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**Block 1: Introduction to Educational Technology
Unit 1: Concept and Scope of Educational Technology**

The role of scientific thought

- systematized knowledge which a person acquires his tests and experiences.
- When scientific attitude develops in the human being, his decisions and conclusions became more objective and realistic
- Technology is the co product of science
- Science and technology changed the concept of life and it became the basement of life.

Meaning of Technology

- technology is neither a mere machine or hardware nor a human-system or a software, but it is the combination of all these.
- technology is the application of science in art
- the use of scientific knowledge to meet the needs of daily life
- the practical form of scientific knowledge is called technology.
- when the knowledge of science is used in the practical tasks, then it is called technology.

Educational Technology

- J.K. Galbraith.
 - ⑩ systematic application of scientific knowledge to the practical tasks.
 - ⑩ the division of the practical tasks into sections and sub-sections.
- In the field of education, any subject which meets these two norms of the characteristics, is called educational technology.

Origin of Educational Technology

- in nineteenth century, the educational technology existed in the form of educational toys and other learning tactics.

- But its frequent use came to light in 1926. In Ohio state university, it was used in the form of a teaching machine by Sidney Presscy.
- Then around 1930-40, Lumsdain and Glaser tried to make education as mechanical by presenting some special types of scrabled books, cards and boards.
- the most important work was carried out during 1950 by B.F. Skinner through Programmed Learning
- 1960, as a result of industrial revolution America and Russia, other countries also started progressing in the field of educational technology.
- Now we see in teaching, due to various technological inventions like radio, tape-recorder, television, computer, CCTV i.e. Closed Circuit T.V., electronic video tapes and other audio-visual aids, many other numerous technologies.

- Growth of new learning mode through ICT

- E Learning era

- Learning management system, online learning, blended learning, E Content authoring, virtual leaning.

- mechanisation of teaching and learning process

Eric Ashbey (1967) and four revolutions in education

- Education shifted from home to schools

- Adoption of written word as a tool of education

- Invention of printing

- Development of electronics and behavioural science

Meaning of Educational Technology

- educational technology is that behavioural technology which presents the art of teaching in a new fashion.

- educational technology is that dynamic, progressive and important mechanism in the field of education which modifies and analysis the various steps of teaching and learning with

the help of principles and laws of modern psychology, sociology, engineering mathematics and other social and physical sciences.

- It also develops educational efficiency by formulating and remodeling according to the needs.
- Also, it plays its important role not only in the class rooms but also in the entire school environment.

Definitions of Educational Technologies

- G.O. Leith - 'Educational Technology is the application of scientific knowledge and learning and the conditions of learning to improve the effectiveness and efficiency of teaching and training.'
- Robert A. Cox - "Educational Technology is the application of scientific process to man's learning conditions.'
- S.S. Kulkarni - "Educational Technology may be defined as the application of the laws as well as recent discoveries of Science *and* Technology to the process of education.'

Objectives of Educational Technology

- Modernise the teaching and learning methods and techniques according to the needs of the changing era for the unknown future.
- Make the class-room teaching easy, clear, interesting, effective, understandable, objective and scientific.
- The desirable modifications in the behaviours of the teachers and pupils by improving teaching, learning and evaluation.
- Improve the quality of learning and instruction
- National development through the technological development

Scope of Educational Technology

- The term 'Education' includes teaching, learning, instruction and training, similarly the scope of educational technology is also much wider

■ general working-areas of educational technology

- Curriculum Construction
- Selection of Teaching-Learning Strategies
- Selection of Audio-Visual Material
- Determination of Educational Objectives
- Area of Teachers Training
- Area of Feedback
- Area of the Hardwares

■ The below mentioned technologies are included in it

■ (1) Behavioural Technology

- use of psychological principles in learning & teaching so that the behaviour of the teachers & pupils may be modified in accordance with the teaching objectives.

■ (2) Instructional Technology

- In instructional technology, the presentation of the contents is described in or out of the class

■ (3) Teaching Technology

- **Teaching is an art Teaching technology makes this art more easy, precise, practical & objective by using scientific principles.**

■ (4) Instructional Design

- The composite form of pupils' behaviour, the teaching situations, working tools and new approaches.

■ (5) Training Psychology

- Training psychology emphasizes that the whole training task should be divided into 3 parts. These parts are - (i) Preparing outline of the task, (ii) Task - analysis, and (iii) Putting the task - elements in such a sequence that the desired objectives are achieved.

■ (6) System Analysis

- A system is the sum total of parts working independently and working together to achieve the required results or outcomes based on needs.
- A system has three components - (i) Purpose, (ii) Process and (iii) Content
- system is a problem-solving process in which the needs of the management are diagnosed and lastly by using an appropriate method for solving the problem

■ (7) Cybernetic Psychology

- a part of training psychology. Its reason is that this training is more close to the research.
- Cybernetic Psychology accepts human being as a machine.
- every human being uses the process of cybernetic through his senses to control and modify his behaviour.
- Hence, cybernetic psychology emphasizes the fact that all the methods of feedback bring about the desired changes by controlling the behaviours of the pupils considering the dynamic feedback and self-regulation as its goal.
- In short, this method is considered more important for self-learning.
- Programmed instruction is its most appropriate example
- the result of the individual behaviour works as feedback or cybernetic for him and controls his future behaviours.

Hardware approach

- The use of engineering machines in teaching is called Educational Technology-1
- physical science and engineering technology have given birth to Educational Technology-1
- Preservation, transmission and development of knowledge
- We are using different machines
- It started from olden printing machines to new virtual technology
- This mechanisation in the field of education is termed as hardware approach

Software Approach

- Educational Technology-2 or instructional technology

- Psychological principles of teaching and learning
- Teaching objectives in behavioural terms
- Principles of teaching, Method of teaching, feed back and evaluation
- Te content or principles which the machines (hardware)make active

Differences between Educational Technology and Instructional Technology.

- Instructional technology is one among the many divisions of educational technology
- Instruction means - communication of information
- presentation of the contents is described in or out of the class
- Stress on the development of cognitive domain
- Teacher act as both transmitter and helper
- Self study and correspondence modes are available
- Programmed learning, online mode etc.
- Educational technology is the general term

ET for Teaching

- Supporting strategy for teacher in interactive phase of teaching
- The concept of teaching aid
- Reduce the work load of the teacher
- Provide various resources for teaching
- Make planning more easy
- Help teacher in evaluating the student

ET for Learning

- Learning become so simple and effective

- ET acts as a tutor to the students
- Teacher free classrooms are possible if needed
- Better understanding to the students
- Online mode of learning
- Sharing of learning content to others
- Self learning programmas

ET for Evaluation

- Technology enabled evaluation
- More scope for formative evaluation
- Quick verification of results
- Detailed analysis of the result
- Objectivity in evaluation

Conclusions

- The basis of educational technology is science
- Educational Technology studies the effect of science and technology upon education
- New conceptions are possible only due to educational technology such as programmed learning, micro-teaching, simulated teaching etc.
- Educational Technology accepts school as a system
- Engineering Technology is not the educational technology, it is accepted as hardware approach only.
- Audio-visual aids cannot be termed as educational technology, it can be put in the category of Educational Technology.
- Educational Technology cannot solve each & every problem of education. It can be used

successfully in teaching & instructional system only.

- Educational Technology can never replace the teacher.
- It is because of three aspects of educational technology. These are - (1) Input, (2) Process & (3) Output.
- Input is the teacher's job and therefore, educational technology cannot snatch the place of a teacher.
- In spite of this, educational technology develops cognitive domain only & not the affective domain.
- Affective domain can only be developed when an interaction between teachers and pupils takes place