# Meaning & Nature of Educational Technology (1)

*In this Introductory lesson on Educational Technology you will find Definitions, Meaning and Nature of Educational Technology.*

## Introduction

Man is a highly enterprising being. He is always on the look out for inventing new innovations in all walks of life. Human life has improved tremendously as a result of the growth in science and technology. Education is a social institution that has also been influenced by technological developments. The impact of technology on education has been so profound that a new branch in the field of education called 'Educational Technology' has been developed.
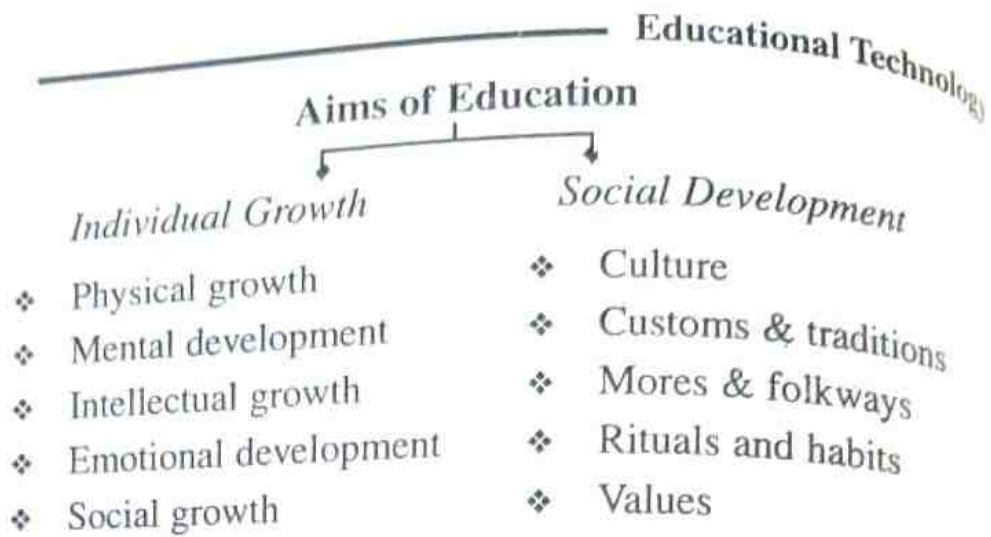
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### Objectives of the Lesson

*After completion of this lesson you would be able to :*

i)   define educational technology.

ii)  *describe nature of educational technology.*

iii) *distinguish between technology of education and technology in education.*

iv)  *understand the concept - educational technology.*

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## Education and Development of Educational Technology

Dewey says "Education is the development of all those capacities in the individual which will enable him to control his environment and fulfil his responsibilities. " Gandhiji opined that education is the all-around drawing out of the best in the child and man - body, mind and spirit. The all-around development includes the child's i) individual growth and ii) social development.

## Aims of Education

| Individual Growth | Social Development |
|---|---|
| ❖ Physical growth | ❖ Culture |
| ❖ Mental development | ❖ Customs & traditions |
| ❖ Intellectual growth | ❖ Mores & folkways |
| ❖ Emotional development | ❖ Rituals and habits |
| ❖ Social growth | ❖ Values |

Education is a tripolar process involving :

a) transmission / imparting of knowledge,

b) development of skills,

c) inculcation of proper interests, attitudes, values and life coping skills.

Education involves the teaching - learning process wherein the paradigm shift has been from teaching to learning. In older days the teacher was the kingpin who decided the various facets of teaching and the only method used was oral communication. The world of today is experiencing two explosions viz. population explosion and knowledge explosion. These explosions have had a tremendous influence on education and the associated problems have been solved using educational technology.

Eric Ashby has identified four revolutions in education. They are :

• The first revolution occurred when societies began to differentiate adult roles and there was shift in roles in the process of education from parents to teachers and from home to school.

• The second was the adoption of the 'written word' as a tool of education. Prior to that, only oral instruction prevailed and with great reluctance writing was permitted to coexist with the spoken word in the classroom.

• The third revolution came with the invention of primary and the subsequent widespread availability of books.

- The fourth revolution in the field of education was brought about by the development in electronics, notably those involving radio, television, tape - recorder, computers etc. To the electronics world of education, the behavioural scientists also added their concepts of teaching - learning process creating the new world of educational technology.

## Definition and Meaning of Educational Technology

Education technology is made up of two words.

- Education : It has been derived from Latin words *educare, educere, educo* etc. meaning 'to train', 'to instruct', 'to put', 'to draw out' or 'lead forth'. Thus education is an act or process of acquiring and imparting knowledge, skills and attitudes.

- Technology : It refers to the techniques as well as technical contrivances. It is a science of techniques and methods of doing or getting things done, related to any art, science, or particular profession. Technology thus results in new designs and devices as also new ideas and processes.

- Educational technology is just not the sum of the two words. Earlier developments referred to the role of technology in education which signifies the use of audiovisual equipment. Later developments recognised the concept of technology of education i.e., techniques and methodologies of the teaching learning process. Thus educational technology accepts into its fold both technology of education and technology in education.

## 1.1 Definitions of Educational Technology

- The NCERT defines educational technology as the means of development, application and evaluation of three different things : i) techniques, ii) system and iii) aids to improve the process of human learning.

- The International Commission on the Development of Education defined educational technology as, the intellectual and operational efforts to rearrange, to regroup or to systematize applications of scientific methods for the organisation of (scientific method) equipment and material to optimise the learning process.

According to UNESCO specialists, educational technology is a communication process resulting from application of scientific

method to the behavioural science of teaching and learning. The communication may or may not require the use of media such as radio, films, television broadcasts, cassettes etc.

The main components of this communication process are :

- Goals of behavioural objectives.
- Analysis of the characteristics of the learner.
- Selection and organisation of content.
- Selection of media.
- Evaluation and
- Feedback.

- The Association for Education Communications Technology has defined educational technology as a complex, integrated process involving people, procedure, ideas, devices and organisation, for analysing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of human learning. In educational technology, the solutions to problems take the form of all learning resources that are designed and / or selected and / or utilised to bring about learning. These resources are identified as messages, people, materials, devices, techniques and settings. The process for analysing problems and devising, implementing and evaluating solutions are identified by the educational development functions of research - theory, design, production, evaluation, selection, logistics, utilisation and dissemination. The processes of directing or coordinating one or more of these functions are identified by the educational management functions of organisation management and personal management.

- Thomas Reeves defines educational technology as "using technology as tools to support teaching and learning - learning from, with and about media and technology."

- The Educational Technology department of the San Diego State University defines educational technology with focus on the emerging technologies and behaviour / learning theories as Educational Technology is the application of research, learning theory, emergent technologies, and child and adult psychology to solve instructional and performance problems.

- S. S. Kulkarni defines educational technology as the application of the laws as well as recent discoveries of science and technology to the process of education.

- In the opinion of B. P. Lulla, educational technology is the application of scientific methods and techniques to education.

- Robert Glaser describes the process of educational technology as comprising the following components :

* Different students learn in different ways and at different rates.

* Different kinds of skills, abilities, knowledge and understanding are required in different ways.

* The various elements of instruction themselves have different learning characteristics.

* The elements in the learning process should not be considered apart from each other as each has some bearing on education.

* As far as possible, any learning system should be self corrective, which means it should have some in - built arrangement of evaluation and feedback which can be used to improve it.

D. Unwin says educational technology is concerned with the application of modern skills and techniques to requirements of education and training. This includes the facilitation of learning by manipulation of media and methods and control of environment in so far as this reflects on learning.

Collier very clearly describes what is educational technology. He says educational technology is not about audiovisual aids. Educational technology he says is not electronic gadgeting or television. Educational technology, he opines, is as wide as education itself, it is concerned with the design and evaluation of curriculum and learning experiences and with the problem of implementing and renovating them. He concludes that it is essentially a rational problem-solving approach to education, a way of thinking sequentially and systematically about teaching and learning.

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## 1.2. Nature of Educational Technology

The movement towards educational technology began to develop after World War II. Initially the term meant using audiovisual communications media. However, the field of educational technology began to focus on the development of teaching and learning procedures borrowed from behavioural psychology. Today, the field also incorporates cognitive psychology, social psychology, psychometrics, perception psychology and management.
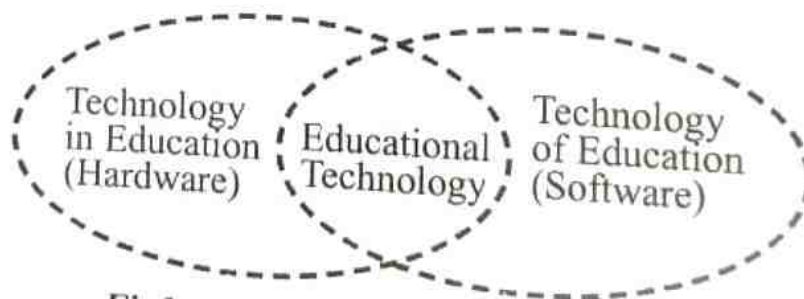
Educational technology has under its purview the following aspects :

i) Design of instruction.

ii) Production of instructional products and services.

iii) Management of instruction.

iv) Evaluation of instruction.

Educational technology reforms education by contributing to :

i) student learning through involvement with challenging tasks.

ii) professionalisation of teachers.

iii) creation of a culture that supports learning both in the classroom and beyond it.

iv) redefining of the roles of teachers and learners.

Educational technology is often considered to be the intermix of two aspects - technology of education and technology in education.



**Fig1 : Aspects of Educational Technology**

Technology in education is the application of technology to any process of the educational enterprise. It refers to the use of the technological advancement in terms of various equipment, materials
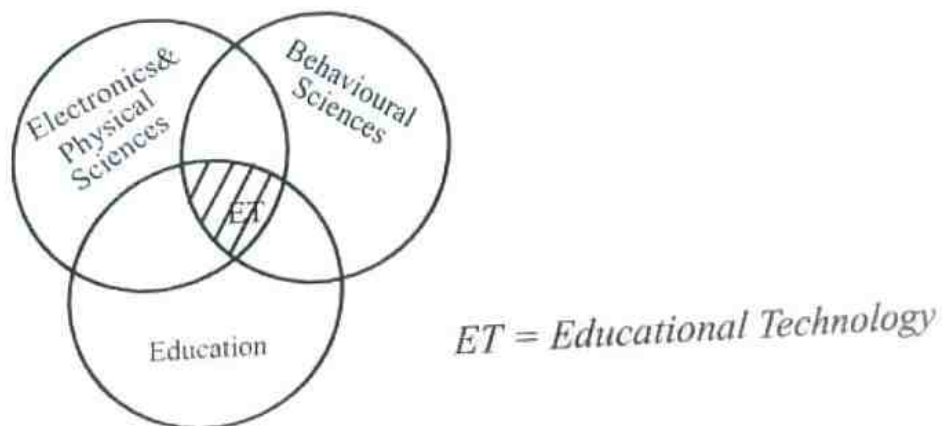
and machines for educational purposes. It involves the increasingly complex range of audiovisual equipment, hardware and sophisticated electronic devices like projectors, films, radio, television, tape recorder, teaching machines, teletext, computers, projectors (OHP, LCD) for individualised and group learning.

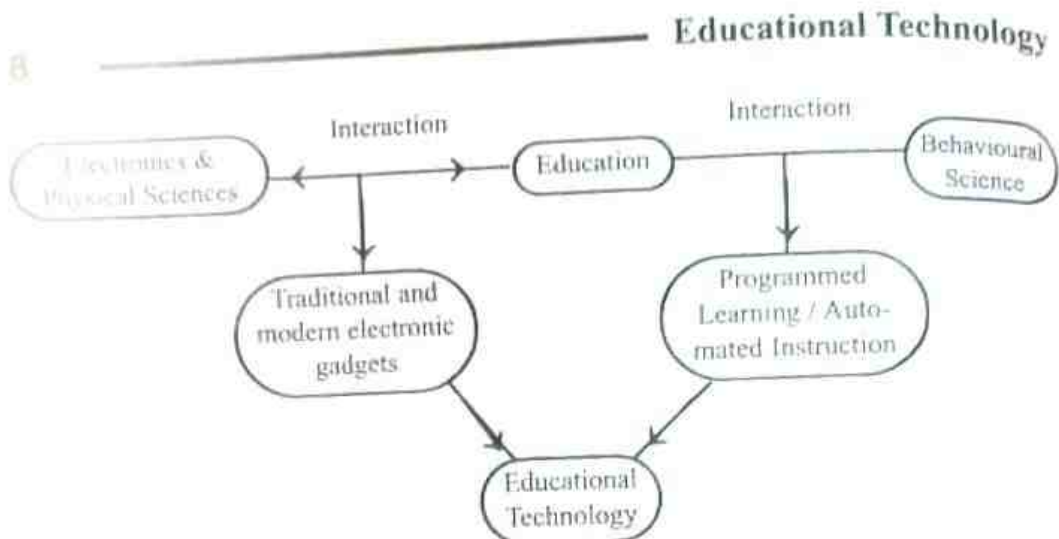Thus technology in education serves following purposes :

i) It provides the needed appliances, equipment, mass media for realisation of different purposes and functions of education.

ii) Enables training the teachers to handle and make optimum use of equipment.

iii) To develop a positive attitude towards these appliances.

iv) For demonstrating the relevance and use of the appliances in the context of individualised and group learning for achieving the goals of formal and informal education.

Teaching of education symbolises a technological approach to education. It is the application of psychology of learning theories, principles of instruction, curriculum and learning to the process of education. In this the educationists are involved in the design and evaluation of systems of learning involving an understanding of the psychology of learning and of communication and information theory to be used to establish a rationale for good teaching. It enables a teacher to use a variety of media and modes to make his teaching effective.

Educational technology as both technology of education and technology in education is represented diagramatically as shown below :



ET = Educational Technology

*Fig2 : Diagrammatic Representation of Educational Technology*

*Fig3 : Components of Educational Technology*

Thus, from the above definitions Educational Technology can be summarised as:

- Educational technology (ET) is a fast developing discipline in the field of education.
- ET is influenced by advancements in the field of behavioural sciences, physical sciences, electronics etc.
- ET is a science of design, development and application of audio visual equipment to the field of education.
- ET endeavours to locate problems in education and provides remedies and solutions to mitigate them.
- ET is essentially a practical discipline rather than a theoretical construct.
- ET is an application science wherein the researches and findings of diverse social science fields like psychology, sociology, behavioural sciences, engineering, physical science are applied to the field of education.
- ET gels together technical means, students, teachers and their psychological aspects.
- ET helps in the overall development of the education process.
- ET includes in its purview instructional technology, teaching technology, programmed learning, microteaching, system approach, informatics, computer aided learning / instruction, computer managed learning, simulation, evaluation models etc.
- ET stresses on organisation of teaching - learning situations for the effective realisation of goals and objectives formed.

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