

TECHNOLOGY OF EDUCATION AND TECHNOLOGY IN EDUCATION

Introduction

The term technology in education is a service concept like technology in the service of agriculture of farmers or science in the service of mankind. It refers to the use of equipment and machines for educational purposes. It involves the use of a wide range of audio- visual equipments, hardware and sophisticated electronic devices like films, projectors, radio, television, tape recorder, teaching machines and computers etc.

Educational technology as explained earlier is a wider term than technology in education. It includes hardware approach, software approach and systems approach.

Educational Technology is broadly classified into the following two heads:

1. Technology of Education.
2. Technology in Education.

1. Technology of Education

It is inherent in education itself. It refers to the application of behavioural sciences like psychology of educational theories and practical teaching – learning problems, instruction and motivation etc. It is concerned with the study of educational problems and the techniques to be used in solving the teaching-learning problems so that best results should be achieved. Broadly speaking, technologies of planning, financing and administration are also

covered under the concept of technology of education. Techniques of curriculum planning, transacting and evaluating also come under technology of education. In technology of education, we use derived from psychology of learning.

In general, following techniques are included in technology of education:

1. Analysis of instructional problems.
2. Selection of instruments for evaluation
3. Selection of strategies to obtain desired result from the teaching-learning process.
4. Teacher behavior.
5. Programmed learning.
6. System analysis.

2. Technology in Education

Broadly speaking, technology in education implies the use of implements, tools and machines in education in the same manner as we use these for the development of agriculture and gardening and industry and in fact our everyday life to reap the fruit of scientific and technological developments. Under technology in education we include electronic media projector, film, radio, T.V, teaching machine, computer and internet etc.

Technology in education refers to the application of engineering principles and technology in the process of education. Basically it is called hardware technology.

Silverman (1968) called this type of educational technology as 'Relative Technology' and technology of education as 'Constructive Educational Technology'.

Differences between Technology of Education and Technology in Education

Areas	Technology of education	Technology in education
1. Basis	It is based on child psychology (age, ability and mental level).	It is based on the principles of physical sciences or engineering sciences.
2. Approach	Its approach is identified as software approach.	Its approach is identified as hardware approach.
3. Origin	Its origin lies in the application of behavioral sciences to the problems.	Its origin lies in the application of physical sciences or engineering to education.
4. Examples	Text books, work books, news paper etc.	TV, Radio, Slide Projector, Computer, OHP etc.
5. Relation	It is related to learning aids.	It is related to teaching aids.

6. Requirement	The use of this approach does not require skilled personnel as in hardware technology.	Skilled personnel in hardware technology are needed.
7. Flexibility	This approach is very flexible	This approach is relatively rigid.
8. Type	It is called constructive educational technology	It is called relative technology
9. contribution to educational system	This approach is very helpful in understanding the need of the learners and educating them accordingly.	It is useful in mass education programmes.
10. Cost	It is less costly.	It is expensive.

NEED AND IMPORTANCE OF EDUCATIONAL TECHNOLOGY

Use of ET is needed in the process of education because of following reasons.

1. Population Explosion

- Populations of Asian countries are increasing at a very fast speed and we cannot educate all these people just by using teachers in the class.
- Modern media of communication like TV, Internet and CDs etc. can impart education to millions of people together in one setting.

2. Fast Generation of New knowledge

- New knowledge is expanding at a very fast speed.
- It is almost doubling in just 3 years.
- A teacher is not supposed to impart this huge amount of knowledge by tutorial or classroom teaching.
- ET can perform this function very easily.

3. Development of new strategies

- It is the ET that has helped to develop new strategies in the field of education like,
 1. Microteaching (inculcation of teaching skills among teachers),
 2. Programmed instruction (Preparation of instructional materials in written or CAI forms for individualized learning).
 3. Instructional analysis (analysis of teaching materials into convenient parts to be presented to students one by one) and use of hardware technology in education etc.

4. **Controlled Atmosphere**

- Education cannot be treated as plaything by some teachers after the introduction of ET.
- It has made the whole process of teaching objective, clear, scientific and interesting.
- The teacher controls the classroom environment in his own favour but his performance is evaluated simultaneously by applying tests.

5. **Importance of Teacher's role**

- It emphasizes theories & Principles of teaching more than those of learning.
- Thus, it has removed many of the defects of ET and has raised the significance & relevance of a teacher in the class.

6. **Mass extension of Model teaching**

- The facilities of radio television and interest are now available on a large scale.
- By demonstrating the effective teaching of renowned teachers on these media we can benefit millions of students together.
- Even the less effective and less skilled teachers can take the benefit of these demonstrations & improve their teaching.

7. **Advantages to private students**

- Many universities have given permission to students for private examinations, even in higher education.
- These students do not attend classes
- In order to maintain standard of education in higher education, the use of ET becomes a necessity.

8. **Beneficial for teacher training colleges**

- Even teacher training colleges cannot produce good teachers without the use of ET.
- It is because; this branch of education puts emphasis on the modification of teacher's behavior.

(E.g.) we can develop teaching skills in student with the help of micro-teaching techniques.

9. **Improvement of school Administration**

- ET helps us to analyze the problems of school administration scientifically leading to improvement in the system.
- This is done by applying various combinations of inputs or adopting the procedure followed by the other school systems.

10. **Preservation of knowledge**

- By using hardware technology, we can preserve knowledge in audio and video cassettes, CDs & floppy disks (Pen drive)

11. **Development of teaching models**

- When a definite combination of inputs and strategies gives good result repeatedly in a number of class room situations.
- It can be translated into teaching models to be used universally.
- It can be also lead to the development of teaching theories.

12. **Creation of Interesting learning situations**

- ET can transform the teaching-learning process from burden to enjoy which, psychologically very sound for students.

(e.g.) use of material aids in teaching increases the interest of students.

UTILITY / USE OF EDUCATIONAL TECHNOLOGY FOR TEACHERS

1. It has provided scientific and systematic approach to teachers to conduct action research in the classroom situations to overcome the classroom problems related to classroom environment, content, curriculum etc.
2. It helps the teacher to modernize and mechanize the teaching-learning process. It also helps the learners to study at their own speed/rate with the help of programmed instruction on video or computers.
3. ET supplements the teacher, with AV-aids to make the teaching-learning process more effective.
4. It helps in teacher's professional growth.
5. Add to their teaching competence, modify their teaching behaviour and style, inculcate a scientific outlook, approach & attitude and help them transfer these to their learners.
6. ET supplements teacher in their instructional programmes through the structured lessons for remedial, enrichment or drill purposes.
7. The learners get the training of self instruction and teachers are relieved of the burden of routine repetition for exercise & revision purposes.

FORMS OF EDUCATIONAL TECHNOLOGY

The various forms of ET are as follows,

- I. Teaching Technology
- II. Instructional Technology
- III. Behavioral Technology