learning languages.

(4) It tries to make understand the fundamental principles of maths and science in a simple and easy way.

(5) This model is more productive in all subjects in which there are more chances of concept formation.

Using this model is founded successful for all subjects. This model has proved useful at all stages. While using it for little children, easy concepts and their simple illustrations should be used. This model is not used for providing innovation information, it will be better to use information process of other models.

This model is used for teaching all subjects but it utility is more founded in the field of learning language, for obtaining concepts in a language and in the field of langauge science.

Bruner's Concept Attainment Model

Teaching Model

Concept Attainment Model

Originator

J. Bruner

Objectives

Inductive Reasoning

To improve language learning skills and understanding

Syntax

1. Teaching strategies are important in teaching
2. Four steps are included-
   (*i*) Presentation of data
   (*ii*) Formation of concept matrix
   (*iii*) Creation of written report for analysis of concepts
   (*iv*) Practice for concepts (by students)

Social System

1. More motivation and help by teacher in the beginning
2. Analysis of concept by students themselves in the end

Evaluation

1. Objective exam and
2. Evaluation through essay type exam

Self-Assessment

1. Fill in the blanks:

(*i*) ..... and his colleagues developed the concept attainment model.

(*ii*) Teachers provide accurate information about the ..... of content to students by using this model.

(*iii*) The objective of this model is to ..... the student's ability of inductive reasoning and to improve the students' concept.

Notes

(*iv*) Every human tries to understand the objects founded in his environment and ..... objects.

(*v*) ..... Related to some event or person is presented in front of students.

19.3 Summary

- JS Bruner and his colleagues developed the concept attainment model. Teachers provide accurate information about the nature of content to students by using this model.
- The objective of this model is to enhance the student's ability of inductive reasoning and to improve the students' concept.
- Bruner and his colleagues has the perception that the human lives in an atmosphere, that has so many variations and complexions that human can not understand it without classification.
- Data related to some event or person is presented in front of students. With the help of these data, students restricts various types of qualities to the concepts for developing different concepts.
- This model has proved useful at all stages. While using it for little children, easy concepts and their simple illustrations should be used.

19.4 Keywords

- **Concepts**—Idea
- **Model**—Sample

19.5 Review Questions

1. What ideas were presented by Dr Anand in respect of origin of concepts in human?
2. Describe the main elements of Concepts Attainment Model.
3. Descibe the characteristics of Concepts Attainment Model.
4. Who developed Concepts Attainment Model? Why is it used?

Answers: Self-Assessment

1. (*i*) J.S. Bruner (*ii*) nature (*iii*) enhance (*iv*) classifies (*v*) data

19.6 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–20: Richard Suchman's Inquiry Training Model

CONTENTS

Objectives

After studying this unit, student will be able to:

- Get the knowledge of main factors of Inquiry Training Model.
- Know the characteristics of Evaluation system.

Introduction

Richard Suchman is the originator of this model. This model develops the child's humanity and mental capabilities due to which children can be trained for powerful discoveries in the direction of science and nature. This model is based on the scientific method and scientific concept which give training for scholarly inquiry or investigation. The students are provided full freedom of inquiry; they are encouraged to ask questions in a disciplined manner. Students discover new dimensions from this type of inquiry. This model was developed in 1966. The initiator of this model **Richard Suchman** believes that children are curious by nature and for the satisfaction of curiosity they experience joy while inquiring. Inquiry Process develops the investigation skills of the children.

20.1 Main Factors of Inquiry Training Model

(1) Focus – The main goal of this model is to develop cognitive skills of the students. Students logically explain the suffixes through inquiry method. Its use helps students to generate scientific approach.

Notes Students' curiosity develops aptitude and interests, in which inspired students work in a sequenced manner for the solution of complex situations.

Notes

Inquiry training helps to explain the problematic events. According to Suchman, "The goal of Inquiry Training Model is to develop efficiency and skills in students for the analysis of statics and inventions, so they can make their own interpretation of events and to search for them and the correlation of the various elements in order to find the truth"

(2) Structure— There are five stages of the structure of this model:

(*a*) **Presentation of Problem—** In this, students select the problem of teacher's instruction.

(*b*) **Problem Related Experimentation—** For half an hour, to get the problem related information, students ask such questions to which teacher answers either yes or no. This student's inquiry continues until they reach the clarification of problem/event. The teacher tells students not to ask the solution of causes and problem of the event directly. He also instructs students at a time, as you can ask as many questions and during inquiry, you can also consult your fellow students or can discuss.

(*c*) **Attempt to Solve Students' and Teachers' Problems—** In this, after exploring and direct testing, students compiles the suffixes to get familiar with new elements and examines cause-effect relationship based on them.

(*d*) **Organization of Information—** The information is organized while collecting facts. Teacher evaluates the result of collected facts and explains them.

(*e*) **Analysis of Inquiry Process—** The students are asked to analyse the inquiry process. They also decided that all required information is received or not. Teacher evaluates and reviews the complete process and attempts to reach conclusions about the appropriate decision.

(3) Social System— Teacher provides leadership in this model. Students are encouraged to inquire and get the opportunity to test conclusions. In this model, both teacher and student roles are important. There is open atmosphere of cooperation between teachers and students.

(4) Evaluation System— In this model, experimental test are especially used for evaluation. It shows how and to what extent, student works effectively through problem solving.

Task What is organization of information?

20.2 Characteristics of Evaluation System

1. It is more helpful in scientific studies.
2. It creates a tendency in students to ask questions.
3. It develops scientific aptitude in students.
4. A clear and practical knowledge is provided to students through this model.
5. It develops the curiosity of students.
6. This model is used in every academic circumstance.

Did u know? This model was developed for teaching physics but this model is being used in the teaching of other subjects.

Notes

It has also proven useful in teaching the classes. The individual episodes of each subject cannot be taught through this model. It is exactly used where a problematic circumstance. This model has proved very useful in the development of mutual relations students.

Self-Assessment

1. State whether the following statements are True or False:

(*i*) Richard Suchman is the originator of Inquiry training model.

(*ii*) This method is not based on scientific perception and the scientific method.

(*iii*) The main objective of this model is to develop the students' cognitive skills.

(*iv*) Teacher also directs students to ask only one question at the same time.

(*v*) The model was developed for teaching physics.

20.3 Summary

- This model is based on the scientific method and scientific concept which give training for scholarly inquiry or investigation. The students are provided full freedom of inquiry. They are encouraged to ask questions in a disciplined manner.
- This model was developed in 1966. The initiator of this model Richard Suchman believes that children are curious by nature and for the satisfaction of curiosity the experience joy while inquiring.
- "The goal of Inquiry Training Model is to develop efficiency and skills in students for the analysis of statics and inventions, so they can make their own interpretation of events and to search for them and the correlation of the various elements in order to find the truth".
- This student's inquiry continues until they reach the clarification of problem/event.

20.4 Keywords

- **Inquiry** – Interrogation
- **Structure** – Composition

20.5 Review Questions

1. Who is the originator of Inquiry Training Model? What are the advantages of this model?
2. Explain the major elements of Inquiry Training Model.
3. Write the characteristics of Evaluation System.

Answers : Self-Assessment

1. (*i*) True (*ii*) False (*iii*) True (*iv*) False (*v*) True

20.6 Further Readings


Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit–21: ICT in Eductaion

CONTENTS

Objectives

After studying this unit, students will be able to:

- Learn the Concept of ICT.
- Understand the need and importance of ICT.
- Describe the use of ICT in Teaching and Learning.

Introduction

Information and Communication Technologies (ICTs) are often associated with the most sophisticated and expensive computer-based technologies. But ICTs also encompass the more conventional technologies such as radio, television and telephone technology.

While definitions of ICTs are varied, it might be useful to accept the definition provided by United Nations Development Programme (UNDP): ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the 'old' ICTs of radio, television and telephone, and the 'new' ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our 'networked world' – a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe'.

When we talk of ICTs, we refer not only to the latest computer and Internet based technologies, but also to simple audio visual aids such as the transparency and slides, tape and cassette recorders and radio; video cassettes and television; and film.

These older and more familiar technologies are referred to under the collective heading of "analogue media" while the newer computer and Internet based technologies are called the "digital media".

Notes

21.1 Need and Importance of ICT

Teachers have been conscious about the quality of their teaching. To enhance the quality, some teachers use teaching aids, like, charts, models – static & working, specimen, slides, etc. because teachers are given training both in preparation and use of Audio-visual Aids. It is a known fact that majority of schools do not have appropriate teaching aids related to the school content. So teachers have no facility to use A – V Aids during teaching. The use of A – V Aids get further restricted due to unmotivated persons becoming teachers. It is realized that the need of improving quality of education through the use of Television wherein most competent teacher teaches the topic with the help of most appropriate teaching aids. This helped in improving the quality of teaching in schools having no teacher to teach the subject, less competent teacher, schools having poor or no facility of teaching aids, etc. Programmes offered through television were produced by different State Institute of Educational Technology (SIET) in different languages. Even the Video Instructional Materials were produced and made available to teachers; still majority of schools did not make use of them. Some of the reasons were no facility of TV and VCR, no electricity, TV and VCR not in working condition, not incorporated in the time table, lack of initiation on the part of teacher and Principal, etc. Along with A – V Aids, the print media has to go a long way in improving the quality of teaching and learning. At present, the Print Instructional Materials used in different Programmes offered by Open Universities are in Module format. All above mention efforts could not improve the quality of teaching to the level of satisfaction of teachers, students, parents and other stakeholders. Search is on for most effective tools to be used by teachers for quality education.

Notes ICT is an important tool for teaching as it helps in facilitating teaching and increases better understanding of the subjects for the students. However, it is not a substitute for teaching.

21.2 Use of ICT in Teaching and Learning

IT was limited only to the textual mode of transmission of information with ease and fast. But the information not only in textual form but in audio, video or any other media is also to be transmitted to the users. ICT has opened new avenues, like, Online learning, e-learning, Virtual University, e-coaching, e-education, e-journal, etc. Third Generation Mobiles are also part of ICT. Mobile is being used in imparting information fast and cost effective. It provides e-mail facility also. One can access it anywhere. It will be cost effective. The ICT brings more rich material in the classrooms and libraries for the teachers and students. It has provided opportunity for the learner to use maximum senses to get the information. It has broken the monotony and provided variety in the teaching – learning situation. The ICT being latest, it can be used both at school and higher education levels in the following areas:

- Teaching
- Diagnostic Testing
- Remedial Teaching
- Evaluation
- Psychological Testing
- Development of Virtual Laboratory
- Online Tutoring
- Development of Reasoning & Thinking
- Instructional Material Development

Notes

Teaching at School as well as Higher Education, mostly, concentrates on giving information which is not the sole objective of Teaching. Along with giving information, the other objectives are:

- Developing understanding and application of the concepts
- Developing expression power
- Developing reasoning and thinking power
- Development of judgment and decision making ability
- Improving comprehension, speed and vocabulary
- Developing self-concept and value clarification
- Developing proper study habits
- Developing tolerance and ambiguity, risk taking capacity, scientific temper, etc.

With the present infrastructure, class size, availability of teachers, quality of teachers, training of teachers, etc., it is difficult to achieve all the objectives. Further, most of the teachers use Lecture Method which does not have potentiality of achieving majority of above mentioned objectives. The objectives are multi-dimensional in nature, so for their achievement multiple methods should be used in an integrated fashion. At present ICT may be of some use. It is a well known fact that not a single teacher is capable of giving up to date and complete information in his own subject. The ICT can fill this gap because it can provide access to different sources of information. It will provide correct information as comprehensive as possible in different formats with different examples. ICT provides Online interaction facility. Students and teachers can exchange their ideas and views, and get clarification on any topic from different experts, practitioners, etc. It helps learners to broaden the information base. ICT provides variety in the presentation of content which helps learners in concentration, better understanding, and long retention of information which is not possible otherwise. The learners can get opportunity to work on any live project with learners and experts from other countries. The super highway and cyber space also help in qualitative improvement of Teaching – Learning Process. ICT provides flexibility to a learner which is denied by the traditional process and method. Flexibility is a must for mastery learning and quality learning.

Notes On Internet many websites are available freely which may be utilized by teachers and students for understanding different concepts, improving vocabulary, developing Reasoning & Thinking, etc. ICT can help in preparing students for SAT, GRE, TOEFL, etc.

(a) Use of ICT in Diagnostic Testing

The common observation is that the quality of teaching in the classroom is on the decline. More and more students are depending on the private tutorial classes. The private tuition also has become a business. It means tuitions are also being outsourced. This is being done through the use of ICT. There are students who fail to understand certain concepts or retain certain information. This can be assessed by introducing the diagnosis in the process of teaching – learning. Computer Based Diagnostic Tests work well and helped the teachers as well as students in identifying the gray area of each and every student. This can be put on the website of the school and the student can access it from home also. The student can prepare the topic/chapter and can take the test to find exactly what he has not understood? The teacher cannot do this manually. The student progress can be monitored and his performance can be improved. This will develop confidence in students and may change their attitude towards the subject. Students may start enjoying learning. Further, the following are the main advantages of Computer Based Diagnostic Test.

Notes

- They do not require any special setting or arrangement. The only requirement is computer systems and software.
- The student can use it even from home if made available on school website.
- They do not need any special assistance from teacher. Unlike the paper-pencil test, it does not require paper setting and paper correction on the part of the teacher.
- It saves time on the part of the teacher and students.
- The feedback is given immediately after the test is over, which gives an intrinsic reinforcement to the student.
- The student finds it more interesting and motivating as compared to the paper-pencil diagnostic test.
- It can be updated from time to time.
- It is economical in terms of money as it requires only one time investment.

(b) Use of ICT in Evaluation

The ICT can be made use in the evaluation. One such attempt has been made by Sansanwal and Dahiya (2006) who developed Computer Based Test in Research Methodology and Statistics. It has been titled as Test your Understanding: Research Methods and Statistics. This test can be used by individual student to evaluate his learning. The student can instantaneously get the feedback about the status of his understanding. If the answer is wrong, he even can get the correct answer. It goes a long way in improving the learning and teacher has no role to play in it. It is left up to students to use it. Such tests can be uploaded on the website for wider use. The students from other institutes can also make use of it. Not only the students even the teachers can also use it to assess their own understanding of the subject. If used by teachers before teaching the topic, they can prepare the topic properly. Such software can be used for internal assessment. Thus, ICT can be used to improve the quality of pre as well as in-service teacher's training.

(c) Use of ICT in Psychological Testing

There are individual differences. Through research some correlates of academic achievement have been studied. Rarely this information is used by school/college teachers. Many of them even do not know about such researches. Even if they know, they do not make use of it at the time of forming the groups for different academic activities. One of the major reasons is that the school/college does not have a trained psychologists who can assess the students on some of the correlates of academic achievement. Further, the psychological testing is laborious and involves money and time. Even the appropriate psychological tests are not available. This is the age of digital technology. It can be used to digitalize all the psychological tests including the scoring and evaluation. The same may be available on the website and students and teachers can use them whenever required. Even student can use it individually and can share the result with the teacher who can help the student to improve his academic performance.

Notes The digitalized psychological tests will be easy to use and economical also. Thus ICT can be used in psychological testing also.

Notes

(d) Use of ICT in Developing Virtual Laboratory

The Virtual Laboratory can be developed using ICT and provide lots of freedom to students. The students can manipulate any attribute or variable related to the experiment and can see how it affects the outcome. Suppose a student wants to study the factors that can affect the focal length of a mirror. At present in the real laboratory, the student cannot manipulate many variables that he thinks might be related. Student can take different types and shapes of objects, change the distance between mirror and object to any extent, change the thickness of the mirror, etc. and can see how such attributes affect the focal length of the mirror. Virtual Laboratory may be made available at the door step of each and every student by uploading it on the Website. Further each country can think of developing science Website which should give access to Virtual Laboratory and it must be free of cost. Such a Website will not only help Indian students but can go a long way in helping students of Underdeveloped and developing countries.

(e) Use of ICT in Online Tutoring

Many students from USA & other countries are enrolled in private tuition classes in India. That is they are being taught Online. This has become possible only due to ICT. In Online tutoring the student stays at his home. He logs in to his tutor through the use of Internet and software. He can see the teacher who is in India and the teacher can see the student who is in USA. The student asks the question and teacher replies it by writing on soft board or using power point presentation. This interaction is normally one to one. It has made the academic life of many students easy. This is how the manpower available in India can be made use of other countries. Not only Online Tutoring but some of the students do outsource their assignments. These assignments are completed by the teachers of other country. Of course, academically it is not correct because the purpose of giving assignment is not achieved. The student does not develop academically and he may become weak in the subject. All this is happening just because of ICT.

(f) Use of ICT in Developing Instructional Material

There are many teachers who are well known for the specific subject. Their lectures should be digitalized and made available to all the users. It will enhance the quality of instruction in the classrooms. The teacher can use them in the classrooms and can organize discussion after it wherein the new points can be added both by the teacher as well as students. It will make the teaching effective, participatory and enjoyable.

Did u know? Sansanwal (2006) has done this. Sansanwal has developed digitalized lectures on Research Methodology and Statistics and has used it for teaching this subject at master's level.

Of course, digitalized lectures will have their limitations of revision and inbuilt interaction. These lectures can be uploaded on any website and students & teachers can access any lecture they like.

Another form of digitalized lectures is e–content. The CEC is making efforts to develop e-content material in different subjects for the benefit of diverse users. The competent teachers can develop e–content in their own areas of specialization. This has lots of potentiality to bring quality in teacher education. The ICT can be used in developing Instructional Material and e-Content.

Notes

Self Assessment

Fill in the blanks:

(*i*) Simple audio visual aids such as the transparency and slides, tape and cassette recorders and radio; video cassettes and television are referred to under the collective heading of .....

(*ii*) Computer and Internet based technologies are called the .....

(*iii*) In Online tutoring the student stays at his home and logs in to this tutor through the use of ..... and .....

(*iv*) In 2006 ..... and ..... developed computer based test in research methodology and statistics.

21.3 Summary

- Information and Communication Technologies (ICTs) are often associated with the most sophisticated and expensive computer-based technologies.
- ICTs are basically information-handling tools— a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information.
- IT was limited only to the textual mode of transmission of information with ease and fast. But the information not only in textual form but in audio, video or any other media is also to be transmitted to the users.
- There are many teachers who are well known for the specific subject. Their lectures should be digitalized and made available to all the users. It will enhance the quality of instruction in the classrooms.
- In Online tutoring the student stays at his home. He logs in to his tutor through the use of Internet and software.

21.4 Keywords

- **Conventional**: Traditional and Ordinary
- **Ambiguity**: Something has more than one possible meaning
- **Transparency**: The characteristics of being easy to see through
- **Infrastructure**: The basic systems and services

21.5 Review Questions

1. What do you mean by ICT?
2. Explain the need and Importance of ICT.
3. Discuss the use of ICT in teaching and learning.
4. Explain the use of ICT in Evaluation.
5. How ICT can be used in Online Tutoring?

Notes

Answers: Self-Assessment

1. (*i*) Analogue media (*ii*) Digital media
   (*iii*) Internet, Software (*iv*) Sansanwal and Dahiya

21.6 Further Readings


Books

1. Information and Communication Technology in Education: *Dr. Anjali Khirwakar, Dr. K. Pushpandham, Sarup and Sons.*
2. Information Communication Technologies and Education: *M. L. Narasaiah, Discovery Publishing House.*

Notes

Unit–22: Radio, Television and CCTV in Learning

CONTENTS

Objectives

After studying this unit, students will be able to:

- Have the knowledge about the audio-visual recording instruments.
- Know facts about educational television.
- Have the knowledge of Closed Circuit Television – C.C.T.V.

Introduction

Radio, television and other audio-visual instruments have a great contribution in learning. Radio has become so closely linked to the indivual's life that radio and man can't be separated.

Television's name is taken prominently in the scientific achievements of the twentieth century. It has revolutionized the world of education.

Normally, in television broadcasts, academic programmes are first recorded in the studio and then is relayed by transmitor. Programmes broadcasted by T.V. reciever antenna are shown on television. Closed circuit Television broadcast is only confined to classrooms or school buildings.

22.1 Audio-Visual Recording Instruments

22.1.1 Audio Recording Instruments

Radio and other audio instruments play an important role in teaching, especially for literature courses. Besides radio, audio instruments include tape recorder, gramophone and linguaphone etc.

Notes

In learning process, different audio instruments are used to achieve different objectives in different situations.

(1) Radio—Radio has become so closely linked to the indivual's life that radio and man can't be separated.

Notes The origin of radio revolutionised every field.

Education sector has not been spared from the effects of the radio. Radio is an important means of connecting remote people to the events of the world. Radio has important role in providing the latest information to students. Speeches of educationists and other scholars are broadcasted on the radio, everyone takes advatages of this. Dates of educational lesson broadcast are broadcasted very early. So priciples of school and other teacher related to the subject have the prior knowledge of educational programmes. Besides educational programme, radio is an important instrument for entertainment. Famous artists can be heard on the radio and their art can be studied. We can listen a speech or education lesson again and again with the help of radio.

Radio broadcasting can be done in two ways—

(*i*) Ordinary Broadcast—In this broadcast, general information is given about normal conditions and events.

(*ii*) Educational Broadcast—These broadcast are prepared especially for students. These are done to achieve the educational objective of broadcasted lessons.

22.1.2 Preparing Students and Teachers for Radio Lessons

Before organizing radio lessons in class, teacher needs to prepare students and himself to listen radio lessons. Preparing students and himself refers to—

1. Students should be taken to that classroom which is related to the subject to be broadcasted. For example, if radio lesson is related to Geography then radio lesson broadcasting should be arranged in the geography classroom. Other topics will follow the same pattern.
2. Students should be prepared mentally for listening radio lesson.
3. Useful material related to the subject should already be arranged in order to understand the radio lesson.
4. During radio lesson broadcasting students should be seated in front of the radio properly.
5. Teacher should collect and study available literature related to the educational lesson. This literature study includes list of programmees and time-table etc.
6. On the basis of collection of information of available literature related to the radio education lession, teacher should plan carefully to broadcast lesson by combining it with his teaching.
7. Teacher should encourage students to listen radio broadcasting carefully and with interest.
8. Geographical circumstances should be taken into consideration in order to listen radio broadcasting. There should be proper arrangement of radio set, spacious area to sit, light and wind. There should be complete silence in the class while radio lesson is being broadcasted.
9. There should be a follow up after radio lesson broadcasting. There should be a discussion on lesson. Students must get opportunities to clear their doubts. During broadcasting, teacher should provide opportunities to students in order to solve their doubts by themselves.

Notes

10. When radio lesson gets finished, it is necessary to evaluate that to what student could receive the objectives of lesson. After evaluation, if the teacher feels a lack, he should consider the possible reasons. This type of evaluation is necessary to improve teaching process and to make radio lesson successful and effective.

22.1.3 Advantages from Radio Lessons

Since the correspondence programme began and informal education became popular, everyone is realizing the importance of radio lessons. Following are advantages of radio and radio lessons—

1. In classroom, radio broadcasting helps teacher to get the educational objectives.
2. These broadcasts also entertain along with providing education objectives
3. Due to the low cost, every person can take advantage of it.
4. In far-flung areas where educational services are limited, radio broadcasting has a great importance.
5. Teacher also gets the knowledge from radio broadcasting. Teacher knows various innovative facts, information and principles.
6. In context of increasing population, use of radio in the field of education is being increasing day by day.
7. Radio provides the opportunities to listen speeches, languages and arts of well known scholars, educationists and artist, which is particularly not possible for an individual.
8. The lack of good books and teachers can be reduced to some extent through radio.

21.1.4 Limitations and Demerits of Radio Lessons

As radio lessons have so many benefits and abilities, it has some limitations and drawbacks. These are as follows:

1. During radio lessons, students become passive. Sometimes student participates in follow-up programme and sometimes he hesitates from participating.
2. Oftenly, information of radio lesson broadcasting does not read students and teachers due to which they could not prepare properly.
3. During many radio lesson, students become careless and don't take interest in listening programme and also they don't write notes in their copies.
4. Sometimes radio lessons could be prepared according to needs of teachers and students. So both the teacher and students don't take any interest in that lesson.
5. Radio lesson is a one-way process, because the students could not ask any questions even if he wants to. Yes, question can be asked from teachers

Despite these shortcomings and limitations, the importance of radio lesson can't be underestimated. If teacher remain striving for controlling these shortcomings then he can take advantage of radio lessons.

Self-Assessment

1. Fill in the blanks:

(*i*) Radio, television and other audio-visual instruments have a great ..... in learning.

(*ii*) Students should be prepared ..... for listening radio lesson.

(*iii*) In context of increasing ..... use of radio in the field of education is being increasing day by day

Notes

(*iv*) There should be a ..... after radio lesson broadcasting.

(*v*) Radio is an important means of connecting far-flung people to the ..... of the world.

22.2 Educational Television

Television's name is taken prominently in the scientific achievements of the twentieth century. It has revolutionized the world of education.

Television has moved ahead many steps from radio. We can only hear voice over the radio while over the television we can hear voice as well as can see the picture of a person and his activities clearly. Television keeps students' eye and ears active. Like radio, lessons are broadcasted over the television. Television instrument has reached the limits of India's huge population. Therefore, the device also can help in the expansion of education and is too helping. At present time, television is a powerful means of communicatioin. In India, national programmes are broadcasted over the television through satelites. These programmes can be seen anywhere in the country. Similary, programme of other countries can be seen in india.

22.2.1 Development of Educational Television in India

Television entered in India on September 15, 1959 by a trade fair at New Delhi in which its utility was performed. After the September 15, 1959, television service was formally inaugurated in India. Since then, several experiments an projects were conucted which are written as follows:

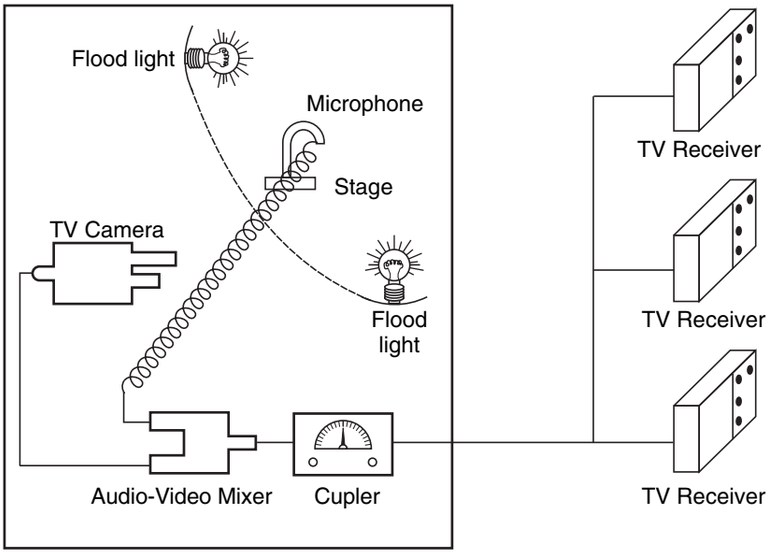


Fig. Simple closed circuit TV system

(1) Secondary School T.V. Project— In October, 1961, the School T.V. programmes were introduced on experiment basis. In these programme, three lessons for physics and chemistry, one for english and one for hindi were broadcasted. These programmes were based on the curriculum and were broadcasted as a part of the school activities at the same school time. The main goal of school was to improve teaching level which lacks educated teachers, place, instruments, laboratories. This programme was started on the experiment basis in order to remove the various types of specific difficulties of secondary schools in Delhi, especially in science teaching. Experiment result were encouraging.

Notes

(2) Krishi Darshan T.V. Project—Encouraged by the success of School Broadcasting, the '**Krishi Darshan**' programme was launched on January 26, 1966 so that agriculture information could be provided to farmers. Community facilities were provided to 80 villages of Delhi. This experiment was successful. All farmer revieved informaiton.

(3) Satellite Instructional Television Experiment–SITE—Satellite Instruction Television Experiment is an innovative method and creative television programme. It objective is to provide education related to science, technology, health and cleanliness and family planning to the population of India.

Did u know? The television programme of C.K. Basu and Ramchandran which were introduced especially for rural areas, with the help of International Telecommunication satellite were started on August 1, 1975 in the villages of Rajasthan, Bihar, Orissa, Madhya Pradesh and Andhra Pradesh.

It is located at 22,300 miles away from equatorial line. At this height is revolve with the same speed as of earth. So it has virtual form of the places which are related to earth but remain still. These satellites help T.V. broadcasting centres. Satellite T.V. programmes are mainly related to family planning, agriculture, health and family and entertainment. They have 30 minutes for a particular village or community. Early programmes are arranged for children of age group 5 to 12. Beside this, a programme for ½ hour is also organised for all the communities through it.

Several researches are being carried out for the development of instrucitonal television and to make the programme effective. The researches that getting education through television by assuming it as Master teacher doesn't have so much impact as compared to get education from class teacher in the classroom. The reason may be the perception of classroom teachers who can't adjust themselves as Master Teacher. So now such lessons are not braodcasted on T.V. which are not presented by class teacher in a proper manner. It includes tour, demostrations and complex experiment designed for remote area and current events. All programmes which shows the mutual relationship between vaiours learning experiences, are presented in a proper way. Involvement of teacher and impact of programmes on students are depicted in these events. The ojectives and goals of television programme must be cleared to teachers and students. The class teacher who utilizes the television education in an effective way, can encourage students properly. After researching the researchers reported that if the educational television is really effective it should be kept as an instrument that can't be separated.

Educational Significance

Its physical significance is as follows—

(*i*) Sentimentalize emotions in children and to study their community skills.

(*ii*) To improve the perception and skills of children by providing the knowledge of languages related to topic and the basic elements of teachnical areas.

(*iii*) To gradually develop hygienic and healthy living habits in children.

(*iv*) To create a sense of beauty in children

(*v*) Awareness of the methods of modern living.

Except children, these programmes are also organized for the training of employee teachers. It organized a 12 days programme for 96,000 primary science teachers with the efforts of N.C.E.R.T. Its ojective were—

(*i*) Importance of research method in science teaching.

Notes

(*ii*) Dissemination of performance in science teaching and classroom experiences.

(*iii*) To keep children active at every step of classroom teaching.

(*iv*) To use in science teaching low cost or free equipments.

(*v*) To teach children by the experiences of everyone environment.

Indian Space Research Organization (ISRO) says that satellite instructional television experiment answered a lot of questions which were asked by the broadcaster, social person, educationists, psychologists, engineers and scientists in developed countries to facilitate the importance of satellite plan. Importance of satellite television has increased due to the limitation of the economic expenses and existing results.

(4) India National Satellite or INSAT—Technology is developing continuously. First it developed in Civil Engineering and Architecture then Mechanical Engineering, then in Electro Mechanical Engineering and now in Electronics.

India wants to move forward in step with the era of information technology. India at one ends, performed many experiment of tele communication and data communication through "Apple" Satellite and on the other end, organized ambitious space programme of meteorological and nationwide television on the basis of the multipurpose satellite "INSAT". Its objective is—

To strengthen communication, to detect environment and use of natural resources at the right time.

In India, INSAT was used to provide television programmes to rural areas. A paln of 70 million ruppees has been prescribed for this. This work was supported by radio and television stations. At first, it was starts in 6 states and 13 districts. Those 6 States were, Andhar Pradesh, Orissa, Bihar, Gujarat, Maharashtra and Madhya Pradesh.

In this scheme, such 15,300 villages have been taken which have the facility of electricity. For the first time, it has been decided to provide 1 hour programme in the evening and a 45 minutes programme in the morning to these villages. Specific areas of the programme such as population, education, food, treatment, political and environmental were mainly concered.

INSAT's first vehicle INSAT 1 was launched in April, 1982, second INSAT 1 B in August, 1983, third INSAT 1 C in middle of 1986.

(5) Higher Education Television Project or HETV—An experiment name Nationwide Classroom was conducted on 15 August, 1984. This experiment was related to higher education. UGC contributed in the development of programme by organizing it. This programme was designed for graduates, teachers and educated citizens. It major purpose was to improve the quality of higher education so that a dynamic class situation can be generaed. A separate cell was established by UGC to emphasize this scheme which is called as Mass Communicaitoners. Beside this, 6 research centres were established which are called as Audio-Visual Media Research Centers. At these centers, programme were designed as well as imported from other countries.

22.2.2 Types of Television Programmemes

Following are the types of television programmemes—

(1) Monologue—In this type of programmees there is a single narrator or person who speaks. Visuals are oftenly used. News, special reports and educational programmees are presented in these programmees. These programmemes are appropriate for radio because expressions are not necessary in case of radio.

(2) Dialogue—It is a dialogue programmeme and atleast two person are required for the conversation. These programmemes include programmemes for citizens, educational programmemes and providing information. Visuals are used in these programmemes.

Notes

(3) Interview—It is very effective. There are two sides. One who takes interview and another who gives interview. The person who takes the interview comes with already prepared question. With these programmemes, a variety of personals can be brought closer to the audience.

(4) Panel or Forum—In such programmemes, a team of experts discuss on a subject which includes elements of controversy or variations of subject or ideas. People included in the panel can have different views. It does not require any script but narrator should be experienced. This format of the programme develop the thinking ability of students.

(5) Quiz—Such programmes also have two sides—quiz master and some participants. There are some supporters of quiz master. Quiz asks some questions from participants and they answer it. Audience can also participate in this programmes. Audience can participate by answering through post.

(6) Drama—This format is popular over both the television and radio. It is more difficult to perform drama on a television. Artists have to learn all the conversations in television drama. It is difficult to perform complex situation through drama. It is expensive to design television drama.

(7) Actualities—By television, students can be exposed to actual events or educational events. Students can remember the things they have learnt for long time. If the actual events are to be shown more caution should be exercised. It is very expensive to collect these events in remote areas

(8) Simulated Classroom—In this programmemes, a simulated class-room is prepared and education activities are completed inside it. This format of the programmes is cheap and easy. It requires rehearsal.

22.2.3 Use of Television in Classroom Teaching

The audio-visual instrument has been used very extensively in classroom teaching. Following steps are followed while using television in classroom teaching—

(1) Preparation—In the first step, the unit that has to be performed has been planned comprehensively. In this plan it is decided that what, when and in what conditions, episode will be displayed to students. There is a department of audio-visual training in the education department of every state which broadcasts the available list of video-films. These lists are available in the school library.

(2) Presentation—In this step of presentation, teacher should watch the television programmeme before displaying it to the students in the classroom. There should be complete discipline during broadcast. Students write the notes on their notebooks while watching programme.

(3) Follow-up—Broadcast is discussed in this step. Students can clarify their doubts. The feedback arrangement of broadcast programmeme is also done.

22.2.4 Educational Utility of Television

Utility of television has revolutionised the educational sector. Following are utilities of television in educational sector—

1. Difficult episodes can be easily explained to the students by the use of television. Information on all subjects such as music, art, agriculture, language, health, education can be provided to student by television.
2. Information on innovative researches can be obtained through this which can be useful for both the teachers and students.
3. Patriotism among students can be created by television broadcasts. Additionally, the feeling of national unity, patriotism, brotherhood, tolerance etc. can be developed in children by showing them various national days, religious and social gatherings programmemes.

Notes

4. Knowledge of the culture of different countries can be provided by the television, such as language, dance, art and music etc.
5. Occasionally there are some lessons that can neither be easily understood by the student nor the teacher can teach them properly. Such lessons can be easily explained by showing on television in the form of acting and drama.
6. Through the television is not only to provide curriculum-related knowledge, but students are also encourage to participate in the text can be concomitant actions.
7. Information of significant events of country and foreign can be provided to student in school via television.
8. Information can be provided to more children in less cost.
9. Not only students but also villagers can be educated and information related to agriculture can be provided in rural areas.

22.2.5 Limitations of Television

The major limitations of television are:

1. Television is a one way communication instrument. Like radio, interaction or discussion is not possible in it i.e. it lacks immediate feedback.
2. Every students learns at his own pace. On television, teacher will teach with the pace which is appropriate for average students. In other words, individual variations are not taken into consideration over television.
3. Everyone still lacks the ability to buy television. Therefore, it can't be the common instrument.
4. School and colleges has not yet appropriate arrangement for watching television.
5. Sometimes visuals detract students which affects learning process.
6. It is an expensive task to provide education by means of television because a lot of money is required to buy expensive TV set.
7. It is a difficult task to include television in school activities because there is a lack of similar course and exactly trained teachers.

Self-Assessment

2. Multiple Choice Questions:

(*i*) In which century television's name is taken prominently in the scientific achivements?

(*a*) 20^{th} (*b*) 21st

(*c*) 19th (*d*) 18th

(*ii*) When did television services are formally started in India?

(*a*) 15 Sep, 1969 (*b*) 15 Sep, 1959

(*c*) 17 Sep, 1969 (*d*) 17 Sep, 1959

(*iii*) When did 'Krishi Darshan' programme started?

(*a*) 26 Jan, 1950 (*b*) 27 Jan, 1950

(*c*) 26 Jan, 1966 (*d*) 27 Jan, 1966

Notes

22.3 Closed Circuit Television–CCTV

Normally, in television broadcasts, academic programmes are first recorded in the studio and then is relayed by transmitor. Programmes broadcasted by T.V. reciever antenna are shown on television. Closed circuit Television broadcast is only confined to classrooms or school buildings, therefore it is called as Closed Circuit Television. Relay reaches the TV or monitor through a co-axial cable. These programme are either broadcasted directly or broadcasted after being recorded. Their objective is to broadcast programme on already fixed episodes. Microwave have limited use it these programmes, so its broadcasting is also limited to some specific area or audience.

In the field of teaching- training, it is a very succesful instrument for the development of teaching of pupil teacher. It is an effiecient instrument to perform specific operation process in a medical college.

Task Write the expanded form of CCTV.

22.3.1 Characteristics of CCTV

The main characteristics of CCTV are—

In Closed Circuit television, information is transmitted to the reciever using a co-axial cable. So length of cable reduce the distance. CCTV has an importance place in educational institutions. Some of its main characteristics are as follows—

1. Such things which are difficult to view in the general classroom environment, it displays and demostrates by enhancing objects.
2. From one organization to other wherever circuit is connected, it transmits the course from one professor to another.
3. Development area of instruction has been increased due to CCTV
4. In educational institutions, objects and activities performed which are seen by all student, can be displayed to them through CCTV and their nuances can be explained easily.
5. Educational institutions can include learning process according to their own schedule through CCTV.
6. Lecture of good teacher can transmitted to other classes and other educational institutions through CCTV which raise the level of teaching.

In developed countries, CCTV are widely used in educational programmes but it has low use in developing countries like India.

Self-Assessment

3. State whether the following statements are True or False:

(*i*) Normally, in television broadcasts, academic programmes are first recorded in the studio and then is relayed by transmitor

(*ii*) In Closed Circuit Television, broadcasting is not limited to class or school buildings

(*iii*) Development area of instruction has been increased due to CCTV

Notes

22.4 Summary

- Radio and other audio instruments play an important role in teaching, especially for literature courses.
- Radio is an important means of connecting remote people to the events of the world.
- Famous artists can be heard on the radio and their art can be studied. We can listen a speech or education lesson again and again with the help of radio.
- Television has moved ahead many steps from radio. We can only hear voice over the radio while over the television we can hear voice as well as can see the picture of a person and his activities clearly.
- Television entered in India on September 15, 1959 by a trade fair at New Delhi in which its utility was performed. After the September 15, 1959, television service was formally inaugurated in India.
- Closed circuit Television broadcast is only confined to classrooms or school buildings, therefore it is called as Closed Circuit Television. Relay reaches the T.V. or monitor through a co-axial cable. These programme are either broadcasted directly or broadcasted after being recorded.

22.5 Keywords

- **Radio**—Instrument which receive frequency signals
- **Limitations**—Shortcomes

22.6 Review Questions

1. Highlight the Audio recording instrument.
2. What are the advatages of radio lessons? Write its limitations.
3. Explain the development of educational television.
4. Explain the types of television programmes.
5. What do you mean by CCTV? Write its major characteristics.

Answers: Self-Assessment

1. (*i*) Contribution (*ii*) Mentally (*iii*) Population (*iv*) Follow-up (*v*) Events
2. (*i*) (*a*) (*ii*) (*b*) (*iii*) (*c*)
3. (*i*) True (*ii*) False (*iii*) True

22.7 Further Readings


Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit-23: Web Based Instruction and E-Learning

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the importance and definition of web based instruction.
- Know the definition of web based instruction.
- Know the importance of web based instruction.
- Understand e-learning.

Introduction

At present times, high quality technical equipment and communication are being used for development and modification of education in which computer is unfolded as a powerful equipment. Today, Internet services are used over the computer in education in India as well as other countries in the world. As a result of it, new concepts have been developed such as computer Internet, Intranet, extranet, networking system, website, e-school system e-learning system etc. Today these concepts are used very rapidly in education. Some of these main concepts have been discussed in the prior unit of this book. Such concepts which are explained in the books are as follows –

(1) Web based instruction

(2) E- learning

Notes

23.1 Web Based Instruction

Web Based Instruction is that medium for preparing a learning environment which mediates and support external resources of instructional domain associated with computer's hyperlink by get connected to Internet and Intranet. Instruction is designed in such a way that computer displays a lesson while replying to the conversation of a learner or user. Surprised learning is an aspect of Web Based Instruction which often occurs "face to face". According to tradition, instructional environment, usually teaching is intentionally considered as little relevant teaching. Computer and web has changed the model of this instruction. They allow learns to see, find and collect information of some place at any time. For example, by following the gulf stream link, more information related to a sea can be obtained. Student and teachers can have knowledge related to planet by following the sequenced links. This type of learning is amazing, but the instructor who provides hyperlinks, its plan must be created.

23.2 Definition of Web Based Instruction

Khan (1997) has defined the web based instruction as, "Web Based Instruction is that hypermedia based instructional program which use the resources of world wide web to prepare the meaningful circumstances of teaching, by which teaching program gets the support and improvement."

According to **Rellan** and Gillmiz (1997), "Web Based Instruction is that application which prepares a constructive and collaborative learning environment on the repertoire of cognitive instructional skills by using characteristics and resources of World Wide Web."

23.3 Importance of Web Based Instruction

Web Based Instruction which is an emerging sector of education is a part of Internet which is increasing rapidly. Following are included in the reasons of its development—

(*i*) It promotes the economic development of distance education (reliable and cheap resources)

(*ii*) Computer based training, live broadcasts, video tapes, etc. (Rilan and Gilani).

Self-Assessment

1. **Multiple Choice Questions:**

(*i*) Web Based Instruction is a medium—

(*a*) To prepare teaching related environment

(*b*) To prepare playing related environment

(*c*) To prepare computer related environment

(*d*) All the above

(*ii*) The aspect of Web Based Instruction is—

(*a*) Learn while walking (*b*) Surprised learning

(*c*) Often learning (*d*) None

(*iii*) Web Based Instruction promotes—

(*a*) Economic development of distance education

(*b*) Economic development of open education

(*c*) Economic development of school education

(*d*) All the above

Notes

23.4 E-learning

Electronic Learning is also called as E-learning. It is also called as Computer Oriented Learning. E-learning is used in many ways. It is more related to Advanced Learning Technology. Technology and learning methods are included in E-learning. Computer network and multi-way technology is used in it.

Since 2006, thousands of students participated the online learning in higher education institutions. It was started in Britain. E-learning is called as online learning. Today, online learning is organized in many higher education institutions. Online learning services are provided to individual students. It is found in research studies that generally, all students are satisfied with E-learning. E-learning is more effective as compared to traditional learning system. This learning system is mostly used in private institutions because this system is comparatively economical. Trained persons are selected in online learning. Assistance of trained persons is also required for computer online and internet services. Today, online education is developing more rapidly. Even arrangements of online instruction are organized for research studies. Research students are managed by developed research institutions and open universities.

Communication media are being related to the communities. The basic learning of community learning provides model. Some necessary activities are required to be edited which is organized in the class. The level of class teaching can be developed by using technology. In current circumstances, many activities and resources are required in class for learning.

23.4.1 Meaning of E-Learning

E-Learning is a new concept of Education. In this Internet technology is used for the presentation and communication of learning contents. With the help of this technology, an appropriate environment for teachers and students can originated for learning. E-learning improves a lifelong process. It provides learning facilities to the society and community.

Meaning of E-learning is—

1. E-learning is a new concept of education which is different from traditional learning. It provides a new arrangement for learning.
2. The main characteristic of E-learning is that the presentation and communication of learning contents is done through Internet system. We can say that – what is E-learning or what it is not?
3. The learning environment is expanded by using internet in E-learning. The learning environment of teachers and students is expanded by using Internet. This environment is student-centred while learning environment is teacher-centred in traditional education.
4. E-learning - the new concept of education, prepares environment for lifelong education. It provides opportunities to society for actual learning.

E-learning is a wide concept. The type of learning is edited by computer and Internet. The communication of this learning is provided to everyone at any place through network.

E-learning is not an alternative system of education but is a system of new education which provides opportunities of education or learning to all. It is an economical system of higher education. E-learning is a more wide and important education system. Mastery of learning contents is developed through this. Its effectiveness is similar to that of traditional education.

Instructional format of E-learning is complete because teaching principle are used in it for many years. It has been used in distance education, adult education, continuing education and vocational education in many countries of the world.

Some other words are related to E-learning. These are included in E-learning.

(*i*) Online learning (*ii*) Online education

(*iii*) Distance education (*iv*) Technology based training

Notes

(*v*) Web based training (*vi*) Distance learning and

(*vii*) Computer based training (CD ROM)

E-learning is a more wide concept. This type of learning is organized in terms of computer. E-learning is included in the technical dictionary.

Notes E-learning has been developed rapidly in China as a new system but this development is of different type in western countries. E-learning is mostly used in higher education because this type of learning is more required in higher education.

23.4.2 Definitions of E-learning

There are many definition of E-learning, some of them explained here—

E-learning is used in including effective teaching and learning processes due to which regional communities and geographical communities get the opportunity to learn.

According to **Tom Kelly** and **Cisco**—"E-learning is about information, communication, education and training. Regardless of how trainers categorize training and education, the learner only wants the skills and knowledge to do a better job or to answer the next question from a customer."

—Tom Kelly, Cisco

According to **Brandon Hall**—"Instruction that is delivered electronically, in part or wholly *via* a Web browser, (...) through the Internet or an Intranet, or through multimedia platforms such CD-ROM or DVD." ***—Brandon Hall***

Brandon Hall argues that, as the technology improves, e-learning has been identified primarily with using the web, or an intranet's web. Increasingly—as higher bandwidth has become more accessible—it has been identified primarily with using the Web, or an intranet's web, forcing the visual environment and interactive nature of the web on the learning environment.

According to **Learning Circuits**—"E-learning covers a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms and digital collaboration. It includes the delivery of content via the Internet, Intranet/extranet, audio and videotape, satellite broadcast, interactive TV and CD-ROM." ***—Learning Circuits***

According to **Rosenberg**—"E-learning is used in internet system. Contents are delivered through internet technology, which improves the knowledge and the achievements of student get improved."

Rosenberg has given three criteria of e-learning—

1. E-learning consists of network. There is collaboration of information and storage of information.
2. Certified techniques of internet are used for communication in E-learning.
3. Transmission is the goal of e-learning. The solutions of this learning is more meaningful and effective than traditional systems.

"E-learning provides the potential to provide the right information to the right people at the right times and places using the right medium."

E-learning is a new concept in education and education is also a new dimension. Following characteristics have been discussed by the above definitions and meaning –

The main characteristics of E-learning are—

1. In this learning, students are provided the opportunity to learn at their pace. It can also be called as self-learning.

Notes

2. This learning is self-directed. Students selects the courses according to his needs. Learning medium is also selected according to his needs.
3. Multimedia is used in E-learning. Different types of communication and broadcasting methods are used.
4. E-learning is student-centred.
5. E-learning has the solutions of geographical problems and there is also provision for open education.
6. A large number of students are included in E-learning, there are large number of students in the class.
7. This learning is organized online. Student can use it according to his needs.
8. This learning is developed by computer. Internet system is used in it.
9. E-learning is economical and rapid to E-learning.
10. E-learning develops Computer and Internet skills .
11. Students get more opportunity to interact.
12. Communication media and methods are collectively used in E-learning.

23.4.3 Characteristics of E-learning

"Good teaching is good teaching, no matter how it is done."

Expansion of Internet also influenced our educational system. E-Learning is a result of it. In fact, online education has played an important role for providing education by reducing the distance. In such cases, **Virtual Class** is used in place of traditional class. Many universities of India has the facilities of online education. Indira Gandhi National Open University and Sikkim Manipal University are the leading universities. The characteristics of e-learning are displayed as under—

1. You can do any course from any university in the country or foreign through E-learning while sitting at home. For this, registration process is done online. Now, even exams are taken online.
2. Various techniques are used in online education system such as E-mail, video conferencing, blogs bulletin boards, discuss boards etc.
3. You can improve you skills through online courses when employed due to which becomes easy to update yourself. You can read study material whenever you want. Study material is always available on Internet.
4. This system is more useful for economically weak and remote students. It is very useful to learn through this.
5. Now a days, you can do practical work through virtual lab while sitting at your home. The craze of virtual lab has increased very much.
6. In online education, course content can made interesting and effective with the use of graphics, animation and multimedia.
7. Various course from certificate to degree are available online.

23.4.4 Types of E-Learning

Different types of methods are used in E-Learning, multimedia is used in it. Following are types of E-Learning—

1. Online Learning
2. Blended Learning

Notes

3. Synchronous Learning
4. Asynchronous Learning
5. Self Study
6. Web Based Learning
7. CD ROM
8. Learning by Audio-Visual Tape

Did u know? In E-learning system, students are completely free to learn. It is called as open learning or multimedia learning.

23.4.5 Objective of E-Learning

Computer is used in education through E-learning. Blended media are used in it. Computer based process are normally used in the class teaching.

Students are directed by the general format of lessons of E-learning and are communicated with the help information and scientific media. Content can be communicated with through E-learning. Every skill can't be developed through information based contents. Procedural skills are developed through conclusion based contents. It improves computer learning.

Following objectives can be obtained through E-learning—

1. Communication of content through E-learning
2. To provide educational facilities to local communities and geographical communities through E-learning.
3. To provide opportunities for open learning through E-learning
4. Everyone gets equal opportunity to learn through E-learning
5. To promote mixed media through e-learning
6. To facilitate educational process in open university through E-learning
7. To develop and promote online education through E-learning
8. To improve the rapidness of researches through online education
9. To make higher education more economical through E-learning
10. To develop mega learning techniques through its use.

23.4.6 Media Used in E-Learning

E-learning is used in the entire world with the help of web or CD ROM. It is similar to distance learning. Media are used in it. Communication is made with the help of media. Following media are used in it –

1. **Print Media**—Contents, books and E-gins are used in it.
2. **Video Media**—Visual tape, Cable, Visual flow, Satellite publishing, television etc. are used in it.
3. **Communication Media**—This is divided into two categories
   (a) Asynchronous Media—It includes E-mail, listening, discussion etc.
   (b) Synchronous Media—It includes Internet, virtual seminar and tele-conferencing.

These media are explained in other chapters.

Notes

23.4.7 Technologies of E-learning

E-learning is also called as Blended learning. Various type of media are used in it. Technologies used in it are as follows—

1. Web Based Instructional Material
2. Multimedia, CD ROM
3. Website
4. E-mail and Mobile learning
5. Internet Text
6. Learning managed software
7. Simulation
8. Computer aided assissment
9. Virtual Classroom
10. Games

Blended methods are used in most E-learning. Communication is done through network. Learning technology and educational technology are widely used in terms of learning. It is used as extended format rather than computer based training. Computer assisted Instruction was used in 1980. It is more wider than online education. Generally online education is considered as web based learning. Basically, E-learning is similar to distance learning.

E-learning is also called as flexible learning. This learning is also attached to the face to face learning. The word, blended learning is used for this. It is used as a specific management learning environment. The trend of using management learning environment in higher education has been increasing. This environment is included in the management notification which originates management learning environment. Every phase of the course is communicated through this. In modern time, open universities has been developing very rapidly. E-learning has a great contribution in controlling open universities and open schools. E-learning is also called as educational website. It is also used in other sectors.

23.4.8 Use of Communication Technology in E-Learning

Communication Technology can be divided into two categories—

1. Asynchronous Media and
2. Synchronous Media

1. In the process **Asynchronous Media**, E-mail, web, blog, wikis and discussion are used. It provides opportunity for discussion. E-mail is also included in it. It has collaboration of teachers and students.
2. **Synchronous Media**—Ideas are transmitted in this communication. The opportunity is given to face to face teaching and interaction. Everyone collaborates in it. There is online discussion and blended communication is used.

Blended communication technologies are used in actual class teaching. There is interaction between students and teachers and verbal and non-verbal communications are used.

23.4.9 Use of E-Learning in University Teaching

E-Learning is more effective in university teaching. It also promotes the training process. Administration and teaching processes are also effective. Students get the opportunity to learn different courses on the website of different universities. Written form of lectures are also available on websites and also support

Notes

materials are available. It is more flexible. More opportunity is provided to self study. E-Learning acts as a support system for part-time students and is within their reach. Environment is originated from individual web which facilitates discussion and specification. Traditional problems are removed and objectives are attained. Network technology is more used in it. E-Learning is used in distance education and traditional education. There is social interaction between teachers and students. Postal services and libraries are available at study centres. Written resources are also used. As a result of the developed of these media, the learning of higher education has been made simple and economical. E-learning has great contribution in higher education and university education.

E-Learning has more contribution in higher education. Distance education is based on E-Learning. Due to the use of computer for interaction, students have to become active for attaining knowledge. This is the model of world's actual system for providing knowledge. This model develops such environment by which students has discover new knowledge for which students have to keep striving. The computer originated environment is completely controlled. Less independency is provided to students for learning. Students are independent for mastery. Desired changes are brought to students through responses and interactions. Teacher presents challenging problems which develops sensitive thinking in students and they get new knowledge. These situation should have variations. Individual diversity is more in students. It depends on the mental abilities and capacity of students. In this model, attention should be provided to these facts. In teaching models, attention should be given to nature of learning subject and level of difficulties. In these researches, open interaction is more important.

There are different possibilities of E-learning for artistic subjects. There is different format of programmes for these. For the effectiveness of music, attention is to be paid towards the experience of audience and their ideas. Their effectiveness are to be tested by attaching it to media. Arts of music will have to be ensured on the basis of the experience of required audience and acts are rendered for that. Similarly which phase will influence the viewers of painting? Specific arts are familiarized through the effectiveness of other artistic subjects. These are included in communication. Arts are decoded in an objective form.

Roles are determined for Human system – the role model of social science. Various tasks and information of different groups are provided. Their activities are decisions are considered as affected by the politics. Students take more interest in visual communication and presentation in psychological terms. In e-learning programs, attention is to be paid to these facts. Students behaviour is decoded in terms of objectives. From this, evidences should be collected for effective learning.

There is no subject whose student can't get the benefit of E-learning, while decoding of learning should be based real experience. Possibly, most students will have experienced E-learning by taking active participation. Educational discussion and audio-visual presentation is more effective. Questions are not replied in written work, but answers are provided its decoding programmes. Teacher challenges in the interaction media and students become active and striving. Students who are sensitive towards their responsibility, they discover the elements of contents in the presentation. They assimilate contents through network and are capable of discussion on the text. They discover ideas and also originate them. E-Learning method is more powerful in these circumstances.

Task In how many categories communication technology is divided?

23.4.10 Pedagogical Approaches of E-Learning

1. **Instructional Design**—The instruction of traditional pedagogy is the objective of course. Central

Notes

Educational Group is developed for individual teachers.

2. **Social Construction**—In the pedagogical approach, discussion, blogs, wiki and online are used in an integrated form. It is that integrated approach due to which presentation of open educational content is widely originated which also includes students.
3. **Laurilard's Conversational Model**—This model is especially used in E-learning. There are five phases of this model which are widely used in discussion
4. **Cognitive Perspective**—The objective of this approach is to develop cognitive phase through learning. It is emphasized that which types of mental activities are involved in learning?
5. **Emotional Perspective**—The objective of this approach is to develop learning of emotional perspective. It also motivates.
6. **Behaviour Perspective**—The objective of this approach is behaviour change through learning. Simulations are used for this learning. Also installation is done.
7. **Contextual Perspective**—The objective of this approach is to present such environmental and social phases due to which simulation learning can be done. Colleagues have special importance in it.

23.4.11 Advantages of E-Learning

There are many advantages of E-learning. Some of them are described below—

1. **Convenience and Portability**
   - (*i*) To reach course according to programme
   - (*ii*) Attendance is not necessary in online learning
   - (*iii*) Learning is done by self-pacing
   - (*iv*) No boundation of time limit
   - (*v*) No limit of time.
   - (*vi*) Learning can be done online or by any means
2. **Cost and Section**
   - (*i*) Courses are selected from wide areas
   - (*ii*) There are degree, certificates and vocational programmes.
   - (*iii*) Continuing education is organized.
   - (*iv*) Instruction are available for individual course.
   - (*v*) This approach is more wide and economical.
   - (*vi*) Can visit universities for higher education.
   - (*vii*) There is online education facility for artistic disciplines and scientific topics. It is mostly used in distance education.
3. **Flexibility**
   - (*i*) Options are included in online learning, optional subjected are selected.
   - (*ii*) Instruction is selected for self study.
   - (*iii*) The known subjects can be omitted.
   - (*iv*) Can use best tools for learning according to our needs which makes learning simple.
4. **Higher Retention**

   For online learning, course can be selected according to interest. Different course are communicated online with different methods which improves the perspective.

Notes

5. **Greater Collaboration in Learning**

   Students collaboration is encouraged by the used of technical equipment. Learning collaboration are developed in projects through online environment. There is no face to face interaction.

6. **Global Opportunities of Learning**

   Emotions are easily developed in students by the use technical equipment. This behaviour is developed by online learning at world level. At global level, contents are communicated through online learning which is not possible through traditional education.

23.4.12 Evaluation of E-Learning

Courses are communicated in different ways through online media. Student use these programmes according to his needs and interests which fulfils student's needs. Everyone has own style of learning. Some questions arise here, which can be compared—

1. How can your learning style be compared to communication of contents?
2. How to understand the professional and study for the intelligibility of individual growth of contents?
3. How to encourage the self-directed instruction towards courses?
4. How to compare open registration and traditional time table?
5. How to develop the unit of continuing education?
6. How to use the available support system?
7. How to use the wide structure of options?

The description and clarification of these questions are given in the following lines—

(1) Information is required in terms of learning style and communication of contents due to which the complete method of evaluation can utilized. Content activities should be compared to the learning style. Blended activities are used in some situations. Evaluation is based on activities of contents. It is clarified with the help of table.

(2) It is determined on the basis of degree of the course that how much time could be provided for the intensity study. Intensity of content and materials are obtained in higher education. Content is directly related to degree. The structure of content is decided by the teacher. Online contents are for tutorial teaching. Duration of study is determined on the basis of ratio of content

(3) Some students like to learn through self-study and some learn through directed courses. Some learn the content through blended way. The intensity of content is required for personal growth and professional development. More time is provided in self-study courses because the courses are to be understood by itself. Clarification is provided in directed content and feedback is also provided. It requires self-motivation and concentration.

(4) In traditional education registration and teaching programmes are time limited while in open education, there is no time limit in registration and teaching programmes. Open education has all type of flexibilities. Traditional system is controlled. It do not have time limited programmes.

(5) Students selection process is used in continuing education. Credit points are provided for every course. The progress of units of continuing education is decided on the basis of these points. It has open structure of study. Admissions are provided to further class on its basis.

(6) Support system is used in online classes by which difficulties of learning are resolved. It helps in the process of study. The facilities of library and other technical support are also provided.

(7) Massive expansion of selection is used for the intensity of content. Content is selected according economical facilities. The education of individual and professional course is also economical.

A complete evaluation method is selected for evaluation E-learning through the clarification these points by which learning can be purely evaluated.

Notes

Self-Assessment

2. **Fill in the blanks:**
   (*i*) Electronic Learning is also called as .....
   (*ii*) Since ....., thousands of students participated the online learning in higher education institutions.
   (*iii*) Expansion of ..... also influenced our educational system.
   (*iv*) Computer is used in ..... through E-learning.
   (*v*) E-learning is used in the entire world with the help of .....

23.5 Summary

- Web Based Instruction is that medium for preparing a learning environment which mediates and support external resources of instructional domain associated with computer's hyperlink by get connected to Internet and Intranet
- Electronic Learning is also called as E-learning. It is also called as Computer Oriented Learning
- Since 2006, thousands of students participated the online learning in higher educational institutions. It was started in Britain. E-learning is called as online learning
- Communication media are being related to the communities. The basic learning of community learning provides model
- E-Learning is a new concept of Education. In this internet technology is used for the presentation and communication of learning contents.
- "E-learning is about information, communication, education and training. Regardless of how trainers categorize training and education, the learner only wants the skills and knowledge to do a better job or to answer the next question from a customer."
- "E-learning covers a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms and digital collaboration. It includes the delivery of content via the Internet, Intranet/extranet, audio and videotape, satellite broadcast, interactive TV and CD-ROM."
- Expansion of Internet also influenced our educational system. E-Learning is a result of it. In fact, online education has played an important role for providing education by reducing the distance.
- Computer is used in education through E-learning. Blended media are used in it.
- E-learning is used in the entire world with the help of web or CD ROM. It is similar to distance learning. Different Media are used in it.
- E-Learning is more effective in university teaching. It also promotes the training process.

23.6 Keywords

- E-Learning—Electronic Education
- Internet—Internal Network

Notes

23.7 Review Questions

1. What do mean by Web Based Instruction?
2. Write the importance and definition of Web Based Instruction.
3. What do you mean by E-learning? Write its characteristics.
4. What are the types of E-Learning? Write its objectives.
5. Which media can be used in E-Learning? Briefly explain each.

Answers: Self-Assessment

1. (*i*) (*a*) (*ii*) (*b*) (*iii*) (*a*)

2. (*i*) E-learning (*ii*) 2006 (*iii*) Internet (*iv*) Education
(*v*) Web or CD ROM

23.8 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh*

Notes

Unit-24: E-Pedagogy, Web 2.0 Technology and Virtual Laboratories

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the pedagogy.
- Understand the web 2.0 technology.
- Have the knowledge related to virtual laboratories.

Introduction

Teaching practice has changed during the last century. Supporters of the change argue that this learning environment has changed fundamentally.

Pedagogy is Greek word which have the meaning ' leading a child'.

Web 2.0 technology is designed to create web sites and application with the purpose of online information or material. Information can be transmitted online through this technology.

Virtual Laboratories System refers to such class in which educational circumstances are organized by using modern computer and communication or other resources such as Internet, online chatting, world wide web etc.

Notes

24.1 Pedagogy

Teaching practice has changed during the last century. It has been argued that the classical teaching is not subjected to timeless and technological change. Supporters of the change argue that this learning environment has changed fundamentally and it is necessary to develop pedagogy and to reflect new realities. This paper checks the argument whether an assessment is implicated to an "E -Pedagogy".

24.2 What is Pedagogy?

Pedagogy is Greek word which is originated from the meaning 'leading a child'. Its modern use is related to art of teaching and science and includes the principles of teaching and learning.

24.3 Towards the E-Pedagogy

During last 20 years, a dramatic change has occurred in the equipments of teaching and learning while there is no change in the methods of learning. Formal methods are used to learn these new methods. It has two main reasons that it was not deemed to change the teaching methods and second – there is no alternative method. Supporters of change have challanged the two.

24.4 A New Pedagogy and Learning Style

Several new pedagogies were proposed which provide an opportunity for all to directly learn E-learning. However it is known as Connectivism or network learning. George Semens proposed this theory.

Did u know? George Semens rendered E-Pedagogy

24.5 What is Web 2.0 Technology?

Web 2.0 technology is designed to create web sites and application with the purpose of online information or material. Information can be transmitted online through this technology. This technology allows people to share information easily to each other through different techniques. 2.0 Website is different from others websites. It does not require any skill to participate in the designing or publishing of any web, it is mainly created to be desinged and published by people and to establish conversation among the world.

The nature of this technique is that it select people or makes a very comprehensive way for audience for communicating about a simple and popular information. University establishes communication with students, staff and wide educational community by using these equipments. This technology may be an effective way to establish communication with students and research colleagues.

Type of web 2.0 technology with Wikidpedia: Blogs, social networking, Folksonomies, Podcasting and matter hosting services. Many other website are present on web 2.0 in the form of wikidpedia, You Tube, Facebook, My Space, Flicker etc.

Self-Assessment

Notes

1. **Fill in the blanks:**
   (*i*) Teaching practice has ..... during the last century.
   (*ii*) During last ..... years, a dramatic change has occurred in the equipments of teaching and learning.
   (*iii*) ..... Website is different from others websites.

24.6 Virtual Laboratories

Computer is an important contribution of modern era. The current era is the era of computer. It is more widespread. The use of computers has made human life more intense and pure. The world has become smaller. Computer is a more economical invention in terms of time, power and wealth. It has increased human capability. Computer assisted instruction is given special importance in education. As a result, many computer media are currently being used in education such as Internet, Intranet, networking and e-learning. These main services of computer have also been used in education class. Today, the meaning of class is not only to the mutual class teaching but also teaching-learning can be provided to students by a teacher at remote located through electronic media.

Notes In modern ages, virtual laboratries is that class teaching in which students and teacher can feel the class without being seated in front of each other.

24.6.1 Meaning and Definitions of Virtual Laboratories

Virtual Laboratories System refers to such class in which educational circumstances are organized by using modern computer and communication or other resources such as internet, online chatting, world wide web, cd rom and dvd, mobile etc. It is that web based media or teaching learning environment which capables a student to participate in the activities of teaching learning without going to his teacher. Students feels that he is a part of teaching learning process because like traditional class, he listens explanation, asks questions, gets feedback and participates in the laboratory related tasks.

24.6.2 Characterstics of Virtual Laboratories

Based on the meaning and definition of virtual laboratories, its main characteristcs are –

1. Virtual Laboratory is an example of modern teaching and learning management of electronic era.
2. In virtaul laboratories, students are completely free of time, place and pace of learning. They can learn when, where and how they want to according their comfort.
3. In virtual laboratories, students and teachers use modern computer and multimedia rather that teching learning in front of each other.
4. In virtual laboratories, more skilled and experienced teachers are required for the teaching learning of any subject or episode.
5. In virtual laboratories, students' problems related to administration and evaluation are resolved online.
6. Virtual Laboratory System is being proved to be more effective that formal education system and instruction management.

Notes

7. Virtual Laboratory System is a web based teaching learning environment which is capable to connect to all activties without going to the destination.
8. Internet, Intranet and extranet systems are used in Virtual Laboratory System.
9. Virtual Laboratory is opposite to the teaching learning in front of each other in the traditional class. In this, interaction between students and teachers takes place through electronic media.
10. Virtual Laboratory System is similar to distance education system in which any student can learn by getting involved in any business or other work.

24.6.3 Procedure of Virtual Laboratories

Virtual Laboratory tries to deliver various teaching learning material prepared according to courses of schools to the students home or other determined places. The process of this management can be understood clearly by the following points—

1. At first functioning of virtual laboratory system, a subject-specialist prepares the instructional material on a single episode according to course which he published through satellite based teleconferencing or Internet as done in the EDUSAT programmes of the educational technology department of N.C.E.R.T
2. At second functioning of virtual laboratory system, course prepared subject–specialist are uploaded to the websites of schools. Website's address is known to the students of the school and they download this course from website according to their convenience.
3. At third functioning of virtual laboratory system, course prepared subject-specialist are distributed to students after downloading it on CD's and DVD's due to which students get their instruction material by opening these CD's and DVD's on their computers. With these instructional material, teacher also provides support material and possible answer of complex questions due it becomes easy for students to self study.
4. At other functioning of virtual laboratory system, mega techniques of information communication are used such as online chatting, Internet, E-mail, mobile phone etc. Thus instructional material of course prepared by subject–specialist is provided to students through mega techniques of communication. This type of communication and interaction is used by teachers in teaching learning process for maintaining the active participation of students. Teacher checks the understanding and knowledge of teaching by questioning and also evaluates from time to time.
5. At this functioning of virtual laboratory system, students are encouraged after evaluating their knowledge and different types necessary activities of learning exercises such project work, repition and providing assignment take place through websites, e-mail and e-file. After checking, students assignments are returned to them, which provides feedback to students from time to time.
6. The last functioning of virtual laboratory system is that in which other admistrative arrangements of school activities are conducted. The main objective of this step is to aware student for instruction programmes, to check the education improvement of students, to evaluate, to exercise, feedback, telling about remedial and therapy ideas, to provide grades according to the achievements of students and to provide them certificates and degrees. These processes are performed online in virtual laboratory.

Task Who prepares the instructional material in the first functioning of virtual laboratory system?

Notes

24.6.4 Advantages of Virtual Laboratories

In today's computer era, distance education is establishing it new dimension at one side while on the other side, technologies that are running it smoothly are making their place in the education system. Due to these features, virtual class are being useful for teacher as well as students.

1. It is useful for students in teaching learning at any time or any place.
2. It is an supportive method of distance education because students can learn by getting involved in any business.
3. It is an interesting and encouraging medium due to the use of new techniques and media.
4. Through of virtual laboratory system, every student can take adavatage of the skills, experience and kwowledge of an effective teaching of any subject in the words which is useful for everyone in economical terms.
5. Generally, every activity in virtual laboratory system takes place online such as registration, fees, evaluation of teaching learning, information of achievements, providing results etc.

The best human resources are used for conducting virtual laboaratory in a better way as compared to that of traditional class. Many problematic sides of tradtional classroom arrangement such as preparing time-table, maintaining discipline, students attendace, adequate supply of teacher, teacher pique, puntuality etc. can be avoided in the virtual lab.

24.6.5 Limitations of Virtual Laboratories

If virtual class has many advantages in terms of requirements and convenece of modern age then it also has many limitations in terms of objective traditional class. These limitation are briefly specified by the following points—

1. The main purpose of the educational system is the all round development of the child; according to which education has the responsibility for the mental, physical, ethical, moral, social and emotional development of qualities but it is not possible to develop these qualities in virtual laboratory system.
2. Conventional education system is supposed to has three main objectives - Cognitive, affective and functional purpose. Among the three, even virtual laboratory get the cognitive and function objective to some extent but it is not possible to attatin emotional objective and education process is considered as incomplete without the development of emotional side.
3. Interaction between teachers and students is considered as the meaning of conducting traditional educational system in which student's character is directly effected by the teacher's personality, knowledge and experience which acts as a saved money in the student's life. But it is not possible in virtual laboratory.
4. Undoubtedly, this educational system is flexible in which time, place, pace and communication flow don't matter but this flexibility can lead students towards the wrong way. Especially for the students of secondary and higher secondary class, discipline and teacher's control is necessary.
5. This fact is also true that the student learns more by simulation from childhood to adulthood, seeing their elders at home, and the teacher and other colleagues at school. In virtual laboratory system any opportunity for simulation is not provided.
6. It is considered that experience and class interaction like traditional class teaching will be provided through electronic devices but it is not possible in any way. Live experience, interaction, feeling of social relations of human is not possible in virutal conditions.
7. In traditional education system, many physical defects and diseases are seen in the students who are using devices very much. It has been concluded from researches that the excessive use electronic

Notes

devices such as mobile, computer, Wi-Fi system etc. cause diseases like cancer. How far it is justified to promote the entire education system in virtual lab.

8. It is completely impossible to arrange this type of education in more populated countries like India having less resources and where there is lack of fundamental services in villages or remote areas.

It is clear from the above description of limitation of virtual system that there are many weaknesses in virtual laboratory system besides its qualities due to which it is not possible to introduce them. But this is a new dimension in the education sector in order to fulfill the requirement due to the problems such as needs of time, distances and lack of teachers due to which it is possible to conduct multi way course and it can be used as an alternative way.

Self-Assessment

2. Multiple Choice Questions:

(*i*) What is the contribution of modern era?

(*a*) Computer (*b*) Radio (*c*) Telephone (*d*) Watch

(*ii*) What age is the present age?

(*a*) Iron (*b*) Copper (*c*) Computer (*d*) Gold

(*iii*) Which education is establishing its dimenstions in the today's computer age?

(*a*) Concurrent (*b*) Distance (*c*) Technology (*d*) Commercial

24.7 Summary

- Teaching practice has changed during the last century. It has been argued that the classical teaching is not subjected to timeless and technological change.
- During last 20 years, a dramatic change has occurred in the equipments of teaching and learning while there is no change in the methods of learning.
- Web 2.0 technology is designed to create web sites and application with the purpose of online information or material. Information can be transmitted online through this technology.
- 2.0 Website is different from others websites. It does not require any skill to participate in the designing or publishing of any web, it is mainly created to be desinged and published by people and to establish conversation among the world.
- Computer is an important contribution of modern era. The current era is the era of computer. It is more widespread. The use of computers has made human life more intense and pure.
- Virtual Laboratories System refers to such class in which educational circumstances are organized by using modern computer and communication or other resources such as internet, online chatting, world wide web, cd rom and dvd, mobile etc.
- In today's computer era, distance education is establishing it new dimension at one side while on the other side, technologies that are running it smoothly are making their place in the education system.
- If virtual class has many advantages in terms of requirements and conveniece of modern age then it also has many limitations in terms of objective traditional class.

Notes

24.8 Keywords

- Virtual—Reality
- Pedagogy—Teaching Science

24.9 Review Questions

1. What do you mean by Pedagogy?
2. Describe E-Pedagogy.
3. Introduce web 2.0 technology.
4. Briefly explain Virtual Laboratory.
5. Wrtie the meaning and definition of Virtual Laboratory.
6. What are characteristics of Virtual Laboratory?
7. Describe the procedures of Virtual Laboratory.
8. What are the advantages of Virtual Laboratory?
9. What are the limitations of Virtual Laboratory?
10. Briefly evaluate Virtual Laboratory.

Answers: Self-Assessment

1. (*i*) Changed (*ii*) 20 (*iii*) 2.0

2. (*i*) (*a*) (*ii*) (*c*) (*iii*) (*b*)

24.10 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–25: Programmed Learning/Instruction

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the meaning of programmed learning.
- Have the knowledge of characteristics of Programmed Learning Material.
- Understand teaching, instruction and programmed instruction.
- Know the historical background of programmed instruction.
- Familiarize with the fundamentals of programmed instruction.

Introduction

In 1920, **Sydney L. Presse** developed a teaching machine by which a series of questions is presented in front of students and they got the information whether their answer is right or wrong immediately after answering the question. By getting the knowledge of their progress, students doubles their effort to reach their fixed goals by getting inspired with the effective manner. After 1950, **B.F. Skinner** researched their learning and developed a self-teaching material. This material is named as Programmed Learning or Programmed Instruction.

25.1 Meaning of Programmed Learning

Notes

In the words of **Smith** and **Moore**, "Programmed instruction is the process of arranging the material to be learned into a series of sequential steps, usually it moves the student from a familiar background into a complex and new set of concept principles and understanding."

According to **James E. Espich** and **Berl Williams**, "Programmed instruction is a planned sequence of experiences leading to proficiency in terms of stimulus response relationship".

Stoffel said, "The arrangements of tiny bits of knowledge into logical sequence is called the 'programmed' and its process is called, 'Programmed Learning'."

According to **Leith**, "Programmed learning is a sequence of small steps of instructional material (called Games), most of which require a response to be made by completing a blank space in a sentence. To ensure that expected responses are given, a system of cueing is applied and each response is verified by the provision of immediate knowledge of results."

N.S. Mavi says, "Programmed instruction is a technique of converting the live-instructional process into self-learning or auto instructional readable material if the form of micro-sequence of subject-matter which the learners are required to read and make some response, the correctness or incorrectness of which is told to him immediately."

According to **Susan Markle**, "Programmed instruction is a method of designing reproducible sequence of instructional events to produce measurable and consistent effect on the behaviours of each and every acceptable student."

James E. Espich and **Berl Williams** has defined programmed instruction as, "Programmed instruction is a planned sequence of experiences leading to proficiency in terms of stimulus-response relationship."

According to **D.L. Cook**, "Programmed learning is a term sometimes used synonymously to refer to the broader concept of auto-instructional method."

Notes On the basis of discussion of above definition it can be said that programmed learning is that instruction in which learning material is sequenced in a series by dividing it into small units and by presenting it to the students in a sequenced manner, education of new and complex learning content can provided according to own pace with least errors. In these activities, feedback is given to students by this knowledge of his progress.

25.2 Characteristics of Programmed Learning Material

Following are the main characteristics of Programmed Learning Material—

1. Programmed Instruction is individual and only person learns at a time.
2. The learning material is divided into small units.
3. Then small units are sequenced.
4. In programmed material, every phase is practically connected to its next phase in a logical manner
5. Learner has to make active responses.
6. Information is immediately provided to students that their effort is right or wrong. Thus they receive the feedback.
7. Students get the opportunity to learn at their own pace. (Principle of Self Pacing)

Notes

8. Programmed material fully verified and liable.
9. Specification of student's entering behaviour and feelings are done in it. In these behaviour, level of language understanding and simplification, level of achievement, feedback and mental level are taken into account.
10. Stimulus, Responses and Reinforcement – these element remain active in it.
11. It has comparatively low error rate and fault rate.
12. As feedback is provided immediately, so true responses are enforced to students which helps in effective teaching. Every response of student provides him a new knowledge.
13. While learning instructional material, students have more readiness and curiosity due to which they understand very rapidly.
14. Instruction material is evaluated through the responses of students and it is improved and modified according to that.
15. Programmed Instruction also organizes that aiding instruction to removing the weakness and difficulties of students.
16. Programmed Instruction system is based on the principles Psychological learning.

Principles of Programmed Learning

It is clear from above discussion that programmed instruction is based on following principles—

1. Principle of Behaviour - analysis
2. Principle of Small fractions
3. Principle of active participation,
4. Principle of immediate feedback
5. Principle of Self pacing
6. Principle of legality of the content
7. Principle of knowledge and progress of students tested
8. Principle of student responses.

25.3 Teaching, Instruction and Programmed Instruction

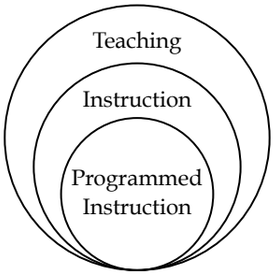


Fig.—Teaching, Instruction and Programmed Instruction

As cleared from the above fig., programmed instruction is a method in instruction by which objectives of mastery are attained. Instruction is a method in teaching by which attainment of teaching goals is possible.

Notes

25.3.1 Programmed Learning and Programmed Instruction

Programmed Instruction and Programmed learning are considered as opposite of each other in education sector. British teachers like to use the Programmed Learning Phase while American teachers like to use the Programmed Instruction phase.

25.3.2 Programmed Instruction and Educational Technology

Programmed Instruction by itself is not a complete educational technology rather it is a part of educational technology. Both the hardware approach and software approach are learned in this approach.

Did u know? Programmed Instruction is a soft approach which tries to bring desired changes in the students behaviour, so it only a part of educational technology.

25.3.3 Programmed Instruction and Traditional Method of Teaching

Comparison of programmed instruction and traditional method of teaching is done by the following table

Programmed Instruction	Traditional Method of Teaching
1. This instruction is individual.	1. Generally it is a group technology.
2. In this method, material is presented one by one (in a logical manner).	2. In this, complete material is presented in a collective manner.
3. Immediate feedback is provided to students.	3. Immediate feedback is not provided to students.
4. Objectives are defined clearly. In other words educational objectives are written in behavioural dictionary.	4. Since education objective have wide format so neither they are clearly defined nor can be used properly in communication.
5. Teacher prepares instructional material with complete attention, purity and precautions.	5. Very less preparation occurs.
6. Students have active collaboration in learning.	6. Mostly, students remain inactive.
7. Efforts are made to improve programmed instruction on the basis of the evaluation of students responses.	7. It is difficult to improve or change traditional teaching method on the basis of students responses.
8. Psychological learning and teaching principles are used.	8. It is not possible to use teaching principles completely.
9. It is student-centred.	9. It can be student-centred or subject-centred.
10. Special attention is given to individual diversity.	10. It is not possible to give attention to individual diversity.

Self-Assessment

1. Fill in the blanks:

(*i*) In ..... Sidney L. Presse developed a teaching machine by which a series of questions is presented in front of students

Notes

(*ii*) ..... material fully verified and liable.

(*iii*) Programmed Instruction system is based on the principles ..... learning.

(*iv*) Programmed Instruction and Programmed learning are considered as ..... of each other in education sector.

(*v*) Programmed instruction is an ..... technology.

25.4 Historical Background of Programmed Instruction

Summary of historical background of Programmed Instruction are being handed down through the table.

Historical Background of Programmed Instruction—Important Contribution

Researcher	Year	Important Contribution
Socrates	430 B.C	Developed oral conversation Program (based on questioning method and it is a form of programmed instruction).
Plato		Plato used it orally as Meno.
Thorndike	1912	Discovered rules and incentive of effects (used in programmed instruction later).
Sidney L. Pressey	1920	Developed such machine which were used for teaching or training.
Sidney L. Pressey	1925	Development of other mechanical tools for test scoring and test of multi way phases.
B.F. Skinner	1943	Rendering of learning principles of Operant Conditioning Theory which became the basis of programmed instruction.
B.F. Skinner	1945	Development of Principle of reinforcement, linear programmed material and teaching machines.
B.F. Skinner	1950	Publishing of popular journal 'Science of learning and teaching art'.
N.A. Crowder	1950	Development of branching instruction, scrambled books and branching teaching machine.
Sheffield	1950	Variations of branching programmes with alternative sub-sequence routes..
Robert Mager	1960	Survey of Crowder and skinner work and development of programmed instruction as compared to traditional teaching methods.
Robert Mager	1962	Development behavioural writing methods in the field of psychomotor.
Robert Miller	1962	Development of Methetics. Providing importance to mastery behaviour.
T.F. Gilbert	1962	Developed of programmed instruction based on the principles of Methetics to establish its mastery on other methods.
Slake	1962	Develop of internal and external behaviour or concept of methemaigenics for the origin of learning process.
Roth Korf	1965	Special attention to analysis of content and flow chart in 1966.
Rachel Carson	1968	Use of methemaigenics methods in the presentation of contents and to establish its importance for students aptitude.
Robert Gangene	1970	Development and special attention to learning structures.
I.K. Davies	1970	1. Ganene gave attention to five of the eight learning structures. 2. Importance was given to teaching strategies and teaching techniques in the development of programmed instructional material. 3. Attention was given internal and external norms for evaluation of instruction.

Notes

I.K. Davies	1980	1. Special attention was given to system analysis. 2. Beginning of development of teaching machines.

Programmed Instruction in India

C.P.I. Allahabad	1963	Organization of three days seminar on programmed instruction in Central Pedagogical Institute, Allahabad. After that, organization of seminar on this topic in different regions of India
NCERT, New Delhi	1965	Providing training on programmed instruction for two weeks by psychological department of N.C.E.R.T
NCERT, New Delhi	1966	Organization of a workshop for programmed instruction by N.C.E.R.T
NCERT, New Delhi	1966	Establishment of Indian Association of Programmed learning (IAPL)
NCERT, New Delhi	1967	Organization of second workshop in Chandigarh for programmed instruction by N.C.E.R.T
NCERT, New Delhi	1980 later	1. Programmed instruction were given importance at M.ed, M. Phil and Directorate level in C.A.S.E (Baroda University), Meerut University and Himachal 2. Starting of programmed instructional work in defence, family-planning and bank etc. 3. Establishment of Centre of Educational Technology in N.C.E.R.T; one of its major task is the development of instruction material. 4. National schemes in the field of educational technology and instruction.

25.5 Fundamentals of Programmed Instructions

Fundamentals of programmed instruction are given below:

1. Stimulus and Reaction
2. Behaviour and Behaviour Repertoire
3. Reinforcement
4. The Transfer of Stimulus Control
5. Feedback
6. Confirmation
7. Prompting
8. Generaliation and Discrimination
9. Gradual Progression
10. Successive Approximation
11. Diagnosis and remediation
12. Retrogressive Chain
13. Programmed Text
14. Learner Controlled Instruction.

These element are being explained individually as follows—

(1) Stimulus and Response—Such situations, event or person or change in environment which bring changes to the students' behaviour are called as Stimulus. Stimulus creates situation for a specific response. In programmed instruction course contents are presented into small fractions in a logical order. Every fraction acts as a stimulus and these fraction prepares students to responses (by creating appropriate situation). Right stimulus instructs students for the proper and right response and provides new knowledge.

Response is that unit of behaviour that develops complex behaviour. Response has three functions—1. To keep students forward in the study, 2. To provide latest knowledge and 3. To

Notes

provide reinforcement at the right time. Response is a unit of active behaviour. Response, partially or completely acts as a stimulus for the next fraction. Proper response of student is useful in making learning more effective.

Since stimulus and response are useful for change in students behaviour and in some way behaviour change is a learning so these are basic elements of programmed instruction.

(2) Behaviour and Behaviour Repertoire—By behaviour, we meant to such activities which are performed by students to attain teaching goals.

"Behaviour is the total response of the organism to situations of life. It considers inner and overt behaviour and also combines the study of inner mental processes and other outer behaviour."

In context of programmed instruction, a group of stimulus-responses is called as behaviour. Response is a unit of behaviour. Stimulus-response collectively develop behaviours.

Behaviour Repertoire is that series in which many responses are managed in a group by a logical method.

Different types of behaviour repertoire collectively determine the students behaviour. Behaviour repertoire provides students his qualities and characteristics. At learning level, behaviour repertoire is categorized into three categories—

(*a*) **Simple Discriminative Repertoire**—In this student determines the independent elements, external objects or situations.

(*b*) **Serial Repertoire**—In this, it responds serially.

(*c*) **Self-Sustained Repertoire**—It contains both repertoire—simple discriminative and serial but in place of external stimulus, stimulus is originated from the students' behaviour (internal).

(3) Reinforcement—Reinforcement is that event which occurs after completion of a process and reinforces that process. In order words the possibility of the occurrence of that gets increased. "Reinforcement is related to such events of the environment which increase the possibility of a response. New behaviour or change is based on such responses which are powered by the stimulus. Such events or situation of stimulus which create responses are called as reinforcement" (Sharma, 1966)

Reinforcement is of two types—

(*a*) **Positive Reinforcement**—Such stimulus whose presentation increases the possibilities of occurrence of responses or the correct response is praised or awarded then it is called as positive reinforcement. Positive reinforcement is provided to strengthen the desired behaviour/responses due to which student repeats that behaviour.

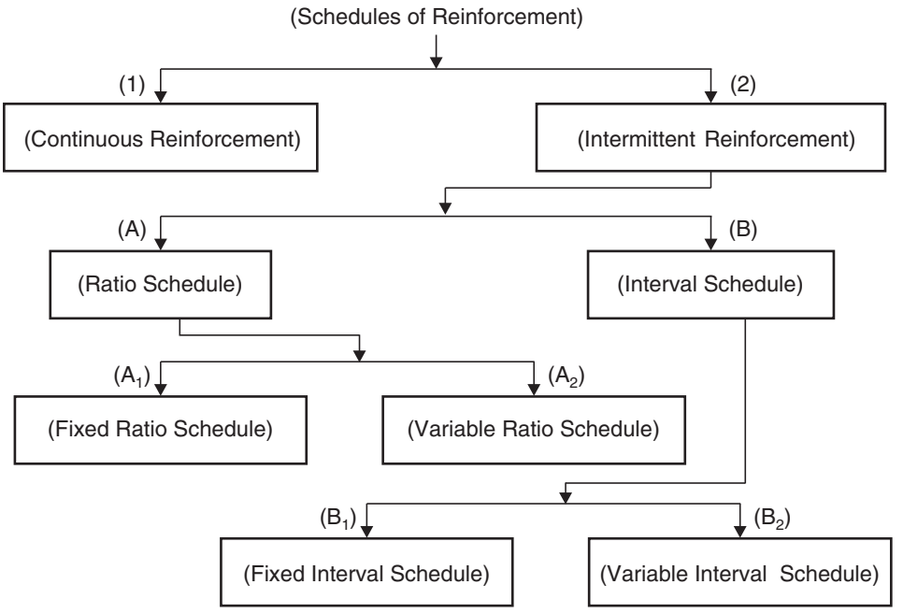
(*b*) **Negative Reinforcement**—Negative reinforcement is provide to decrease the unwanted behaviour/ responses of students so that they don't repeat that behaviour such as to punish, to criticise, to get angry etc.

Remember that positive reinforcement is more effective than negative reinforcement. Therefore, mostly positive reinforcement should be used.

Task What do you mean by Stimulus?

Schedule of Reinforcement—There are many schedules of reinforcement, which are displayed as—

Notes



(*i*) Continuous Reinforcement—In Continuous Reinforcement, students keep responding and reinforcement is provided after every response. In other words, reinforcement is given after response due to which behaviour becomes more strong. In linear programmed instruction, this type of reinforcement is provided at each fraction.

(*ii*) Intermittent Reinforcement—In this, reinforcement is not provided for every response, in other words, sometime reinforcement is provided and sometime not.

Intercommiment Reinforcement-Reinforcement is called in hindi. This reinforcement has two schedules—

(A) Ration Schedule Reinforcement.

(B) Interval Schedule Reinforcement.

(A) Ratio Schedule Reinforcement—In the ratio schedule of intermittent reinforcement, importance is given to students' response and reinforcement is given in a fixed ratio such 5:1 which means reinforcement will be given after every five response. As a result of this type of reinforcement, students response becomes more rapid.

Ratio Reinforcement has two schedules—

(A_1) Fixed Ratio Schedule Reinforcement.

(A_2)Variable Ratio Schedule Reinforcement.

(A_1) Fixed Ratio Schedule Reinforcement—In fixed ratio schedule reinforcement it is decided that for how many responses, reinforcement will be given. Reinforcement is given in the same proportion in which the ratio is fixed such reinforcement will be given after every five response. This reinforcement has founded to be effective in class teaching. According to Lundane providing less ratio in the being and steadily higher ratio can give better results.

(A_2) Variable Ratio Schedule Reinforcement—In this type of reinforcement it is clear that after how many responses, reinforcement is to be given. Sometimes reinforcement is given after two response, sometime after five response and sometimes after twelve responses. Therefore it is called as variable ratio schedule reinforcement. Students keeps responding but they don't when they will get reinforcement.

Notes

(B) Interval Schedule Reinforcement— It is also called as time interval einforcement. Reinforcement is given after a fixed interval such as after five or one hour or eight hour. Time is more emphasized and reinforcement is given from the interval of time. These are of two type –

(B_1) Fixed Interval Schedule Reinforcement.

(B_2) Variable Interval Schedule Reinforcement.

(B_1) Fixed Interval Schedule Reinforcement— Reinforcement is provided after a fixed interval then it is called as fixed interval schedule reinforcement. It is already decided that after how much time, reinforcement will be provided such after every five minutes, fifteen minutes or every hour. The fixed interval of time is more emphasized rather than the quantity of work.

(B_2) Variable Interval Schedule Reinforcement— In this, time interval is not fixed rather it can be changed so this type of reinforcement is called variable Interval Schedule Reinforcement. The behaviour changes and knowledge attain by the student through this reinforcement are not stable.

Directions for the use of above Reinforcement

1. Teacher should use fixed ratio reinforcement to increase the pace of students' response.
2. Continuous Reinforcement should be used for attaining the goals of information and intermittent reinforcement should be used for attained the experimental, understanding and other higher goals.
3. Interval reinforcement should be used for the goals of behaviour change and to make new knowledge stable.
4. In the beginning, continuous reinforcement and then fixed ratio or interval reinforcement and in last situation, the use of Variable interval reinforcement is more founded.
5. The methods of Continuous reinforcement for introverted students and variable fixed ratio reinforcement for extroverted student are founded more capable for effective learning.
6. It is considered that the use of variable ratio and variable interval reinforcement for bright students and the use of continuous or fixed ratio reinforcement for dull student, is more productive and effective.

(4) The Transfer of Stimulus Control— In the beginning of programmed instruction material, when student responses with Stimular, he is already familiar to them. As he moves forward, responses help in reaching from the entering behaviour to ending behaviour and stimulus control keeps moving in learning order. This is called as the transfer of Stimulus Control.

(5) Feedback— Feedback is that process in which students are made aware to their weaknesses, faults and errors so that students can improve, also student's good features, good work, their quality and strengths are explained in this process so that they can they can display them even further into their behaviour. Reinforcement increases the possibility of response while feedback is a powerful tool for change in behaviour. Feedback methods improves the students behaviour, develop them and make desired changes in them.

(6) Confirmation— Confirmation is also called as third principle of programmed instruction. The feedback is immediately provided that students' response is correct due to which students move forward. Confirmation is a form of feedback due to which students attain new knowledge and also reinforcement is provided to them. Student gets the completeness of teaching material by moving forward though ordered fractions based on confirmation of his response.

(7) Prompting— In programmed instruction student have to response for every fraction for which an extra stimulus is used. This is called as Prompt. An information contained in a frame to help the learner to respond correctly is known as prompt or cue.

This will prevent students from making the wrong response.

(8) Generalisation and Discrimination— The ability to acquire the skills, aptitude and knowledge etc. in a situation and to response them in a similar situation for the same elements is called generalisation.

Notes

In the process of normalisation specific facts, examples, illustrations are presented to students and then on the basis of them, students try to reach the general rule or principle. The process of generalisation is more used in methetics.

Different situation are prepared for different responses in discrimination. So it can be said that discrimination is an process to generalization. The discrimination process is more used in branching and methetics. The format of generalization and discrimination is specified by Dr Sharma –

Generalisation	Discrimination
Stimulus – 1	Stimulus – 1 → Response – 1
Stimulus – 2 → Response	Stimulus – 2 → Response – 2
Stimulus – 3	Stimulus – 3 → Response – 3

(9) Gradual Progression – In programmed instruction, students are slowly moved from chain of entering behaviour to ending behaviour through gradual progression. In gradual progression, this matter is taken care of. Student develops complex behaviour through slow response. Each fraction of the content has an arrangement that which students will gradually move up on the path of progress by relating the student's prior responses to his further responses.

(10) Successive Approximation – In programmed instruction material the prior response of learner are reinforced. The processes required to reach the ending behaviour are divided into small fraction in according to the logical sequenced method. Learner's responses reach near the ending behaviour by reinforcing at every fraction on the basis of successive approximation.

(11) Diagnosis and Remediation – Diagnosis and Remediation refers to provide remedial instruction to students according to their needs, weaknesses and difficulties by diagnosis their difficulties and weaknesses. Students' remediation should be done on the basis of their diversity. When student makes incorrect response then his difficulty, fault or weakness gets noticed for which he get remedial instruction on wrong-page and he receives instruction from material to improve his fault.

(12) Retrogressive Chain – In order to reach the level of mastery, progressive chain is followed in the linear programmed instruction but **T.F. Gilbert** has used retrogressive chain in his instruction. Opposite to progressive chain, this chain is started from end point and is ended at the starting of the chain such as reverse counting or to learn reverse multiplication table (from 100 to 1). This chain is more useful in maths.

(13) Programmed Text – "Programmed text is a set of programmed learning materials produced in the form of a printed text".

In linear programmed instruction, content is divided into small fractions, students have to response for each one. This is called as linear programmed content. It is two types in classical programmed instruction – 1. Home Page 2. Wrong Page – These are collectively called as scrambled text.

(14) Learner Controlled Instruction – This concept is the contribution of Robert Mager. The importance is given to students in this instruction. For preparing programmed instruction material, student-centred instruction sequence is more effective than any other instruction sequence. So it should be used in the beginning of preparing instructional material, then we should move further by establishing relation with the objectives. It helps making instruction student-centred.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Such situations, event or person or change in environment which bring changes to the students' behaviour are called as Stimulus.

Notes

(*ii*) Response is that unit of behaviour which develops simple behaviour.

(*iii*) Continuous Reinforcement is a system in which students keep responding and reinforcement is provided after every response.

25.6 Summary

- In Sydney (1920), L. Presse developed a teaching machine by which a series of questions is presented in front of students and they got the information whether their answer is right or wrong immediately after answering the question.
- "Programmed learning is a sequence of small steps of instructional material (called Games), most of which require a response to be made by completing a blank space in a sentence. To ensure that expected responses are given, a system of cueing is applied and each response is verified by the provision of immediate knowledge of results."
- Programmed Instruction and Programmed learning are considered as opposite of each other in education sector.

25.7 Keywords

- **Individual**—Personal
- **Instruction**—Guidance

25.8 Review Questions

1. Write the definition of programmed instruction provided by various scholars.
2. Write the characteristics of programmed learning material.
3. Differentiate the programmed instruction and tradition method of teaching.
4. Explain the historical background of programmed instruction.
5. What is meant by reinforcement?
6. Describe the basic elements of programmed instruction.

Answers: Self-Assessment

1. (*i*) 1920 (*ii*) Programmed (*iii*) Psychological (*iv*) Opposite (*v*) Individual
2. (*i*) True (*ii*) False (*iii*) True

25.9 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–26: Linear Programming

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand frames arrangement in linear programming.
- Be aware of the characteristics of linear programming.
- Know the limitations of linear programming.

Introduction

B. F. Skinner (1955) was the exponent. It is based on operant conditioning on programming which explains that human behavior can be given a certain direction and the desired behavior can be taught. The actions of this pathway in the human small - small to analyse the meaningful parts. By resorting to these parts at each position by enforcing the desired behavior can be taught human. In fact, **the linear programming linear programming in which each student is in order**, crossing **certain positions**. It includes the following things—

(a) At one time, subject to the small - fraction is presented to the students.

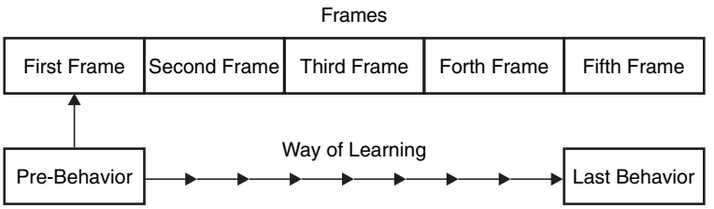
(b) By responding to student answers.

(c) By matching your answer enforcing student receives the correct answer.

(d) He received the command what to do next.

Notes

26.1 Frames Arrangement in Linear Programming



This picture frame is clear and systematic way of learning and is linear. Therefore, this type is called linear programming. The learner has to go through the same frames and the same order. Overall control is complete assignments and control program is making.

Did u know? Linear programming is also called the external programming.

Under linear programming students of the teaching materials ameba post/share is presented. Then have the student answers the question concerning him well understood. Students are given the knowledge of being right or wrong answer. If the answer is correct, then it is enforcing. Then he goes on ahead to the next step. Such a position after question after question answers—Reinforcement and then the second term, questions, enforcing goes on, until he reaches the last practice.

In the words of Dr. Anand—linear programming. The literal meaning of a straight line programming. In which students from the first position to the last position runs like a straight line. In addition, all students from a post as walking on path go down to the office, do not complete the whole program. The correct response to the student's learning process is considered to be a desired part.

Notes The main purpose of this programming style subject that the student presents the least mistake. According to Skinner during reading mistake should not be exceed 10% of the students.

26.2 Characteristics of Linear Programming

Its major features are given below—

(1) Sort the student as various short—short positions through a linear path of movement behavior reaches the other end.

(2) Checking the student's response is correct for response home-nutrition system.

(3) All students have the same path, which eventually reach the final goal.

(4) To simplify the learning initially used prompts or signals, later gradually removed.

(5) Response and the order of placed is control.

(6) The creation of teaching materials and presentations in programming is thus likely that the student's error is almost over.

Notes

(7) It is based on principles of learning psychology.

(8) The self - study the path - paved so that students of different mental levels—may have a chance to learn at their own pace.

(9) It's hard Conceptions programming able to clear easily and cheaply.

(10) Active student learning time, and ready to become operational.

(11) Students without teacher easily receive new knowledge.

(12) Each correct response is enforced by the student, the learning process becomes more effective.

(13) This method is more effective than traditional teaching.

Task Who was the exponent of linear programming?

26.3 Limitations of Linear Programming

(1) In this order is the same for all students. Students' individual needs are not taken into account.

(2) Creative and higher objectives are not possible.

(3) The factual text - is less useful in learning objects. The explanatory text - is only to objects.

(4) This learning occurs in controlled conditions, so students do not have the freedom to responses.

(5) It's not easy to do. Many times after training it is difficult to make good programming.

(6) It is not possible remedial teaching.

(7) Talented students take little interest in it.

Self-Assessment

1. Fill in the blanks:

(*i*) Exponent of linear programming was .....

(*ii*) ..... programming is that linear programming in which each student is in order, crossing certain positions.

(*iii*) The linear programming ..... programming called.

(*iv*) Linear programming literally a straight line ..... is.

(*v*) Linear Programming in front of the students ..... material ameba post/share is presented.

26.4 Summary

- The linear programming is in which each student is in order, crossing certain positions.
- Under linear programming students of the teaching materials ameba post/share is presented. Then have the student answers the question concerning him well understood. Students are given the knowledge of being right or wrong answer.
- Linear programming literally a straight line programming, in which students from the first position to the last position runs like a straight line.

Notes

26.5 Keywords

- **Programming**—A way of expressing human behaviour
- **Extrinsic**—Out sider

26.6 Review Questions

1. Explain the frames of linear programming.
2. Write the characteristics of linear programming.
3. Write the limitations of linear programming.
4. What is linear programming?
5. On which linear programming is based?

Answers: Self-Assessment

1. (*i*) B.F. Skinner (*ii*) Linear (*iii*) External (*iv*) Programming (*v*) Teaching

26.7 Further Readings


Books

1. Education Technology—*S.K. Mangal, P.H.I. Learning.*
2. The basic premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit–27: Branching Programming

CONTENTS

Objectives

After studying this unit, students will be able to:

- Learn branched system of frames to learn programming.
- Know the characteristics of disciplinary programming.
- Understand the limitations of programming.

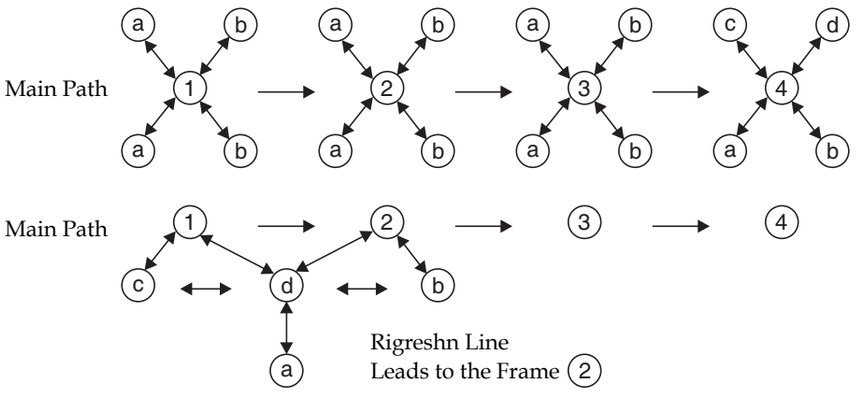
Introduction

Mr. Naurman was the exponent of disciplinary programming. **Crowder** said, "The programming content is a technical submission. There are several principles of effective teaching is used. All schduled activities are controlled by the student so it is also called internal programming.

27.1 Frames Arrangement in Branching Programming

Disciplinary programming or in one or two paragraphs on the page is a frame. It is much larger than the linear programming. Students seriatim go through all the frames. After the frame, the corresponding multi-(text to come Nirvcniyn) objective is to answer questions. One of the responses has to choose the correct answer. If the answer is correct, then it proceeds but the answer is not correct, then it is given remedial instruction. The specifically designed for therapeutic or her original part series is directed towards and later again come to the office and are asked to answer. This action, which lasts as long as the student does not give the right answer. The only correct answer to moving on to the next step only to get called.

Notes



Expect weak student disciplinary programming to a talented student quickly reaches final practice.

Notes This style of programming errors of the students are expected to have a strong emphasis on their diagnosis.

This type of programming is called branched programming because the linear programming like the student to proceed to a second term in office following the same path, but they—based on their answers individually adopting paths to reach the final position. It does not happen all the posts to present a certain order.

Did u know? Control of the student's responses so that student responses according to their qualifications.

27.2 Characteristics of Branching Programming

Their main features are as follows—

1. Branching programming than linear programming compared to each text frame comes more teaching materials.
2. Needs of students at various positions have the freedom to reach the final position.
3. Programming it is controlled by the students.
4. It serves to give home nutrition instantly.
5. The share of students in programming multi-choice questions are given.
6. This programming based on student's potential errors that emphasizes teaching materials.
7. Incorrect response, the student is given the opportunity to correct it. He then reaches to the next step until he could not answer his first major post.
8. Each frame has to make it very clear and big.
9. The agency plays an important role in the development of student's reasoning power.
10. The student - centered agency.

Notes

11. The agency is based on traditional tutorial method.
12. This initiative remains equal interest in learning the subject.
13. These mistakes could not impede the learning process because it assumes that the initiatives it has learned from the mistakes and the mistakes to fix the system is organized.
14. By initiatives such materials, books and teaching - machines both are useful.
15. The differentiation potential of initiative, creativity and problem - solution is helpful in the development of qualifications.

Task Who was the exponent of disciplinary programming?

27.3 Limitations of Branching Programming

1. An annual or amendments require certain intervals.
2. It is more useful for higher classes.
3. The whole subject matter is difficult to contain.
4. It is relatively expensive initiatives.
5. The initiative for the creation of skilled and trained and qualified teachers are required.
6. This multi-choice questions several times to the student without the subject matter or read without understanding, estimated on the basis of the answers they give.

Self-Assessment

1. State whether the following statements are True or False:

(*i*) Mr. Norman A. Crowder was exponent of branched programming.

(*ii*) The programming content - the content is not a technical submission.

(*iii*) Branch in programming or in one or two paragraphs on the page is a frame.

(*iv*) Branched programming less linear than teaching material in each text frame comes.

(v) This method is based on programming tutorials.

27.4 Summary

- Mr. Norman A. Crowder was exponent of branched programming. The programming content - content is a technical submission.
- All scheduled activities are controlled by the student so it is also called internal programming.
- Disciplinary programming or in one or two paragraphs on the page is a frame. It is much larger than the linear programming.
- This action, which lasts as long as the student does not give the right answer. The only correct answer to moving on to the next step only to get called.
- The so called disciplinary programming , programming because the linear programming like all students to proceed to a second term in office following the same path, But they - based on their answers individually adopting paths to reach the final position.

Notes

27.5 Keywords

- **Intrinsic** – Inside.
- **Frame** – Lesson.

27.6 Review Questions

1. What is the internal programming?
2. Explain branched system of frames in programming.
3. What is more emphased on programming?
4. Write characteristics of disciplinary programming.
5. Write boundaries of disciplinary programming.

Answers: Self-Assessement

1. (*i*) True (*ii*) False (*iii*) True (*iv*) False (*v*) True

27.7 Further Readings


Books

1. Education Technology – *S.K. Mangal, P.H.I. Learning.*
2. The basic premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit-28: Mathetics Programming

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the stages of Mathetics.
- Know the key features and related work of Mathetics.
- Understand the process of Mathetics programme.
- Know the limitations of Mathetics programming

Introduction

Thomas. F Gilbert is credited with developing mathetics programming. **Mathetics** of the Greek word '**Mathyn**' derives from the word meaning–learn "Mathetics is defined as a systematic application of reinforcement theory to the analysis and construction of complex repertoires which represent the mastery in subject matter".

Notes

Notes Although it is a bit complicated nature programming skills difficult to achieve, bring about the desired behavior and the subject matter is considered viable in the absolute right to earn.

Mathetics programming unit of the initiatives 'post' and not 'practice' is. The text-as a link object is placed in the last position is presented as the first post. Retrogressive Chaining

28.1 Conditions of Mathetics

Mathetics was initially used in mathematics but also in other disciplines can be used. This initiative has three positions—

1. Demonstration
2. Prompting
3. Release

Learning performance of students-behavior is displayed. Prompt the state to generate learning behavior are provided.

Immunity learning curve behavior, which are designed for learning, their practice opportunities are provided. Prompt are not used in the third stage.

Mathetics building is difficult, for it must be merit in successive advance. Learned the subject starting from the last post, the first post is a little difficult to reach normal student.

28.2 Characteristics of Mathetics and Related Work-System

(1) Like other instructional format Mathetics programming teaching-learning is derived from a detailed analysis of the material.

(2) The unit frame rather than the practice or learning difficulties.

(3) Practice or to find a solution to this problem provides students Reinforcement.

(4) The descending chain theory is used.

Did u know? Descending chain performance under the three basic stage progression, is the inclusion of a prompt and immunity.

28.3 Work of Mathetics Programme

Mathetics programme on the basis of the above process can be expressed as follows—

(1) The first is to seek the post of expertise. The post office as often happens in the lastes series.

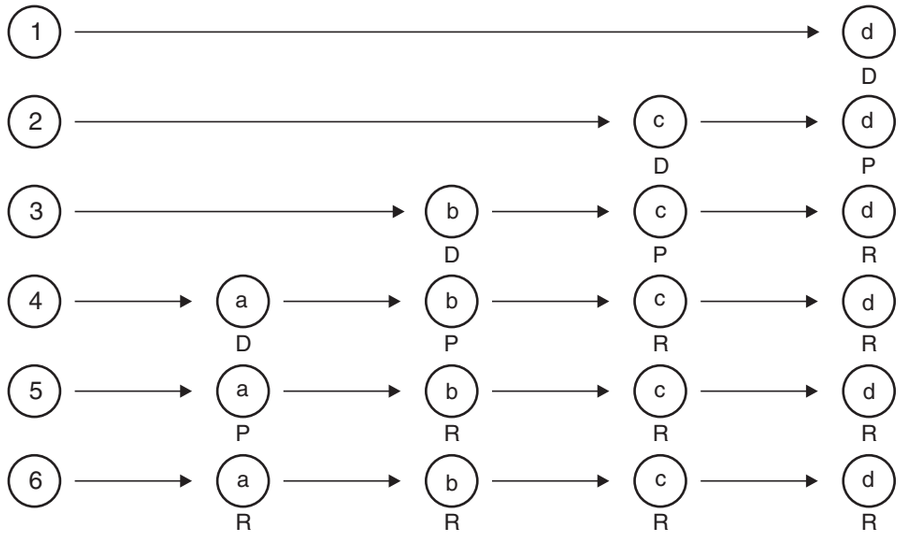
(2) Then the programmer to master all the job offers to the students and students expertise required to post with your prompt response provides skills so that they can reach the final stage.

(3) Before reaching the final rank of expertise, all other positions are placed in front of students. Students are given prompt, they are responding to them are called to practice dexterity post.

Notes

(4) The ultimate dexterity in front of students from the post office before the term pre to leading positions is presented.

(5) Keep the student response. At the end of the first term response is required. Thus gradually master is walking on the wrong side. It can be displayed as follows:



Here–D = Performed and display by students, P = Prompter, R = Immunity for response.

Task In which Greek word, Mathetics is derives?

28.4 Limitations of Mathetics Programming

Mathetics boundaries of initiatives is being given below—

(1) Mathetics initiatives to build complex and difficult. Adequate skills and specific training is required for this.

(2) All kinds of topics related to the subject matter is not useful in this area. Its usefulness, mathematics, physics and psychology skills have been found to achieve more impressive.

(3) This initiative assignments correspond to the nature of the individual differences are taken care of.

(4) Normal or slow intelligence for students than it has not proved viable.

(5) Built in the style of these initiatives are more costly because illustrations, paintings and drawings, etc. are used more.

(6) It is suitable for all types of style is not the achievement of learning objectives.

28.5 A Comparison of Different Types of Programming

Linear and branching down Mathtics initiatives is being submitted through the table-This table has been quoted from the book of Kumar Chandra and Kamal.

Notes

Material	Linear	Branching	Mathetics
1. Exponent	B.F. Skinner 1954	Normen A. Kroder 1954	Thomas F. Gilbert 1962
2. The original source of	Psychological laboratory analysis or use in pigeons.	Semi-industrial position work instructions to improve performance. It is caused by human training.	This field is generated from Mathetics. Complex math problems are solved through retrogressive series.
3. Learning theory	Oprent conditioning is based on the theory of learning. (R. S.)	The configuration is based on the principle of learning. This is a problem-solving approach. The motivation of the learner-centered approach.	It is based on the principle of learning conectionnist. This chaining-changing approach.
4. Theory	It is based on five basic principles: 1. Small-steps theory. 2. Active-response theory. 3. Immediately-confirmation of theories. 4. Self-**pacing** principle. 5. Students test theories. In addition, optional or mandatory theory may be, too. Three essential principles: 1. Purpose specification principle. 2. Empirical theory. 3. Self-**pacing** principle.	It is based on three basic principles: 1. The principle of the exhibition. 2. The principle of diagnosis. 3. Remidiasn principle.	It is based on three basic principles: 1. Chaining principle. 2. The principle of discrimination. 3. The principle of normalization.
5. Forecast	1. Students can learn better if the material is presented in small units. 2. If the response is immediately improved learning outcomes for students are good. 3. Errors hinder student learning. 4. In Laisej ferric environment students learn better.	1. All conditions/material to be exposed to the students could learn better. 2. Students help diagnose errors. 3. Students learn better if Remidiasn is provided together. 4. Students learn better in a democratic environment.	1. Changing chaining, helps to learn how to reach mastery. 2. As part of the reverse chaining of stimuli for example, the simple complicated. 3. Provides motivation to students upon completion of work.
6. Frame Size	1. Small steps. 2. Element contains only one subject at a time. Each step is complete in itself. It can be taught independently and can be measured.	1. Large frame or steps. 2. Paragraph or page to be in the frame.	1. Small steps but in reverse chaining, complex materials, for example, small, simple units to achieve mastery level.
7. Frame structure	Stimulus-response reinforcement.	Remidiasen exhibition diagnosis.	Performance issues quickly.
8. Types of frame	Three types of frames: 1. Introductory frame 2. Teaching frame or full frame soon. 3. Test frame or enclosed/ unprompted frame.	Two types of frame: 1. Home for teaching and diagnosis. 2. Remidiasn the wrong page.	Two types of frame: 1. Display frame. 2. Fixed frame

Notes

9. Reaction	1. Recall or recognition of structured feedback.. 2. These reactions are controlled by the programmer and not by learners.	1. Response is not rigidly structured. 2. Responses are selected by learners, not by programmers.	1. Structured responses. 2. Responses determined by the programmer.
10. Strengthening	1. Strengthening and provides immediate confirmation of correct responses. 2. Incorrect responses are ignored.	1. Strengthening responses confirm the offer. 2. Incorrect responses that help learners in the diagnosis of osteoporosis. 3. Diagnosis is based on the measure of weakness.	1. Strengthening of completion of work provides. 2. Incorrect responses are ignored.
11. Mistakes	Hinder in learning.	Learning helps in the diagnosis of osteoporosis.	No discrimination but also helps in learning.
12. Error rate	Less than ten percent of the benchmark program is acceptable, but it is not far.	More than twenty percent error rate can be accepted.	Low error rate is acceptable.
13. Individual Differences	Only to work at their own pace. For example, the time factor for individual differences.	Choose their own path according to their needs and expectations.	Learners to work at their own pace, but not requirements.
14. As Programme	1. Traditional manual. 2. Contains instructions regarding the use of the programme. 3. Introduction of the subject material. 4. Presentation of smaller material units.	1. Skremveld manual. 2. Initially insert instructions. 3. Back Content was submitted or pages. 4. This is not a back sequence.	1. Traditional manual. 2. Is inserted at the beginning. 3. Material is presented in small units. 4. The units are arranged in series linear retrogressive.
15. Teaching Machine	Machine Teaching Model is very simple and cheap.	Teaching is hard to use the machine. Requires a complex model of the machine.	Linear model of teaching machine.
16. Purpose	1. Modification of the behavior of learners. 2. To encourage self-learning requires a teacher. 3. Students in the program flow induced continuous encouragement.	1. Out the weak points of learners. 2. Provide measures to correct weaknesses.	1. Development of content. Main focus on math and grammar.
17. Use	1. Are used for secondary level students. 2. Learning objectives to achieve lower recall and recognition exclusively for use. 3. Average and below average intelligence useful for students. 4. Remote-can be used in education programs.	1. As useful for secondary and higher classes. 2. Higher objectives can be achieved in various discrimination. 3. Useful for students with average and high intelligence. 4. The remote-can be used in education programs.	1. Useful for higher classes. 2. Useful for complex and difficult task. 3. Useful for the development of math and grammar concepts. 4. The remote-can be used in education

Notes

18. Limitations	1. There is no freedom for the student to respond. 2. Which is based on the principle of learning by experiments conducted on animals have been prepared. Animal is more intelligent than humans. Animals than he found an intelligent brain..	1. The learning process does not consider whether or not to place learning. The main weaknesses of learners to diagnose and remedy focuses on providing. 2. There is no indexing pages. Student finds it difficult to follow the steps. 3. Each learner follows the same path, so students-to deceive each other.	1. The main emphasis on content rather than changes in the behavior of the learner. 2. Main emphasis on learning rather than mastery of material changes in behavior. 3. Retrogressive development of learning packages is very difficult to upgrade. She finds it exciting or motivating, so he does not want to go through these pages. 4. Remidiasn rather more emphasis on teaching. So it is only a tutorial approach.

Self-Assessment

1. **Fill in the blanks:**
   - (*i*) Mathetics word derives from the Greek word.....
   - (*ii*) Mathetics programming initiatives is in the designation of the unit rather .....
   - (*iii*) Mathetics building is initiatives of ..... and .....
   - (*iv*) Initially ..... was used in the field of mathematics.
   - (*v*) ..... students in learning - behavior is displayed.

28.6 Advantages of Programmed Instruction

Outlined below are the key benefits of the programmed instruction—

1. Programmed instruction takes into account individual differences. Therefore, it is student-centered initiatives.
2. Programmed learning, students learn at their own pace.
3. Programmed instruction small-are short term. So it is easy for students to learn.
4. Because the students have to respond to every post. So programmed instruction has been active in student learning.
5. Because the response instantly right on each post home nutrition is received. Therefore, learning is highest in programmed instruction.
6. Programmed instruction materials teacher activities in the classroom free from teaching and interactions with students more time to be able to provide.
7. The results of the teaching, traditional - are more effective than teaching.
8. In t field of correspondence and distance learning play an important role.
9. This instruction provides students develop a sense of confidence and self-reliance.
10. It is also useful to teach self-study and logical analysis.
11. The student can read their wish and convenience. Therefore, unlike the traditional teaching is not a fixed or regular punctuality.

Notes

12. There are many terms for this practice. Because these terms are presented by way of interest, so the interest will remain and they are easily understood text.
13. The support is easily diagnose students' difficulties.
14. It is a high and effective level of learning.

28.7 Limitations of Programmed Instruction

Its main limitations are given below:

1. In programmed instruction the student-teacher interaction is reduced.
2. Programmed study so helpful to knowledge, but there is no system of experience to offer.
3. Student-teacher interaction between effective teaching assistant is live but in the absence of programmed instruction to act until some time after the 'boredom' seem to realize.
4. Programmed learning materials required for preparation of specialists, but they are not available in India in the desired number.
5. Assignments for all classes in that content is not available. Hence it can not get much education.

28.8 Uses of Programmed Instruction

In today's era of programmed instruction has proved to be very viable. It is being used successfully in the interior face:

1. In the area of teacher training,
2. Correspondence in education,
3. In the field of non-formal and continuing education,
4. Banks in the area of training,
5. In the training of military officers,
6. Radio Industrial lesson preparation,
7. Industrial staff training,
8. Specialized in the education of children,
9. In the field of educational technology,
10. Public - education and self - education,
11. In the field of counseling and remedial training,
12. Distance and adult education.

Programmed instruction is a very important and viable technological tools in the hands of teachers use the teacher can give students a thorough knowledge. Subject matter expertise can provide up to 100%. And the knowledge to be able to move the last term deliciously.

28.9 Need of Programmed Instruction

1. Teaching all students are not given the opportunity to learn at their own pace. Individual tuition is the major problem.
2. Teaching students the emphasis is more on functionality than presented.

Notes

3. Teaching methods, text - books, accessories, students do not have a system for immediate investigation; how this information so that students are successful.
4. Weaknesses in teaching students is no system of diagnosis and remedial teaching is provided.
5. Students study text-books, study aids in the students' attitudes and responses are not enforcing the law to provide.

Self-Assessment

2. State whether the following statements are True or False:

(*i*) Programmed instruction takes into account individual differences, so it focuses the student initiative.

(*ii*) Programmed learning, students do not learn at their own pace.

(*iii*) It is a high and effective level of learning.

(*iv*) Teacher training in the use of programmed instruction is not used.

(*v*) Education of Children in particular are used in programmed instruction.

28.10 Summary

- Mathetics, Thomas F. Gilbert is credited with developing programming.
- Mathetics implies-group analysis and reconstruction of complex behavior, enforcing the principles of the systematic use of the subject matter tells dexterity.
- Mathetics programmed unit of initiatives in the 'post' and not 'practice' is. The text-as a link object is placed in the last position is presented as the first post. (Retrogressive Chaining)
- Mathetics building is difficult, for it must be programmed in a specific qualification. Learned the subject starting from the last post, the first post is a little difficult to reach normal boys.

28.11 Keywords

- **Prompts**–Immediately.
- **Instruction**–Directing.

28.12 Review Questions

1. Explain the word Mathetics.
2. Describe the key features of Mathetics.
3. Explain the process of Mathetics programmes.
4. Initiatives Mathetics What are the boundaries?
5. What are the benefits of programmed instruction?
6. What is the use of programmed instruction? Write its limits.

Notes

Answers: Self-Assessment

1. (*i*) Mathyn (*ii*) Practice (*iii*) Complex, difficult (*iv*) Mathetics
   (*v*) Performance.
2. (*i*) True (*ii*) False (*iii*) True (*iv*) False
   (*v*) True

28.13 Further Readings

Books

1. Education Technnology—*S. K. Mangal, P. H. I. Learning.*
2. The Basic Premise of Educational Technology—*Yogesh kumar Singh.*

Notes

Unit–29: Development of Programmed Study

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the steps of the programmed study.
- Know the things in preparation for the event.
- Take initiatives for the creation or writing.
- Testing and evaluation for obtaining information.

Introduction

Programme built to study a specific task. The first step of the preparation of the program before creating is. In the second step and the third step is the actual program or initiative is noted that the final act Is prepared under the revised Draft program is tested and evaluated.

29.1 Steps of Programmed Study

Programmed study is the creation of a highly specialized task. The composition is divided into three major parts, which are followings—

1. Preparation or Planning,
2. Creation or Writing Initiatives,
3. Assessment and Testing.

Notes

29.2 Preparation or Organize

The first step of the program before creating programmed study is preparation. The following post Including—

1. Selection of the Topic or Units to be Programmed—The title of the episode or make programme If selected, the following considerations should be his choice—

(*i*) The title of the first episode or a program is not available?

(*ii*) What is the case with any other method that can effectively be taught?

(*iii*) Episode students approach it more simple, logical and psychological being presented by This is the most interesting, useful and appropriate

(*iv*) What the students meet course requirements?

(*v*) The person making the program a full command of the episode?

(*vi*) Automatic logical sequence in the episode, he is not so much the long and the short amount of time Under the prospects of effective teaching?

(*vii*) What is the proper format of the episode?

2. Writing Information's Related to the Previous Knowledge of Students—This program is for students. Therefore, prior to the program, the students made the program is—the student's age, gender, socio-economic, psychological level, interests, abilities, backgrounds and prediction should collect information relating to the conduct of the program should accordingly.

3. Writing Objectives in Behavioral Term—This term is used to render the objects under them are written in practical language. The transactions and 'job analysis' are both actions. These objectives the type **Robert magear**, **miller**, **gronlund** and needed from one approach or approaches to **davey** Method is used. Objectives appropriate functional type - select actions and should be used. Practical - the objective criteria are helpful in making examinations.

4. Development of Specific Outlines of Content—Students' prior experiences, practices and foreknowledge and pre-determined objectives consistent with the subject is planned. In this framework it is necessary to build therein all the subject comes up, the program have to make. Subject to the framework should make logical or psychological grounds. Subject outlines when creating content—even the experts are ready to help.

5. Construction of Criterian Test—Under the terms of the last students practices, criteria for evaluation of the test is constructed. The specific objectives of this trial Consistent objective questions are asked. It is used to evaluate all those behaviors and skills the program is designed to teach. The test criteria are called. The purpose of these tests is to know reach the learning objectives of the student and the norms or not. If you did not get to what extent? Why and how are reached can access them.

Notes Keep it mind that each instruction must aim for at least 3 or 4 Question should be tested. to them proper instructions and orders must be clearly outlined. If possible, these criteria the reliability and validity of examinations should be tested.

29.3 Development or Writing The Programme

Under this post is written to the actual programs or initiatives. Decisions before writing a variety of are like—

1. Program which method should be written, lineer, Branching or Mathematics Etc?

Notes

2. Learner's prior behavior/prior experience, How are they?
3. Assignments purpose—Which ones are being set?
4. Topic—What is the nature of the object?

Programe study of the fundamental principles of the program type should always be careful. Especially Should take note of the following three things—

(A) Designing of Frames

In the post, subject to the Frame (short—as short sentences) are written. Frame consists of three components—

1. **Stimulus**—The organ that situation to generate response as subject matter is presented to students in order to inspire students to respond.
2. **Response**—Post after reading is some kind of student responses must.
3. **Reinforcement/Feedback**—The right responses from the student's own response get matching and the reinforcement or feedback.

Generally: Included in the program are four types of post—

A. Teaching Frames—These posts before students through innovative subject matter is presented. These terms are in any program is approximately 60% to 70%.

B. Practice Frames—New subject matter/after teach new knowledge, knowledge practice is to make the creation of permanent posts. Students learned to use them using knowledge to practice again and again. Term can be placed up to 20% to 25%.

C. Testing Frames—Test steps to test the knowledge learned by students is constructed. The objective is to evaluate the knowledge learned. The 10% to 15% can be placed.

D. Using Primes and Prompts to Guide Student's Responses—This type of program should be written so that students do more and more accurate response. when the student appropriate are not able to respond to the Primes and Prompts is used. **Using auxiliary words and supplementary information under Primes is used to indicate to the students the correct response**. Use them preamble positions is more. **prompter signals which are a type of adjective Reducing students' incorrect responses to help students reach the correct response attach. These relate to subject is matter details, suitability and nature of the response**.

Did u know? Programmes are offered in more request them respectively at the end of the program is to be deleted altogether. This process is called Fading.

(B) Sequencing of Frames

Frame designed to ensure the continuity of the post (providing the proper order) are arranged. This logical sequence of psychological when organizing the 'teaching should use the formula. The Frames there are three main methods for providing proper order—

(1) Matrix Method, (2) Ruleg Method and (3)Egrul Method. These a method should be needed more than one method in accordance with the objectives of many programs has been used.

(C) Writing Initial Draft

After making the above type designation and Frame must write the program. **Editing**—Editing should carefully designed programs of the Draft. EditingThese are the three key things to note—

(1) The subject matter of a technical error, so it does not in any way be viewed. at this stage Subject—expert help can be obtained.

Notes

(2) **Program**—With the help of experts, it is seen that the original Draft techniques of instruction in the program, as Compositions, Frames give proper order or style of the original draft—language is not an error.

(3) **Language**—Prepared with the help of experts in the Draft grammar mistakes, Spelling errors and inappropriate and ambiguous language, is used to detect and fix. Instruction instructions obscurity, language uncertainty of the shortcomings and the inappropriateness of examples given are correct and original Draft the necessary changes are made.

29.4 Testing and Evaluation

This last task is the creation of the programmes, prepared under the revised Draft program is tested and evaluated. Following activities are conducted in—

(1) Individual Tryout—This program is administered at 4-5 students and it is detected in the finished program Draft position, size, language, suffixes, and memorandum relating to Upakramk - what are drawbacks. In addition, students' responses are noted and the necessary changes are made in the cleanup programme.

(2) Small Group Tryout-converting and re refined program—Students Group is to be administered. Necessary changes in the Draft and the students are asked for suggestions for improvement. The Views and taken note of the time and re-revision and refinement of all these programs is on the ground.

(3) Field Tryout—Program for the finalization of the program, a representative sample re-administered to the 10 to 20 students' reactions have been extensively and made suggestions based on the revised draft again. This test is based on the programmes relevance and validity is installed.

(4) Evaluation—Based on the data obtained from field tests to evaluate the following things is—

(*i*) Error Rate—The following formula is used to determine—

Total No. of Errors × 100

Programme Error Rate = ...

(In percentages)

Total No. of Responses × No. of Students

Error rate of 5%–10% linear program and can be up to 20% Branched programmes.

(*ii*) Programme Density—The difficulty level of the programmes is detected. The following formula is used to determine -

Total No. of Different Types of Responses in a Programme

TTR (Type Token Ratio) = ...

Total No. of Responses Required in a Programme

TTR value should be between 0.25 to 0.33.

Task How the programme rate is determined?

(*iii*) Sequence Progression—Sequence Progression can be seen with the help of Scalogram. Criteria Scalogram table is created on the basis of test scores. The table Based on the sequence of program flow is seen. If you look at the table shows that in the course sequence If the system is not fair to have to try to improve the program.

Notes

Self-Assessment

1. Fill in the blanks:

(*i*) Programmed study the creation of a high level ..... functions.

(*ii*) Students' prior experiences, foreknowledge and consistent with past practices and objectives set ..... framework is made.

(*iii*) Subject matter or logical framework ..... should draw on the ground.

(*iv*) Programme must be written so that the student do more and more perfect .....

(*v*) Prepared programme of original draft should carefully.....

29.5 Summary

- Programmed study the creation of a highly specialized task.
- Prior to the program, the program is being created for students - the students' age, Gender, Social, Economic, psychological level, interests, qualifications, background and collecting information relating to prediction The program should be organized accoringly.
- Students' prior experiences, practices and pre-determined objectives consistent with foreknowledge and subject outlines is created. Therein this framework it is necessary that the subject be If one is to make the program.
- Program should be written so that the students do more and more accurate response. When the student are not able to respond appropriately to the Primes and Prompts is used.

29.6 Keywords

- **Description**—Narration
- **Behavioural**—Related to behaviour

29.7 Review Questions

1. Describe programmed study conducted in preparation.
2. Explain in detail the composition or writing initiatives.
3. What is extinction?
4. Describe the program in test and evaluation process.
5. How Abhiram density is adjusted?

Answers: Self-Assessment

1. (*i*) Specific (*ii*) Subject Matter (*iii*) Psychological (*iv*) Response (*v*) Editing

29.8 Further Readings


Books

1. Education Technology—*S.K. Mangal, P.H.I. Learning.*
2. The basic premise of Educational Technology—*Yogesh Kumar Singh.*

Notes

Unit-30: Open and Distance Education

CONTENTS

Objectives

After studying this unit, students will be able to:

- Understand the meaning and definition of distance education.
- Have knowledge about aims/objectives of distance education.
- Understand the growth and development of distance education in India.
- Have knowledge related to open school and open university.
- Have knowledge about national open school.

Notes

Introduction

Distance Education is becoming very popular in the world. **Dr. Satyabhusan** (1990) writes in this regard, in the past four decades, in the entire world's developed, developing and socialist countries, there has been a phenomenal growth of distance education. There are many reasons for this change in the vast trend due to endless activities-Despite the significant increase in enrolment growth reduction in public growth, Section of the population who have been deprived of education, growing consciousness for having education, technological changes causing a gradual loss of efficiency of the current workforce and therefore they must again be made efficient. Besides this purely, the dissemination of knowledge and skills to meet the challenges of the institution that seems to be beyond the capacity of reciprocal distribution arrangement which is completely based on the systems like studying in the classroom in front of teacher.

This change is unprecedented. This change in education gives birth to a number of new challenges. The entire country and its citizens are greeting this system. Many institutions have accepted the distance education as a complementary system along with the formal systems of education.

30.1 Meaning and Definitions of Distance Education

(1) Correspondence education

(2) Home study

(3) External study

(4) Distant education

(5) Off campus study

(6) Open Learning

(7) Independent Study

(8) Multi-media Education

Notes In our country, correspondence Education and open learning are well known words used for Distance Education.

The inventions of communication technology have a great impact on the distance education. The importance and area of distance education has been increased by the use of various techniques of communication technology in the field of correspondence education. Distance is becoming very popular as a Non-traditional form of education.

Definitions

According to **Philips Combs** and **Mansour Ahamad**—"A distance education is an organized systematic educational activity carried on outside the frame work of the established formal system. Whether operating separately or as an important feature of some broader activity that is intended to serve identifiable learning clienteles and learning objectives."

Borgie Homeverg (1981)—"At all levels of education, the difference of study which are not included in the regular observation of a teacher are called distance education."

Notes

WradMayor (1977) expresses his ideas by saying that, "Independent Study arranges various stages of teaching-learning, in which teacher and students maintain the required work and responsibilities without interacting with each other, they communicate through various methods. The purpose of the **Independent Study** is to make school students free from inappropriate location and place and to provide opportunities to students out of school to continue their studies in the environment." This improves the students' ability of self-study.

In the above definition **WradMayor** has used the word "Independent Study" in place of Distance education.

Peters (1973) says, "Distance Education is a new and emerging academic structure which provides knowledge, skills and fulfils desired needs. It is a distant education which is able to teach people."

According to **Malcolm Adisheshaiya** (1981)—"It refers to the teaching learning process undertaken where a space and/or time dimension intervene between the teaching and learning."

Dr. Kumar (1996)—"Distance education is therefore, anyone or a combination of various forms of study other than the continuous and immediate supervision of teachers in classroom situations. Lessons from educational psychology and theories of learning are employed in the design and development of instruction. Planning, preparing, tutoring, guidance and counselling and evaluation of learning are done with due regard to the latest developments in instructional design."

According to **G. Rama Reddi** (1998)—"Distance education is an enforcing, unconventional and informal system which fulfils the needs of both the students whether he studies in campus or off campus." He further says, "Basically, distance education emphasize on the detachment of students and teachers which provides an opportunity of self-learning to students. They communicate through the methods which are available; for example- letter or electronic communication, telephone, telex and fax, two way radio in which calculator and TV are attached and a video disc controlled by the calculator etc.

In the words of **Dr. Kulshrestha**—Distance education is a method of comprehensive and non-formal education; in which students located at a distance place obtain educational objectives by using selected option from the options sponsored by educational technology. They can be of following types—

(1) Well-structured self-instructed contents (2) Books, and research related journals, the SAT (3) Charts, models, poster and other visual contents (4) Television and radio broadcasting and so on.

Teachers and students in distance education cannot communicate directly in the verbal terms. Distance points towards the following distances between teachers and students

1. Distance of place between teachers and students (physical distance).
2. Time lag between the preparation of lesson/learning contents and their communication.
3. Distance between communication of lessons and learning contents and their study and learning.

Due to the above mentioned distance in distances in learning and teaching process this type of education is called as **distance education**.

30.2 Characteristics of Distance Education

On the basis of above definitions, the characteristics of distance education are given below—

1. Distance education is a well-structured and well-organized system of learning-teaching.
2. There are no bonds of face-to-face teaching and learning.
3. This system is connected to the needs, levels and daily tasks of the students.

Notes

4. It is a more flexible method.
5. By this system, students get the opportunity to learn according to their ability and pace for desired period.
6. This method is not imposed on students; they learn by their own effort whatever is taught.
7. This method provides education to a specific group of students and staff for achieving specific objectives.
8. The various modes of educational technology such as printed and unprinted, are used in this method.
9. Students are more responsible for studying instructional materials.
10. In this method, students are free to start and end the learning process.
11. Distance education techniques are used for teaching a variety of vocational and academic courses to people of all ages.
12. Distance education is based on self-instructed system.
13. This education attempts to reach distant places of the country.

Based on these characteristics, **Kulshrestha** and **Rawat** explain the means of distance education and writes, "Distance education is a structured and systematic system, in which teachers and students, no matter how much physical distance is there, by using academic, technical and printed/unprinted media, contributes to provide education in accordance with the specific objective by interesting, understandable and pre-determined scientific methods. Distance education gives the teaching of vocational or academic subjects based on the principles of self-instruction by inspiring students according to their ability, speed and ability to comply with standards and requirements.

(*Kulshreshtha and Rawat, 1998*)

30.3 Aims/Objectives of Distance Education

The major aims and objectives of distance education are given below—

1. The major goal of distance education is to deliver education to readers located in different corners of the country from gate-to-gate.
2. Preparation of learning contents and specification of the methods to make successful attempts to reach students according to their level, requirements, qualification, abilities and age.
3. Making successful attempts to reach students by the use of the various branches of knowledge and learning in this system.
4. Re-providing educational opportunities for those who for some reason have lost the opportunity to be educated in their lives.
5. Individuals engaged in various activities and various professional, others and their wives can achieve lifelong education, so that they can improve their educational level and quality of life.
6. To reduce the pressure of work on educational schools, colleges and universities by using the tools of traditional distance education.
7. To promote the principle described in the constitution "Right to Information".

30.4 Need and Importance of Distance Education

Today, distance education is going up ahead on the path of development as an important means of education. Following are needs and importance of distance education—

Notes

1. Distance education is a powerful means of education for those who live in distant villages and in the wild and mountains regions where there is lack of educational facilities or they are very limited.
2. Distance education is a boon for those who are completely unable to go elsewhere for continuing their education.
3. Distance education is a perfect means for those who have earn a living or take a job in any business for some reason (early) and are not able to receive formal education.
4. The distance education plays an important role in increasing national production. Distance education is useful for men who have a business or job but want to get information and knowledge about the new methods and technologies etc.
5. Distance education is also important for illiterate farmers, labourers, housewives and disabled persons etc. who are unable to get education in formal school.
6. Distance education is an effective option of formal education which boasts the lifelong education to the globalization of education. In other words, the area is quite extensive.
7. Distance education is a powerful way to provide opportunity of equality of education and profession.
8. Distance education is a good opportunity to develop an organizational structure for dynamic future.
9. Distance learning is a multi-way approach which consequently uses more force to get the students' learning process.
10. Distance education is also important for people who require some additional educational training to upgrade the knowledge.
11. Distance education is an important tool for prosperous society's people (who have enough time/ leisure and who wish to complete a hobby).
12. Distance education is a student and human cantered behaviour so distance education has proved successful in delivering the right level of education and learning material to students.
13. Distance education makes it possible to achieve the three types of objectives viz. cognitive, emotional and psychological.
14. Distance education develops a tendency to self-study, develops self-motivation, generates the efficiency to the latest information about their course and brings the desire change in students' lifestyle.

Did u know? In the modern era, distance education is very useful at all levels and in all areas. Today distance education has become the centre of attraction and viability for the neo-literates, youngsters and elders. Distance education is becoming more important and meaningful that formal education. Today distance education has become an imperative in democratic countries like India.

30.5 Growth and Development of Distance Education

Distance education is not a new concept. The contents written on palm-leaves indicate its old history.

Formally, distance education can be regarded as born in 1830 when a British teacher served the first teaching through a two-way communication (message) transmitted by means of post.

In 1840, Pitmen started a Short hand course by means of post.

Notes

In 1856, Lang and Taw established a modern school for teaching foreign languages by correspondence.

In 1873, the first attempts were made to provide correspondence instruction in the United States and correspondence courses were established at some universities in 1890. In the year, Sweden and Germany are also undertaken in the field of distance learning and universities were established for correspondence instructions.

In 1920, Russia began correspondence program to make uneducated people well educated, consequently there were enough educated people in 15–20 years.

In 1960, many courses were introduced in Japan for staff training in commercial and industrial sectors, courses for teachers and education for women were also introduced.

In 1961 the UK Government issued a white paper and an "Air University's plans were delivered. In China, in 1960–61, many centres were opened for correspondence education in town like Beijing, Shanghai, Siang etc. to improve the students' and elders' level and quality of education.

In 1969, Open University was established in England. In this university, effective distance courses were prepared and people were admitted without any discrimination of people's age, sex, residence, formal educational qualifications etc. The university also inspired many developing countries to make effective arrangements for establishment of Open University in their respective. Many universities of England opened centres for distance education and a large number of privates institutions were established for correspondence education.

In 1970, Hadley School for the Blind of United States recognized by the National Accreditation Council for the Blind and Visually Handicapped had taken many revolutionary steps in the field of distance education for blind students. In the same year 1970, correspondence education attracted a large number of students in Russia. There were about 500 centres of various universities where many efforts were done in the field of distance education. They started many courses and training programme related and technology and higher education.

By 1970, the world famous 22 universities were established for distance education which has provided a new direction to distance education.

In 1978, Japan established The National Institute for Development of Broadcasting Education under the control of Ministry of education. It developed Open University later. This institute did a phenomenal work in the field of distance education which gave Japan an important place in the field of distance education.

In 1978, North Central Association of College and Schools recognized Hadley School of United States. Various programmes of distance education were successfully implemented at school level under this school for blind schools

In 1982, according to a survey, correspondence education is provided by about 71 institution of United States in which about 24488 students were admitted. Today, Distance education programme is so much popular in United States that 20000 to 80000 students are admitted in various open universities.

From **1982 to 1985**, in China more than five billion students had successfully completed their graduation and other courses.

The National Institute for Development of Broadcasting Education of Japan began registration of students under the distance education programmes. It was supposed that more than six lakh and twenty students will be educated through this programme in this university.

In 1985, a council named "National Home Study Council" recognized by United State celebrated its 30th ceremony.

By examining Western Germany in 1986, it was found that distance education was being popular and more than six billion students were admitted in various programmes of distance education.

By 1986, a great change was felt in the field of distance education. People were loyal to this and began to understand its importance. Consequently imparting education through distance education in the

world, many government and private institutions, universities and other institutions successfully drew the attention of students through distance education.

Notes

Self-Assessment

1. **Fill in the blanks:**
   (*i*) Today, distance education is very ..... in the world.
   (*ii*) ..... science has a great impact on distance education.
   (*iii*) Today, distance education is going up ahead on the path of ..... as an important means of education.
   (*iv*) Distance education is not a new .....
   (*v*) Formally, distance education can be regarded as born in .....

30.6 Growth and Development of Distance Education in India

Although distance education in India was debuted in the **1960**, but at that time seventh decade there were only four universities which were partly providing this type of distance education. In 1968, Patiala and in **1969**, university of Merrut and Maisur, by the period of **1970** to **1980**, several correspondence institutions were established by 19 regional universities. During this period, both the diploma and degree courses were provided by means of distance education.

Punjab and Himachal Pradesh in **1971**, Andhra and Venkteshwar in **1972**, Hyderabad and Patna in **1974**, Bhopal, Utkal and Mumbai in **1975**, Madurai, Kamraaj, Jammu Kashmir and Rajasthan in **1976**, Usmania and Keral in **1977**, and Allahabad and Mumbai in **1978**, Annamalai and Udaipur in **1979** established several educational units. In other words, distance education developed in the field of higher education in **1970–80**.

In the decade of **1970**, distance education has been related to the formal education. Therefore distance education started working under the formal universities.

In **1982**, an open university was established in the field of distance education in Andhra Pradesh.

In **1985**, Indian government established Indira Gandhi National Open University (IGNOU), which was very important in the development of distance education. Under Indian government, several open universities were established in various states like Maharashtra, Kerala, Bihar and Madhya Pradesh etc. Rajasthan government established an open university in Kota.

In the sequence of open universities in states, Utter Pradesh government established Government Purushottam Das Tondan Open University in **1999**. It is also expected in the field of distance education, this meet the test and will establish a new dimension in the field of distance education.

30.7 Growth of Admission in Distance Education

It is clear from the above discussion that distance education is moving ahead on the path of progress. Let's analyse the progress of growth of admissions in distance education related to this.

As written above, although distance education in India was debuted in the **1960s**, by the seventh decade, there was a reasonable progress in the growth of admissions of students. In most of universities, correspondence programmes started in institutions. In **1975–76**, about 65,000 students were admitted in the field of distance education. In three year, this number became double 1,33,459 in **1978–79**.

In next nine years this became thrice 4,02,720 in **1987–88**.

Notes

Distance education has made an important position in the field of higher education in India. Therefore, after being failed in informal system student are using distance education as a means of education. In a survey, it was found that students feel it better to get educated by means of distance education rather than private examinations.

In **1986–87**, out of total admissions for higher studies in distance education, Tamil Nadu has part of 42%, Himachal Pradesh has 26%, Andhra Pradesh 19% and Delhi 18%. But the contribution of Utter Pradesh, Madhya Pradesh, Gujarat, West Bengal, Orissa and Bihar was negligible.

In **1986–87**, the admissions in distance education were comparatively higher. At this year, 3.58 lakh students were admitted in distance education.

In **1995–96** and **2000–01**, **Dr. Rudrdutt** in his article, has provided statistics on the admission in the higher education in distance education. They are given below—

Table

Comparative admissions in distance education in the year 1995–96 and 2000–01

View Articles	Year	Admission in distance education	Percentage of total admission in higher education
1.	1995–96	1369321	19.5%
	2000–01	2942347	32.2%
2.	1995–96	1364517	21.1%
	2000–01	2809576	31.2%
3.	1995–96	1105975	17.1%
	2000–01	2079502	24.0%

It is clear from above table that in the above three view articles there is much difference between the progress rates of distance education but it is negligible as compared to other countries. In India, there is lot to do in the field of distance education. It is possible only when the distance education technology will be affordable.

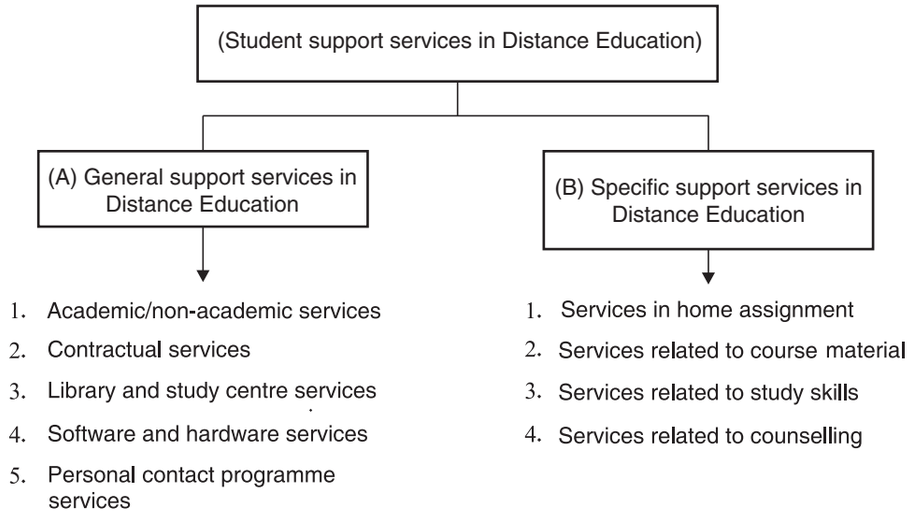
30.8 Student Support Services in Distance Education

Distance education is a student-centred education in which there must be interaction between students and teacher. Students must be directed so as to obviate their difficulties and remedial education should be arranged for them. They also require support at study centres.

In distance education, student support services are categorized in the following manner—

Table **Notes**

Categorization of student support services in distance education



(A) General Support Services for Students in Distance Education

Under this, all the above support services for students are being explained—

(1) Academic/non-academic Services—Under several distance education, students have to face many difficulties.

For Example—

1. Academic staff do not give them time
2. Academic staff do not take interest in their problems
3. Academic staff avoid solving their problems
4. The non-teaching employees do not do their work
5. Unrecognized reading contents etc.

Students have to face these kinds of problems. Therefore it is necessary that there should be efficient education faculty in distance education who understand the needs and problems of students of distance education. They should be interested to help students and specific training should be given to prepare learning materials etc. If these teachers are selected in distance education then most of the students' problems will be finished itself.

Similarly, non-teaching employees should be efficient. It will be a great help to students if they are helpful in delivering learning material and homework by post. Students have to write many letters due to not getting learning material and homework. They become free of all these things and can utilize this time in their study.

There should be good instruction material which is easily understandable by the students. Proof reader, Cartographer, designer and artist etc also contribute for preparing this. They should be elected due to which student can get good, interesting, high level instruction material which is easy for them.

(2) Contractual Services—Several contractual services are necessary in distance education such as printing work, individual contractual programme etc. Institution pays for this. Sometimes these contact

Notes

systems are unable to pay for these services due to lack of funds or payment is done at lower rate due to which activities of institution lacks quality. It has an indirect effect on distance students and they lose interest in distance education. Therefore it is necessary for the institution that all these contact services should be streamlined through its controlled system.

(3) Library and Study Centre Services—It is the duty of every distance institution to maintain library and Study Centres. There should include all the important books and magazines. Study centres should provide instruction and suggestion services, due to which students can work hard in their courses, can study good and useful literature and make the use of available benefits. These services are important because the learning materials do not fulfil the requirements of students. There should be some complementary study material for students.

(4) Software and Hardware Services—Every distance education institution uses various software and hardware to make study material more effective. These are forwarded to study centres where students can directly use them. Students' services are required in order to use these software and hardware services.

(5) Personal Contact Programme Services—In distance education, personal contact programme services also come under the student services. Students have a lot of problem when they come into these personal contact programmes. Therefore, distance institution that are running these contact programmes require to make possible effort in order to solve the problems of the students and there should be some appropriate system. If needed, every distance institution should send his candidate to every study centre where contact programmes are organized who can satisfy students by solving their problems, needs and difficulties.

(B) Specific Support Services in Distance Education

Following services are included in this—

(1) Services in Home Assignment—Home assignment has its own importance in distance education. Generally, submission of Home assignment is necessary for every course of distance education. Students are not allowed to give examination without submitting home assignments. Therefore, distance education institution require to make arrangement due to which—

(*i*) Students can get home assignment on time.

(*ii*) Students should be given appropriate instruction and directions–how to complete home assignments.

(*iii*) Home assignments should be evaluated by a qualified teacher. Method of assessment should be made clear to both the teacher and students in order to remove misunderstandings.

(*iv*) Evaluated home assignment should be given back to the students in time. It should be properly altered and comments and suggestion are required to be given.

Such system should be organized at study centres so that students can receive proper counselling and guidance related to their home assignment, problems and difficulties.

(2) Services Related to Course Material—Distance education institution uses both the printed and unprinted course materials. Sometime students feel that the course material is not appropriate or there are problems in understanding a unit or course is incomplete and unspecific, to whom they should communicate etc., they should be given solution, suggestion and instruction at the study centres for these problems. There should be some provisions for these problems.

(3) Services related to Study Skills—Due to the lack of study skills, many students are unable to study printed course materials. These students want to talk to someone and feel teacher's help. Instruction and suggestion services should be provided to these student that how to improve their reading skills, due to which they can study in an effective way. Distance education institutions or their study centres must have a system in which individual students should be given the knowledge of reading and study skills by a qualified and trained person and they should be taught how to use them.

Notes

(4) Services related to Counselling—Counselling services plays an important role in the development of distance education system. Trained counsellors are required for this. In a good counsellor there should qualities of true passion, sympathy, patience, honesty and fairness. He should be passionate for his profession and must have the necessary skills for counselling. Counselling can be done through the following means—

(*i*) Face to Face Counselling

(*ii*) Group Counselling

(*iii*) Telephone counselling

(*iv*) Counselling by letters

(*v*) Counselling by Handbook

(*vi*) Counselling by Audio and Video Cassettes

(*vii*) Counselling by broadcasting

(*viii*) Counselling by computer

Distance education institution can make counselling services more effective by selecting one or more than one counselling methods according to the above counselling methods.

The Role of Support Services Staff

The major activities/roles of Support Service staff are given below—

(1) To answer the question asked in the Home assignments given by the students and to evaluate them.

(2) To give accurate and appropriate suggestions and comments to improve it, after assessment.

(3) To give opportunities for discuss in the group discussion organized at study centres.

(4) To remove every doubt and questions related to the learning materials.

(5) To provide the skills for reading and studying, so that students can easily read, understand and memorize the distance learning course material and other literature.

(6) To help students overcome obstructions in their way.

(7) Students need more help and motivation when preparing assignments and giving exams for the first time. During this time, it is important task for the staff to give appropriate suggestions and instructions with a dedicated spirit.

(8) There should be appropriate arrangement for keeping student records, the exact mechanism of the institute rules and should have good and harmonious relationship with supervisors.

(9) Explanation of material, the use of multimedia systems and good consulting work.

30.9 Open School and Open University

Distance education has reached to open learning through correspondence education. The emphasize is being given to two fields in open learning. These are:

(1) Open School and

(2) Open University

Notes

30.9.1 Open School

For people who have been out of school, drop outs, housewives and people who are in the age group of secondary education, the need of a system was felt which should be flexible, forward looking and able to keep education to the door of the students. Central Board of Secondary Education, the first open school of the country was established in July, 1979 after several discussion on such system.

Mission – As an alternative to formal secondary education, open learning systems with the goal of providing education were introduced at the school level. Under the national education policy, it was introduced by examining the needs of several people of the nation.

Objectives – Following are the major goals of open school

(1) To present a parallel informal system as an alternative to formal school system.

(2) To provide opportunities of education for people who have been out of school, drop outs, older people, housewives, Students from disadvantaged sections of society and those living in remote areas of the country that do not go to regular schools.

(3) To operate secondary, senior secondary, technical, vocational and life enrichment courses by correspondence teaching methods.

(4) To organize bridges for reaching to secondary level programmes or early programmes.

(5) To motivate a system based on research, publication and dissemination of an open and distance learning education.

Target Group –

(1) School drop outs

(2) Girls and women

(3) Unemployed and working adults

(4) Scheduled Caste and tribes

(5) Ex-Serviceman

(6) Physically or mentally disabled

(7) Physically/Geographically Disadvantaged

(8) Neo-Literates from total Literacy Campaigns

Task In which areas the emphasis is on open learning?

Main Characteristics of Open School

(1) The doors of open school are open for everyone. There are no restriction of ages and other reasons.

(2) Its working area is not limited; it is open for all those people who want to take advantage of this whether in India or anywhere else.

(3) Students are free to select the courses of their own choice from a fixed list and to study according their means.

(4) Student can pass the over a period of five years and nine efforts in different subject alternatively or all of them at once.

(5) The language can be selected as Hindi or English according to needs.

Notes

(6) A simple, easy and understandable study material is passed on to each student.

(7) Learning centres are available in the country for solving problems of the students.

(8) Learning Fee is much lower as compared to that of formal education.

(9) Assessment system continues due to Tutor Marked Assignments (TMA).

(10) Personal Contact Programmes are organized at study centres to help students.

(11) Vocational courses can also be included either separately or as a "vocational package" or as an academic course.

(12) It provides opportunities of education through modern education, communication and information technologies.

Did u know? The school opened in October 1990, was started by the government as a national school degree courses to students prior to admission to courses may also be able to register, and certificates can take their exams. The National Institute recognized by the Government.

National Open School

Programmes and Courses—Here the main programmes and courses have been mentioned.

(1) Foundation Courses—This course is equivalent to Class 8 in the entire country.

(2) Secondary Certificate Course—It provides education in nine languages and eight subjects. In this, examinations are given for five subjects (including a language). It is equivalent to class 10.

(3) Senior Secondary Course—This course is equivalent to class 12.

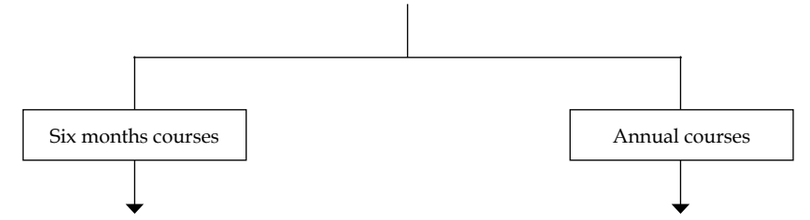
(4) Open Vocational Educational Programme—The educational programme organized by this has been given below.

Vocational Course
(Alternatively or along with academic courses)

Secondary level	Senior secondary level
Typewriting/Word Processing	Typewriting/Word Processing,
Technology of Jute Production, Carpentry	Stenography/Secretarial courses
Solar energy technician course	Plant Protection and water management course,
Biogas technician course	Technology of Oster Mushroom production
Laundry course	To make furniture and cabinet
Bakery and confectionery course	Electroplating, house keeping
	Catering management,
	Food processing, Play-center Management
	Hotel front office management
	Poultry Farming, Soil or Fertilizer management

Notes

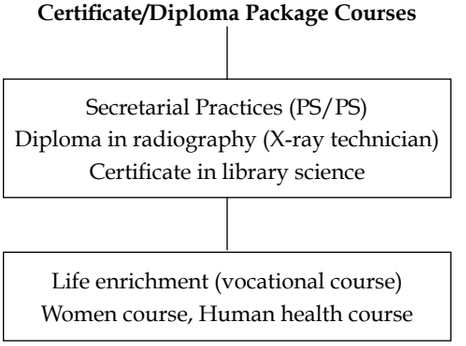
Vocational Certificate Course
(Six month or annual courses)



House Wiring and electric component repairing
Motor and transformer rewinding
Radio and tape recorder repairing
Cutting and tailoring
Dress making, plumbing
Beauty culture
Library attendant

Electrical technician
Radio and television technician
Cutting, tailoring and dress making
Library clerk
Refrigeration and air conditioning
Certificate in computer application (CCS)

Certificate/Diploma Package Courses



Evaluation System

Evaluation of student is of very flexible nature. Both the internal and external systems are available for students

Examinations are organized twice in a year–In May and November.

Main Elements of Programmes Delivery System

Following the main elements of programmes operated by NOS under distance education system

(1) Printed Self-Learning Material
(2) Personal Contact Programme
(3) Audio and Video Programme
(4) The Interactive Quarterly Magazine Open learning

Accredited Institutions of National Open School

Following are the counts of accredited institution of National Open School in 1998 –

(1)	Academic Institution	732
(2)	Vocational	156
(3)	SAIED (Special Accredited Institutions for Education of the disadvantaged)	20
	Total	908

Its learning centres are available in India as well as foreign countries. NOS is also available on the Internet. Following is the website of NOS—WWW.NOS.ORG.

Notes

Self-Assessment

2. Multiple Choice Question:

(*i*) In which decade distance education is started in India?

(*a*) 1960 (*b*) 1962

(*c*) 1970 (*d*) 1980

(*ii*) In which year, Andhra Pradesh Government established Open University?

(*a*) 1962 (*b*) 1970

(*c*) 1982 (*d*) 1980

(*iii*) In which year, Indian government established Indira Gandhi National Open University (IGNOU)

(*a*) 1982 (*b*) 1983

(*c*) 1984 (*d*) 1985

(*iv*) When did Purushottam Das Tondon Open University established?

(*a*) 1990 (*b*) 1991

(*c*) 1999 (*d*) 2001

(*v*) When did Usmania Open University established?

(*a*) 1977 (*b*) 1978

(*c*) 1979 (*d*) 1980

30.9.2 Open University

Today, Open University has proved a very important and popular innovation in the field of education. It is known by many names such as Open University, University without walls, **University of the air** etc. All of these names are meaningful and meaningful name for the Open University.

Meaning of Open University

"Open university is that attempt which is a way to educate a very large number of students who could not get the formal education through informal methods. The lowest level of any age or educational qualification is not a bond. There is no band of presence or to study in the university campus."

Because the universities are free from all these restrictions, so they are addressed as Open University.

Following points are considered for the openness of **Open University** by **Lord Crothers** of England in 1969.

(a) Doors of Open Universities are open to all interested students. There are five types of students who enrol.

(*i*) Those adults who were unable to get higher education.

(*ii*) Those employed person who want to get recognition training to keep up with the latest ideas in their fields.

(*iii*) Persons who have previously been out of college for any reason and willing to receive instruction to achieve more progress.

(*iv*) Those women who could not pursue higher education prior to marriage and want to pursue higher education and spend time due to maturity or changed economic conditions.

Notes

(b) Campus reading is prohibited in Open University. Therefore, these are also open in terms of locations.

(c) Their teaching methods are considerably diverse and open. They use the methods which are more helpful.

(d) These universities are open in terms of ideas.

''The basic principle of open universities is to look forward to unleashing the idea or innovation and continuous experiments to be perfect.''

"Open University is indeed an experiment or an ideology that is based on new needs and new innovations. It is the most important centre of academic progress to higher education whose doors are open to everyone, with no fastening, no boundaries and no hesitation. It uses scientific methods, neo-innovations of educational technology and maintains flexibility in nature. It provides equal opportunity for all takes care of everyone's needs and tries to be coordinated and helpful for everyone to the end. These are open book, you can study whatever and as long as you want. This free/open university who offer higher education in the field of distance education is a new dynamic dimension."

(S.P. Kulshreshta, 1999)

Objectives of Open University

Following are the important objectives of Open University:

(1) To provide higher vocational education and technical education to a large portion of the population.

(2) To provide the necessary education to persons in need, (especially those living in the distant rural areas), teachers and women.

(3) To add the individuals and institutions to the development of the country through various programmes of Open University.

(4) To give students the opportunity for higher education through distance learning and other modern communication systems used in education.

(5) To keep the development of education and adult education.

(6) To increase the public knowledge and capacity by motivating students, according to needs of employment by education and nation building.

(7) To develop the coordinated human behaviour.

(8) Providing quality education at the university level.

Instructional Methods

Following instructional methods are used in the Open University—

1. Printed Study Material
2. Radio
3. Audio and video cassettes
4. Television
5. Teleconferencing
6. Other audio-visual means
7. Experimental contents
8. Self-instructional material etc.

30.10 Personal Contact Programme

Most Open Universities conduct personal contact programs at the Distance Education Study Centre for limited time for all the problems, difficulties and addressing questions by registered students in which main points related to the course are explained and their problems are solved.

Notes

Notes Individual program of study at the centers are also provided consulting services. At these centers, educational consultant, administrative and assist in solving personal problems.

Subjects in Open Universities

There are various subjects in Open Universities. Following subjects are taught by means of schools in Indira Gandhi National Open Universities.

1. **School of Humanities—** It includes the knowledge of different languages.
2. **School of Social Science—**It includes the teaching of history, political science, economics, public - administration, sociology, library and information etc. subjects.
3. **School of Science—**It includes the study of maths, physics, chemistry and biology etc.
4. **School of Continuing Education—**It includes the village-development, women education course and others at the certificate level.
5. **School of Computer and Information Science—**It includes the study of Data Productivity and computer application
6. **School of Education—**It includes the courses related to B. Ed. At degree level, distance education at diploma level and higher education.
7. **School of Management Studies—**It includes the degree and diploma related to commerce and management.

The increasing number of open universities in India is good evidence of their usefulness. Open Universities in India are developing the public ideas of getting educated; they are bringing the quantitative and qualitive improvement in higher education, planning of socio-economic reforms are contributing to economic growth, and thus trust, loyalty and confidence of people are enhanced by improving its importance day by day.

Task What are the goals of Open University?

30.11 Advantages of Distance Education

Following are the major advantages of Distance Education:

1. It provides continuing education to millions of people who want to get this type of education.
2. Distance education educates a person by reaching his doors.
3. It is helpful in developing literacy.
4. To enhance the knowledge and skills of those people who are seeking higher education for their self-development and professional development.
5. Housewives can get education and upgrade their skills related to their home activities.
6. Distance education provides appropriate education and training to those people who are physically handicapped and who are living in the distant places of the country.

Notes

7. Distance education makes itself more organized by using innovative discoveries of science and technology and helps others to be up to date.
8. Special provisions are kept in distance education for enforcement.
9. It is less expansible and more useful as compared to formal education.
10. Globalization of education is possible through distance education.
11. Distance education is a solution to the real needs which are able and capable of bringing significant changes in education policy.
12. Distance education, reduces pressure of formal education system on the students and is forwarded towards qualitative improvements.
13. It encourages the provision of the Constitution that everyone should have equal opportunities in education.
14. This system is helpful at all the level from primary to higher.
15. Distance education teaches people to use the leisure time by some appropriate methods.
16. People are able to get good jobs by developing their qualifications.
17. Distance education is helpful in increasing the level of education in a learning community and to generate awareness among them.
18. Distance education invites very specific subject experts to build your learning courseware or to give lecture and tries to give their benefits to students.
19. In distance education, students get the opportunity to learn at his own pace.

30.12 Limitations of Distance Education Programme

Following are the limitations of distance education programme—

1. Sometimes students unnecessarily overestimate their ability, power and interests which can cause problems later.
2. Programmes except computer instruction could not get feedback in distance education.
3. It is difficult to take care of individual problems of students in distance education.
4. Distance education very often practices like streak mystic.
5. There is very less interaction between students as compared to formal education system.
6. Teachers have less impact on students as they rarely face each other in contract programmes. Therefore it is not possible to get various values and attributes from teachers.

Self-Assessment

3. State whether the following statements are true or false—

(*i*) Today, Open University has proved a very important and popular innovation in the field of education.

(*ii*) In Open University, there is a restriction of studying in the campus.

(*iii*) ''The basic principle of open universities is to look forward to unleashing the idea or innovation and continuous experiments to be perfect.''

(*iv*) The same teaching subjects are placed in the different universities.

(*v*) It is difficult to focus on the individual needs of students in distance education programmes.

Notes

30.13 Summary

- Distance Education is becoming very popular in the world. Dr Satyabhusan (1990) writes in this regard, in the past four decades, in the entire world's developed, developing and socialist countries, there has been a phenomenal growth of distance education.
- The inventions of communication technology have a great impact on the distance education. The importance and area of distance education has been increased by the use of various techniques of communication technology in the field of correspondence education. Distance is becoming very popular as a Non-traditional form of education.
- Today, distance education is going up ahead on the path of development as an important means of education.
- Distance education is not a new concept. The contents written on palm-leaves indicate its old history.
- In 1969, Open University was established in England. In this university, effective distance courses were prepared and people were admitted without any discrimination of people's age, sex, residence, formal educational qualifications etc.
- Punjab and Himachal Pradesh in 1971, Andhra and Venkteshwar in 1972, Hyderabad and Patna in 1974, Bhopal, Utkal and Mumbai in 1975, Madurai, Kamraaj, Jammu, Kashmir and Rajasthan in 1976, Usmania and Keral in 1977, and Allahabad and Mumbai in 1978, Annamalai and Udaipur in 1979 established several educational units.
- Distance education is a student-centred education in which there must be interaction between students and teacher. Students must be directed so as to obviate their difficulties and remedial education should be arranged for them.
- For people who have been out of school, drop outs, housewives and people who are in the age group of secondary education, the need of a system was felt which should be flexible, forward looking and able to keep education to the door of the students.
- Today, Open University has proved a very important and popular innovation in the field of education. It is known by many names such as Open University, University without walls, University of the air etc.

30.14 Keywords

- **Campus**—Premises
- **Distance**—Outlying

30.15 Review Question

1. Write the meaning and definition of distance education.
2. Explain the main characteristics of distance education.
3. What are the goals of distance education? Explain its needs and importance.
4. What is Open University? Write its goals.
5. Explain the characteristics of Open University.
6. What is meaning of Open Schools? Explain its goals.

Notes

Answers: Self-Assessment

1.	(*i*) popular	(*ii*) Communication	(*iii*) development	(*iv*) concept
	(*v*) 1830			
2.	(*i*) (*a*)	(*ii*) (*c*)	(*iii*) (*d*)	(*iv*) (*c*)
	(*v*) (*a*)			
3.	(*i*) True	(*ii*) False	(*iii*) True	(*iv*) False
	(*v*) True			

30.16 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit-31: Interactive Technology

CONTENTS

Objectives

After studying this unit, students will be able to:

- Have the knowledge about meaning and definition of teleconferencing.
- Know the various types of teleconferencing.
- Know the limitations of teleconferencing.

Introduction

Teleconferencing in its literal sense is that system in which participants far from each other are able to communicate with each other. This requires more than one telephone lines.

Teleconferencing is that electronic system, in which two or more people at distant places can participate in the discussion of a desired content, can express their ideas and can hear others' ideas.

31.1 Meaning and Definition of Teleconferencing

Teleconferencing which can be called as communication system or distant communication system, in its literal meaning is used for such system or techniques whose participants are successful in maintaining a discussion or talk to each other while sitting at distant places from each other. We are well aware that Teleconferencing or mutual interaction of participants to stay in front of each other is very good for good communication and mutual interaction. But it is often not possible to establish

Notes

proper interaction and communication. Especially in a situation where the participant are far away from each other, their interaction is not possible or dissipation of more time, money and power matters in such meetings, then it is better to use teleconferencing rather than formal conferencing and mutual communication. In this way, teleconferencing or distance communication system can be defined as a communication system in which two or more people sitting at distant place can communicate through some electronic medium in the similar manner as they are communicating with each other by sitting in front of each other.

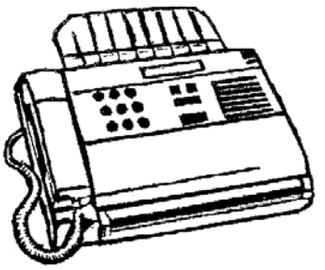


Fig.—Teleconferencing Instrument

"In a teleconference, aimed at total interaction, all three types of media are integrated to supplement one another. A state of the art teleconferencing facility would have multi-directional video and audio transmission systems as well as some other means such as document transmittal, electronic chalkboard and videotext."

More than one telephone lines are required for teleconferencing along with mutually related techniques. It is called communication method. Adding devices to each communication is considered as normal practice. Handsets, top sets, speaker phone, radio and telephone etc. are necessary for communication.

Task What is teleconferencing?

In fact, teleconferencing or teleconference is a real-time interaction between two or more people. Teleconferencing is that electronic system, in which two or more people at distant locations can participate in the discussion of their desired topics, can express his ideas, can listen to others, and can provide immediate feedback, suggestions and comments on them along with exchange of required information.

"Teleconferencing offers a means of interacting with others at remote places by circumventing travel costs, time and associated problems. Educational applications pertain to communication with group of learners at different campuses and in different organisations. Further application includes information sharing and consultation."

In this way, it is possible to utilize developed electronic components in the form of teleconferencing such that people sitting thousands or millions kilometres away can remain engaged in dialogue and conversation in the same way that they are interacting with each other, sitting under a roof of a hall conference hall. As far as the question of the historical origin of this type of system, this trend began via U.S. telephone (TEL) and telephone picture phone in 1960.

Notes

Did u know? As a result of revolutionary change in communication and mutual interaction through software and hardware techniques, the field and structure of teleconferencing has been developed whose results can be seen in our daily lives.

31.2 Types of Teleconferencing

At present, following three types of teleconferencing are popular—

1. Audio Conferencing
2. Video conferencing
3. Computer Conferencing

1. Audio Conferencing—It leads the simplest and most popular form of teleconferencing. In this conference, telephone is used to set up communication between two participants. It is an extended form of telephone services implemented between two people in which conversation and communication field is expanded to more than two people.

2. Video Conferencing—It is more beneficial than audio conferencing because two people sitting at distant locations not only listen to each other but they can see each other on the television screen as they are sitting in front each other.

3. Computer Conferencing—It leads to an advanced and effective combination of the types explained above – audio conferencing and video conferencing. For this type of conferencing, powerful multi-way services are used. Here we can express written material and graphics etc. to the people participating in the conferencing through internet that can be received by them using their computers. Then they can forward their responses and activities to sender of the communication materials or desired people in the conference through internet services or they can contribute to keep continuing the communication process or conversation with the people who want to participate in the conversation. They can use audio and video means through multimedia services of the computer in order to exchange this type language, graphics or other materials. As a result all participants of the conference can hear the voice of each other with the help of sound recorder or earphones and can see each other through web cams.

Through online services, the participants of this type of conference can forward written, printed or sketched messages using email and chatting services. They can hear the speech of the users and see their actions and reaction on the same computer as they were sitting in front of each other. Beside this, the major advantage of computer conferencing is that the participants need not to be present online. Following methods of visual contents and components are used to make teleconferencing services more successful—

1. The electronic copies of the typed message can be forwarded through Fax.
2. Electronic chalk board can be used. Whatever written on the board is converted into digital information which can seen by a participant sitting at a distant location on his monitor.
3. Video text or Tele text systems are also used here.

The goals of teleconferencing can be achieved in an effective way if computer technology is included in the video conferencing. Through this type of event, students sitting in a classroom in Delhi can be involved in serious dialogue and conversation with the participants sitting at Bangalore or London. They can see each other smiling on monitor screen and whatever they want say for setting up conservation, they can type on the keyboard through Chat Window. In this way participant sitting at distant locations can experience whatever is happening, regarding exchange of information and mutual discussions as they were sitting under the same roof.

Notes

It is necessary to discuss web conferencing as an advanced form of video and computer conferencing. It can be found that web conferencing also has many forms.

1. In its simplest form web conferencing come in front of us in which participants can hear each other's voice on the phone and web browsers can be used to review verbal and picture materials. As a conference organizer anybody can have the controls that all participants listen and see the same things. He can do this by using a webpage. Drawing tools are used in order to draw attention towards specific facts.
2. In its more advanced form web conferencing allows a conference organizer to broadcast/display webpages, to write or draw something on the white board and to use software in such a way that participant can see them simultaneously. Participants are provided opportunities to modify or rectify whatever is being displayed. Although, the total control of conference can be handed over to some participant.

In this way, web conferencing is able to play an important role for creating an environment so that all participants feel that they are all engaged in mutual dialogue or conservation at the same place. In addition, a major advantage of this type of teleconferencing is that clutter or unnecessary difficulties which might be involved in the dialogue can be prevented completely. In addition, all participants receive the valuable information and contents within the conferencing in the form of web pages at their own place. Any institution/school initiates conference by inviting desired people to discuss on some topic, problem and discussed point on their webpage. People sitting in any corner of the world are free to join this conversation while sitting in front of their computer individually or collectively according his interest.

Notes Web conferencing is helpful in the conservation/communication of thousands or millions of people simultaneously.

31.3 Uses of Teleconferencing

The major uses of teleconferencing are—

1. Increase in students' intrinsic motivation and curiosity in students to learn more.
2. This mode is useful in various learning objectives.
3. Distance learning students examine their own achievements.
4. These arrangements are enforcing.
5. Various methods are complementary to each other.
6. They have meaningful and effective contribution in their particular learning activities.
7. They increase the students' ability to concentrate on their interest, imagination and power.
8. Students use them to become more active and good fellowship.
9. It has opportunity for instant feedback.
10. Bring flexibility in introducing the study material.
11. They help to personalize learning by taking care of personal objectives, needs and abilities.
12. Students are able to resolve their difficulties by contacting their teacher.
13. These are used in all the areas of education–formal or informal which means this area is very wide.

31.4 Limitations of Teleconferencing

Notes

Besides the above qualities, teleconferencing has its limitations which are:

1. Requires the specific knowledge.
2. These require specific training.
3. Today, they are more expensive equipment.
4. It has to have a specific teacher.
5. They shall be available in each school, the problem persists.

Self-Assessment

1. **Fill in the blanks:**
   (*i*) Teleconferencing is also known as .....
   (*ii*) More than one ..... lines are required for teleconferencing.
   (*iii*) Audio conferencing ..... to the simplest and most popular form of teleconferencing.
   (*iv*) Video conferencing is more ..... than audio conferencing.
   (*v*) ..... is introduced as advanced form of video and computer conferencing.

31.5 Summary

- Teleconferencing or distance communication system can be defined as a communication system in which two or more people sitting at distant place can communicate through some electronic medium in the similar manner as they are communicating with each other by sitting in front of each other.
- Teleconferencing or teleconference is a real-time interaction between two or more people. Teleconferencing is that electronic system, in which two or more people at distant locations can participate in the discussion of their desired topics.
- It leads the simplest and most popular form of teleconferencing.
- It is more beneficial than audio conferencing because two people sitting at distant locations not only listen to each other but they can see each other on the television screen as they are sitting in front each other.
- It leads to an advanced and effective combination of the types explained above – audio conferencing and video conferencing.
- The goals of teleconferencing can be achieved in an effective way if computer technology is included in the video conferencing.
- It is necessary to discuss web conferencing as an advanced form of video and computer.
- Web conferencing is able to play an important role for creating an environment so that all participants feel that they are all engaged in mutual dialogue or conservation at the same place.

31.6 Keywords

- **Teleconferencing**—Tele Conversation system
- **Chattering**—Dialogue

Notes

31.7 Review Questions

1. What do you mean by teleconferencing?
2. What are the types of teleconferencing? Explain each briefly.
3. What do you mean by web conferencing?
4. What are the uses of teleconferencing?
5. Write the limitations of teleconferencing.

Answers: Self-Assessment

1. (*i*) distance communication system (*ii*) telephone (*iii*) leads
(*iv*) beneficial (*v*) Web Conferencing

31.8 Further Readings

Books

1. Educational Technology – *S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology – *Yogesh Kumar Singh.*

Notes

Unit-32: Technology in Professional Development of Teacher

CONTENTS

Objectives

After studying this unit, students will be able to:

- Know the use of educational methods.
- Know about the lesson planning.
- Know about the teaching strategies.
- Understand the direction and consultation.

Notes

Introduction

The utility of technology is increasing day by day. Every country in the world is adopting it. The utility of technology in India is not an old concept. In India, this concept is being more important in terms of education.

Kothari Commission (1966) commented, in the last few years in India, enough attention has been paid towards re-origin of class teaching or the re-originating techniques. The primary goal of fundamental education is to bring revolutionary changes to the entire environment and activities of primary schools and overall development of mind, body and soul of the child. The importance utility of technology has also been proved in this respect.

'Educational technology' gives importance to teaching principles rather than learning principles on the basis of which we find that how educational technology influences a teacher. Teaching having the rights of educational technology can analyse the behaviour of students. Teacher can analyse the behaviour of student in the class, at home, at the playground and with his mates and friends. It is easier to understand him after analysing his behaviour. After which desired changes can be made to his behaviour. We can say that teacher can study the behaviour of his students through technology, he can understand them and can try to improve them. Therefore technology provides strength to this phase of education.

Notes Teacher should have the knowledge of behaviour, its analysis and the techniques for its improvement along with the course content. Education technology makes a teacher capable in this area.

Education technology provides teachers the scientific knowledge in terms of teaching approaches, teaching strategies and teaching methods and helps teacher in the following way—

32.1 Helpful in Use of Educational Approaches

Teacher can distinguish between the teaching approaches on the basis of educational technology and can check which approach can be utilized in which situation such as hardware, software or system analysis. By using these, teachers and students will be able to use their time, efforts and resources in a right way. Its specific trait is – more teaching in less time with less efforts.

Self-Assessment

1. Fill in the blanks:

(*i*) Education and ..... cannot be imagined without communication.

(*ii*) Effective teaching is the primary function of .....

(*iii*) The meaning of communication is the ..... of information and ideas to each other.

(*iv*) Teaching is ..... by the teacher.

32.2 Use of Educational Strategies

With the help of educational technology, teacher uses such strategies by which he can attain his objectives and can bring desired changes to the students' behaviour. It increases teacher's working passion and teaching skills.

Notes

32.3 Use of Educational Methods

It is necessary for teacher that students take interest in his teaching. For this, it is necessary to develop skills and excellence in this area. Teaching methods are such means by using which students starts taking interest in the lesson, study material becomes clearer to them and they become able to learn the course content in a simple and easy way. Teaching methods are mainly used to make teaching more interesting, effective and successful but it is not possible without educational technology.

32.4 Helpful in Making Effective Teacher-Student Communication

Communication is the backbone of education. Both the education and teaching cannot be imagined without communication. The meaning of communication is sharing of information and ideas to each other. Education and teaching are impossible without sharing of information and ideas. As a teacher, you say something to your principle or students and students tells you something or reply or principles gives order after calling you, praises or criticizes. It means communication process is running so it can said that communication is that process in which a people mutually share their knowledge, expressions, ideas etc. and to understand the ideas and information thus obtained and use to send them.

Communication is the backbone of education.

A teacher creates a good communication by using the following material:

1. Printed material
   - (*a*) News Paper
   - (*b*) Journal
   - (*c*) Work Books
   - (*d*) Dictionary
   - (*e*) Encyclopaedia
   - (*f*) Atlas
   - (*g*) Books
   - (*h*) Hands out
   - (*i*) Chart, poster, diagram, graph etc.
2. Un-printed material
   - (*a*) Radio
   - (*b*) Tape recorder
   - (*c*) Overhead projector
   - (*d*) Filmstrip projector
   - (*e*) Television
   - (*f*) Computer Internet
   - (*g*) Video taxt
   - (*h*) Video disk
   - (*i*) Teleconferencing

All these are developed by education technology and by using these, teacher makes his teaching more effective by developing his personality.

Notes

32.5 Helpful in status-quo Education

It is helpful in status quo education in artificial situation. In this, desired changes are brought to learner's behaviour keeping spontaneity through sequential and collective learning experience. Developed by educational technology, this method has been used to make teaching effective.

Self-Assessment

2. State whether the following statements are True/False:

(*i*) Educational technology gives importance to teaching principles rather than learning principles.

(*ii*) Technology provides strength to teacher.

(*iii*) Skills are categorized through educational technology.

(*iv*) Communication is the backbone of education.

32.6 Helpful in Developing Educational Skills

It is necessary for a teacher to understand the meaning of educational skills, to be aware of their intentions and is capable to get right on them, only then he can become a good and efficient teacher. Skills are categorized through educational technology. Some of the important teaching skills are

1. Introduction skills
2. Discovery questioning skills
3. Clarification skills
4. Stimulus modification skills
5. Reinforcement skills
6. Instance skills
7. Class arrangement skills

With these, teacher can achieve efficiency by developing himself and can make his teaching more effective.

32.7 Helpful in Making Lesson-Planning

Teaching is primary function of teacher but even efficient teachers fail without lesson planning. Teacher explains the knowledge achieved by the students, innovative knowledge, questioning method, media, material etc. that which achievement he has to attain and by which media, these can be achieved as a result of class activities in a period of time.

Task Express your ideas on the origin of lesson planning.

32.8 Helpful in Developing Scientific Views

The importance of educational technology has been increased in teacher in the development of scientific view. Teacher can develop scientific views in himself as well as in students through various technologies.

Notes

Inspection is included in the scientific knowledge. Students consider any knowledge to be true when it meets right on the sense-experiential test. With scientific views, students considers such things to be correct which are objective. The meaning of objectiveness is that anybody can achieve that view. This view depends on the belief, logic and character of checker.

32.9 Helpful in Effective Research Study

Today, we have communicate with other countries. It is determined through technology what's going in the research of the same subject as is going in the research of that subject in our country. A comparative analysis is done on all the subjects whether it is T.V., radio, Internet, literature etc. In today's scientific age, without educational technology it is impossible to move forward a single in the areas such as education, research, medical science, physical science, bio-science, maths etc. so the honour for developing scientific views in teacher for researches goes to educational technology.

32.10 Helpful in Direction and Consultation Process

When teacher directs and consulates then it becomes very necessary to be a person having specific abilities. For this, he has to go through various steps so that he can provides benefits to students such as oriented talks, interview, Psychological testing, analysis of school life, health testing, final interview, construction conference, accounts writing and follow-up.

If teacher has the support of educational technology in collecting these steps properly then he definitely gets success.

Self-Assessment

3. Multiple Choice Question –

(*i*) When teacher directs and consulates then becoming a person having specific abilities is it

(*a*) Very necessary (*b*) Unnecessary

(*c*) Less necessary (*d*) None

(*ii*) The primary function of teacher is

(*a*) Going to school (*b*) Effective teaching

(*c*) Testing students (*d*) None

(*iii*) Teaching is controlled by

(*a*) Teachers (*b*) Students

(*c*) Principle (*d*) None

(*iv*) Communication is education's

(*a*) Neck bone (*b*) Back bone

(*c*) Waist bone (*d*) None

32.11 Helpful in Effective Assessment

Teaching is controlled by the teacher. He determines that to what extent and how many objective achieved by him? How much effective are the methods of teaching management, organizations and

Notes

progressions provided by him? Thus teacher uses assessment and measurement to check the efficiency of his teaching.

As an organizer, teacher perform the following three main activities for controlling teaching—

1. Assessment of learning system
2. Measurement of learning
3. Organizing through learning objectives

32.12 Summary

The fact is that educational technology instructs and helps teacher in his activities at every phase, every aspect and at every step whether it is lesson planning, selection of teaching points, selecting good methods of teaching or to understand students or to resolve his teaching problems and to develop his teaching management. Today, teacher cannot move forward even a single step without educational technology.

32.13 Keywords

- **Planning**—Programming of Teaching
- **Educational Technique**—Teaching Methodology

32.14 Review Questions

1. What do you mean teaching strategies? Explain.
2. Express your ideas about using teaching methods.
3. Describe the facts helpful in making effective teacher-student communication.
4. Explain the facts helpful in the development of lesson planning.

Answers: Self-Assessment

1.	(*i*) Teaching	(*ii*) Teacher	(*iii*) Sharing	(*iv*) Controlled
2.	(*i*) True false	(*ii*) False	(*iii*) True	(*iv*) True
3.	(*i*) (*a*)	(*ii*) (*b*)	(*iii*) (*a*)	(*iv*) (*b*)

32.15 Further Readings

Books

1. Educational Technology—*S.K. Mangal, P.H.I. Learning.*
2. Basic Premise of Educational Technology—*Yogesh Kumar Singh.*

LOVELY PROFESSIONAL UNIVERSITY
Jalandhar-Delhi G.T. Road (NH-1)
Phagwara, Punjab (India)-144411
For Enquiry: +91-1824-521360
Fax.: +91-1824-506111
Email: odl@lpu.co.in