Department of Education, West Bengal State University
Semester – III, Educational Technology, Unit – I (iv) Advantages and Limitation of ET

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Introduction

Today, more than ever, the role of educational technology in teaching is of great importance because of the use of information and communication technologies. The integration of information technology in teaching is a central matter in ensuring quality in the educational system. It encourages more communication between teachers and parents. In the field of education, educational technology has also emphasized on feedback for evaluation. 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 discipline, so it has both advantages and limitation.

Educational Technology is system in education in which machines, materials, media, men and methods are interrelated and work together for the fulfilment of specific educational objectives. According to Leith, ET is the application of scientific knowledge about learning and conditions of learning to improve the effectiveness and efficiency of teaching and learning. In the absence of scientifically established principles, ET implements techniques of empirical testing to improve learning.

Advantages of Educational Technology

Recent times have witnessed the development of ET as an important area of education in India. ET has contributed a lot for the improvement of formal as well as non-formal streams of education such as in setting up the goals and objectives of education, helping in the development of proper curriculum, helping in the proper management and utilization of available resources, production and development of teaching–learning material, development and selection of teaching–learning strategies and tactics, development, selection and use of the appropriate audio-visual aids and provision of essential feedback and control through evaluation.

The utility of educational technology is increasing day-by-day. Every country in the world is adopting it. It is a growing or developing discipline and primarily includes teaching technology, behavioural technology, training technology, cybernetics, systems approach and instructional technology. The advantages of Educational technology can be explained easily in the following ways -

Multimedia Approach to Education/Multi–Sensory Approach in Education: By the application of information and communication technology, ET has developed multi-sensory approach in education. This approach involves a judicious mix of a variety of mass media components such print, graphics, animation, audio and video, etc. into a single synergistic learning package. It designs the content in a way that allows the delivery to be non-linear, integrated and interactive. Multimedia consists of applications that use multiple modalities including text, images, graphics, audio, video and interactivity. Each of these modalities has its advantages and multimedia uses these advantages for the benefit of the application. These

multiple modalities (text, images, graphics, audio, and video) are used in many different ways in education. Researchers have found that more information is taken in if it is received simultaneously in two modalities (vision and hearing, for example) rather than in a single modality. By the use of multi-media approach in teaching and learning, ET can develop higher cognition among children.

❖ **Access to Variety of Learning Resources:** In the era of technology, ET aids plenty of resources to enhance the teaching skills and learning ability. With the help of ET now it is easy to provide audio visual education. The learning resources are being widely used. Now ET encourages both teachers and learners to make use of the new multimedia technologies to communicate contents in curriculum.

❖ **Autonomy in Learning:** With the application of educational technology, students can independently progress in mastering teaching materials, to choose the pace of learning, to repeat the material that is not sufficiently clear, that after tests performed immediately get results and track their progress. Interactive, multimedia content provides a great advantage of modern learning over traditional learning. With the application of educational technology we get feedback between the teacher and the student.

❖ **Increasing the Effectiveness on Teaching-Learning Process**: Educational Technology helps to produce desired improvement in teaching-learning process by developing to the fullest the cognitive, affective and psychomotor aspect of the pupil.

❖ **Maximising the Output**: Educational technology has maximised the learning facilities. It is because it uses the principles indoctrinated by Psychology, Sociology, Mathematics, Engineering and other social and scientific subjects. Their input maximises their output in the form of their competency by this technology. Thus ET can control outcomes of education by controlling media, materials and environment.

❖ **Optimum Use of Resources**: The developing countries possess very limited resources. They lack experts, machinery or tools, school building, stationary and time. Educational technology emphasizes the maximum use of available resources in the learning situations, which may benefit all the pupil of the nation from those limited resources which are available for teaching work. We make it clear to the readers that the teaching technology has developed the techniques like radio and television with which appreciable assistance has been sought for the expansion of mass education.

❖ **Selection of Teaching-Learning Strategies:** The selection of teaching-learning strategies turns easy with the help of educational technology. Teacher can select easily the audio-visual aids with its assistance.

❖ **Areas of Teachers' Training:** The new innovations in educational technology can be used successfully in teachers' training and it is actually being done, such as micro-teaching, simulated teaching, system approach, class-room interaction and teaching models etc.

❖ **Area of the Hardware:** One form of educational technology is considered as Hardware Devices such as teaching machines, tape-recorder, television, computer and satellite etc. The learning in the classroom can be made effective with their use.

- ❖ **Application of Systems Approach in Education:** Educational Technology is advantageous in solving educational problems through systems approach. System Analysis is a problem solving process in which the needs of the management are diagnosed and by using an appropriate method for solving the problem, evaluation is carried out. ET involves input, process and output aspects of education. Thus it can also control outcomes of education by using feedback mechanism.

- ❖ **Developing Instructional Objectives and Techniques:** ET can be applied in developing instructional objectives and techniques with the help of psychological researchers.

- ❖ **Population Explosion:** Population 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 television, internet and CDs can impart education to millions of people together in one setting.

- ❖ **Development of new strategies:** It is the educational technology that has helped to develop new strategies in the field of education like microteaching (inculcation of teaching skills among teachers), programmed instruction (preparation of instructional materials in written or computer-assisted instructions forms for individualized learning), instructional analysis (analysis of teaching materials into convenient parts to be presented to students one by one) and use of hardware technology in education.

- ❖ **Creation of interesting learning situations:** Educational technology can transform the teaching–learning process from burden to enjoy which is psychologically very sound for students, e.g., use of material aids in teaching increases the interests of students.

- ❖ **Improvement of school administration:** Educational technology helps us to analyse the problems of school administration scientifically which leads to the improvement in the system. This is done by applying various combinations of inputs or adopting the procedures followed by the other school systems.

- ❖ **Life-long Education:** In future an individual shall have to go on learning throughout his/her life. Thus, ET shall have a greater role to play with all its innovations. Technology mediated education and training are benefiting to not only those pre-service but also those who are in-service and also those not in-service. Apart from the formal and non-formal learning opportunities, technology as mentioned earlier greatly helps informal learning. For instance, radio and television programmes and especially the Internet are used for informal learning.

- ❖ **Distance Education**: ET has a great scope in distance education and open school programme. Today there is a great need of technologies that can serve this purpose. Technology is indispensable for delivering instructions at a distance. It is because of technology that distance education is getting popular. It takes education to the unreached and aids self-learning. It also caters to huge number of learners simultaneously. For instance, the same -radio/I'V programmes can provide instructions to a huge number of learners. Thus it helps in educating the masses and that too in a cost .effective manner. Virtual educational institutions with online registration, education, evaluation and even certification are common today. You would agree that cross border deliv.ery of educational services is thus a product of revolution in ICT.

- ❖ **Research**: Information can be collected and shared for educational research. Further, technology can be used for analysis and reporting. With the facilities of the Internet, Web sites and IN FLIBNET, the researcher/learner can have access to a large amount of information while sitting at home.

- ❖ Thanks to ET, development of programmed instruction has given a birth of individualised learning. Thus it has extended to generate self learning materials and multimedia packages etc.

- ❖ ET also helps to create effective communication in classrooms and thus it helps to make teaching learning process effective. Actually ET encourages learning by controlling all the components involved in classroom communication process.

- ❖ ET is highly potential to change teachers' skills, attitudes and behaviours.

Limitation of Educational Technology

- ❖ **Raise instructional challenges:** Educational technology has changed the way students learn. For professors and teachers to stay abreast with the technology of education, they may need continuous sensitisation, orientation and training. Those who have been teaching all their lives using traditional methods may not be very accustomed with the changes in the domain of educational technology. They may even see it as a threat to their teaching profession and shun technology altogether. Due to lack of in-service training programmes, teachers lag in required knowledge, skills, competencies and how to use technology in teaching learning process.

- ❖ **Supportive Factors:** Inadequate hardware and software, non-availability of required quantity and quality of software, lack of up-gradation, lack of technical assistance etc are the major challenges of educational technology.

- ❖ **Lack of Proper Coordination of 5M:** Educational Technology is system in education in which machines, materials, media, men and methods are interrelated and work together for the fulfilment of specific educational objectives. These 5Ms are interrelated and working together for producing desired expectation. When coordination among them is hampered, the desired outcomes will be unattainable.

- ❖ **Teachers' Attitude (Resistance to Change)**

- ❖ **High Establishment Cost and Maintenance Cost**

- ❖ **Lack of Utility between Two Components of ET**

- ❖ **Lack of Optimum Uses of Resources**

Educational technology has its advantages and disadvantages, but the proper implementation might help keep the drawbacks to a minimum. Better planning is necessary. Hence, we find that ET has a very bright future in India as well as in the whole world and will help make teaching and learning more effective.