INTRODUCTION

Technology today is regarded as a vital aid to human existence. Therefore, if it is to be used with any degree of success, it must help to make people's life easier, more comfortable, safer and more satisfying. Any individual technology which is unable to realize at least some of these requirements is likely to fail if not technically or economically, then in its social acceptance. Technology has entered and enriched every area of human experience or walk of life and has made life comfortable, convenient and in fact worth living. It is high time that education has made the best use of technology to facilitate and accelerate realization of its objectives. Scientific discoveries and technological advancements have changed the pattern of life of nearly all human beings; only the extent of change differs from one society to another or for classes of people in society. Education is also forced to take note of technology. Education still needs to take full advantage of modern technologies. This paper attempts to conceptualize educational technology and educational technology inputs in the B.Ed syllabi of some universities in the state of Andhra Pradesh, India.

APPLICATION OF EDUCATIONAL TECHNOLOGY IN THE B.ED SYLLABI IN SOME UNIVERSITIES IN ANDHRA PRADESH

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ABSTRACT

Technology has entered and enriched every area of human experience or walk of life and has made life comfortable, convenient and in fact worth living. It is high time that education made the best use of technology to facilitate and accelerate realization of its objectives. Scientific discoveries and technological advancements have changed the pattern of life of nearly all human beings; only the extent of change differs from one society to another or for classes of people in society. Education is also forced to take note of technology. Education still needs to take full advantage of modern technologies. This paper attempts to conceptualize educational technology and educational technology inputs in the B.Ed syllabi of some universities in the state of Andhra Pradesh, India.

INTRODUCTION

"A technology has been described as the applications of science to the needs of man and society" (Ashby, 1963). It has distinct overcomes of mechanical approach to teaching and learning and as a result as thought by many, to refer solely to the use of mechanical or electronic aids in an educational on text. This is not of course, the whole picture, but in fact, a very small part of it. Resources and materials are important. Aspects of this approach to education. Taken in this context, an educational technology may be said to deal with the application of the many fields of science to the educational needs of the individual and of society as a whole. Scientific discoveries and technological advancements have changed the pattern of life of nearly all human beings; only the extent of change differs from one society to another or for classes of people in society. Technology has helped to improve the quality and pace of activity as well as production in most aspects of human endeavour.

Education is also forced to take note of technology. Education still needs to take full advantage of modern technologies. Modern formal education becomes a reality for the common man with the adoption of the most important of all technologies, namely, print, but it has been slow to adopt the other technologies. The current virtually, proprietary control of text book teacher has been resistant to this change. But

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education cannot ignore changes in the environment; it cannot but respond to them, albeit slowly.

**Technological Approach**

The technological approach is not merely a matter of teachers finding new ways to sugar the pill of learning, although happily in some cases, this may be one of the side effects. It is becoming more a question of whether there will or indeed should be a pill effect at all. The "worthwhile activities" believed by some who characterize education to become worthwhile for the individuals when they themselves may choose to some degree such activities according to the relevance of these to their own lives and interests (Peters, 1966).

The more scientific approach embodied in an educational technology would be in not assuming any one method to be suitable for all areas of the curriculum or indeed, for all pupils at are level. To as large a degree as possible, teaching / learning situations would be examined according to the technological principles. In the course of this, the careful consideration given both to pupils and what is to be taught would result to some extent at least in a learning situation suited to their particular interests and capabilities. Most important, it allows the optimal learning periods considered so vital to be more readily identified. When the teacher deals with individuals and small groups as units rather than a whole class, much of the necessary concerns for the individuality, both from the social point of view and that of the learning process, can be satisfied. A teacher who is aware of having made a careful and informed selection of resources to accomplish carefully defined objectives can do this with some confidence.

**Need for Technology**

Apart from an increasing concern for quality the reasons that have given rise to this more scientific approach to education are basically those of quantity. The explosions' - knowledge, pupils, and recourses - are all well known. They have led to a search for some means of bringing order to what threatens to become a chaotic state of affairs so far as the education is concerned. With the application of a scientific approach to learning and teaching, it becomes possible to provide circumstances which enable the world of teachers to become considerably more effective. An intelligent application of such an approach is necessary because of their bewildering and ever increasing quantity of resources and materials of all kinds that teachers can call upon to aid in their work. The need for such a technology arises from a concern for the quality as well as the quantity of information and resources which now crowded the educational scene.

**Curriculum and Technology**

Clearly the adjustment and choice exercised by teachers will be with the reference to the curriculum more than any other professional area. The curriculum has altered in definition a great deal in recent years and it is interesting to examine some current approaches to its descriptions to see where the emphasis now lies. A cross section of such approaches is presented in a book entitled changing the curriculum' edited by Professor J.F. Kerr (1971). In this publication, the curriculum is examined by representatives of various disciplines all concerned in some way with education.

Perhaps the encompassing view of Professor J.F. Kerr would be a generally acceptable one. He states his definition of the curriculum as all the learning which is planned and guided by the school, whether it is carried on in groups or individually, inside or outside the school.

In the light of the above interpretations, the fact emerges clearly that the curriculum must change and exist in a state of constant flux to fulfil its purpose of selecting and organizing, or planning and guiding, the learning for any group of individuals. Ideally, at any given moment it would represent what is best in the old and the new in education, both in learning and teaching, and in the objectives these processes set out to achieve. Where the old is concerned, what has been tried is no longer assumed to be true and for this reason tradition must be revalidated, (Ford, 1969). Obviously, some subjects and methods will survive this process of re validation but others will not. Those that do will combine with what is selected from the current knowledge to produce a contemporary curriculum that will be relevant and meaningful for the pupils.

A modern curriculum must satisfy the understandable desire for meaningfulness and at the same time provide pupils with educational experience that will be of some practical use when they go on to higher learning and when they have to make their own way in the world. In doing this, there are more areas of knowledge from which to select, more categories within these areas, more means of presenting them and finally more pupils involved.

The concept of curriculum comprises four major components namely, (a) objectives defined in terms of expected learning outcomes, (b) content, (c) learning experiences (teaching and learning strategies) and (d) tools and techniques of evaluation. It is only for convenience that the concept has been defined as four separate components and it needs to be emphasized that curriculum must be conceived as a totality or sum total of experiences provided for the optimum growth and development of the potential endowed to an individual. A curriculum design, therefore, defines the scope of development in observable and measurable terms, indicates the content and teaching-learning strategies required for development and spells out modes, procedures, tools and techniques for assessing the development attained. Thus it can be seen that these four are the inseparable parts of a single concept.

The similarity between the process of an educational technology and approach adopted in curriculum development work is due to the fact that the latter involves the application of the principles of this technology to particular areas of the curriculum. The development of the curriculum depends upon this technological approach as well as upon all the resources that educational technology has to offer. The difference lies in the fact that the technology lays most stress on the most efficient use of the resources available in order to improve the quality of the learning process and to economize on the use of skilled manpower (NCET, 1969).

**Objectives in the Curriculum**

A precise statement of objectives is probably the most difficult part of implementing a developmental approach to the curriculum. However, it is also the most important since it is the aspect of the process which brings more precision to what
follows and to the eventual educational outcomes. It is also too easy to teach pupils year after year without asking 'why?'. When the question is asked the answer often throws considerable light on how wide of the mark, one is in achieving what is intended at the outset what often emerges is that there is nothing solid upon which to base reasons for adopting the methods and materials selected apart from common sense and experience, important though these are. Hirst (1971) points out that there is a great danger in confusing methods with objectives. He calls it a simple logical nonsense 'to pretend, for example, that any activities form a useful part of curriculum if they are not begun with specific objectives in mind.

It seems obvious that there must be some skills and knowledge that cannot be learned either by problem solving, or by directed discovery or by any other single method. The starting point is to decide precisely what aims and objectives are to be achieved. Content and method will follow.

**Educational Technology**

The primary function of educational technology is improving the efficiency of the process of learning. It implies a technology of education interpretation of the role of educational technology, involving a cyclical, systems approach to the design of teaching / learning situations and use of whatever methods and techniques which are judged to be appropriate in order to achieve one's desired objectives. It is also important to note that the strong emphasis on testing and evaluation is implicit in each of the definitions.

Educational Technology via the systems approach to course and curriculum design, should, therefore, be flexible enough to react to new knowledge about the process of human learning and also to new developments in teaching / learning approaches and methods. In short, Educational Technology has the following characteristics:

1. It involves input, process and output aspects of education.
2. It stresses upon developing methods and techniques for effective learning.
3. It is an application of scientific knowledge to education and training.
4. It includes the organisation of learning conditions for realizing goals of education.
5. It emphasizes designing and measuring instruments for testing learning outcomes.
6. It facilitates learning by controlling environment, media and methods.

**Primitive Stage of Educational Technology**

Educational Technology came into existence as an occupational category during the 1960s. Prior to that time, people were engaged in jobs and activities which are now regarded as pertaining to educational technology, without being labelled as educational technologists, and to some extent the situation persisted in the early 1980s. Entrants to educational technology during the 1960s usually came by one of two routes: audio-visual education or programmed learning. Each was associated with a number of possible conceptual frameworks, which practitioners adopted according to the nature of their job, their training and their personal preference. However, while programmed learning could be viewed as theory driven in its initial stages, audio-visual education found it difficult to formulate any theoretical basis or practices. In contrast, audio-visual educators could easily link their expertise to the accumulated professional experience of classroom teachers while programmed learning specialists tend to criticize teachers with a detachment that did little to promote mutual understanding.

**Education and Human Communication**

Education, by any definition, depends on human communication. Many forms of human communication are enhanced by new information technology which can increase the fidelity with which messages can be transmitted and the variety and amount of information in these messages. Fidelity improves as noise is reduced.

Variety increases as ways are found to transmit more of the full range of messages sent by humans, including complex messages made up of many bits 'of information. Human (and machine) communication is by means of signals. A set of signals makes up a message. Messages are transmitted through one or more channels or media. Messages are encoded by the transmitter and decoded by the receiver. All messages are shaped ‘by the codes used. These codes are usually chosen by the transmitter, affected by noise and media used, and decoded by the receiver. If the receiver is human, decoding always occurs against a context, this may even occur when the receiver is a machine.

People communicate through, for example, auditory, visual and tactile channels. In the auditory channel, individuals send and receive sets of sounds that make up messages: these sounds may be verbal, musical, shouts of laughter, cries of pain, and so on. Technology extends senses and breaks the bounds of time and space for people. Some signals received with the technology help the people when they listen to radio.

Effectiveness in communication comprises four factors - information, expression, impression and response. Without content, communication is sterile; it has to be informative. From the stock of abstracted information, one should take it out in concrete signals; it is essentially expressive. Being a human endeavour, the presentation of facts has to attract and retain the participants in the interpersonal process of communication; unless it is impressive, there cannot be any co-operation. By definition it is a two way activity and hence the roles are mutually changing throughout the action, naturally it is responsive enough.

Informative factors can be realized by means of careful selection of appropriate content, structural organization of selected information and clear explanation and practical illustration. Communication effectiveness is the central component of teacher effectiveness although every effective teacher has to have an intellectual excitability and an interpersonal relationship besides effective presentation to drive home the points decides to be included in the message communicated.

**Information**

The substantial rate of growth in the volume of recorded knowledge and information creates many problems for those who have to make provision for its storage. Similarly, decision makers and problem solvers who subsequently have to access
and use this information are also confronted with equally difficult problems as a result of the significant quantity of information that can be available to them. The rapid rate with which the human species generates information (within any particular universe of discourse) has often been referred to as the information explosion (Jackson, 1974, Barker, 1983).

It is very important to obtain faster means of dealing with information, with less change of breakdown. Higher speeds mean that much more information can be handled within a given time and information is often a source of power. People who can get vital information, and who can select it quickly to set their needs, are in a very vital information, and who can select it quickly to set their needs, are in a very powerful position indeed in society. This utilitarian view applies in education as well as in industry and commerce, in politics and the military.

**Information Technology**

One matter on which virtually all educationists and educational technologists are in agreement is that new information technology seems certain to play an increasingly important role - many would say a dominant role - in future education. Like education technology, new information technology is not a particularly easy term to define, largely because it denotes a wide ranging field of activities rather than a single concept or process. Indeed, Hawkridge, in his work on New Information Technology in Education (1982) devotes the whole of the first chapter to attempting to answer the question 'What is New Information Technology?'. In essence, however, new information technology can be thought of as the application of new electronic and other technology (computers, communication satellites, fibre optics, video recording etc.) to the creation, storage, selection, transformation and distribution of information of all kinds. This may not be a completely satisfactory definition, but it is slightly more helpful than the official definition of new information technology that was recently adopted by UNESCO, namely, the scientific, technological and engineering disciplines and management techniques used in information handling and processing: their application; computers and their interaction with men and machines; and associated social, economic and cultural matters. It is self-evident that information technology in all its various forms and manifestations is making an increasing impact on education as the years go by, and that this trend currently gives every appearance of accelerating rapidly. In formal education, for example, computers and the various mediated learning systems that make use of them are becoming increasingly and widely used at all levels. Information Technology is still sufficiently a novel term to give different people different understandings of its precise meaning. An elegant definition of information which emerged from a discussion at Middlesex Polytechnic, is that it is 'a disturbance of randomness' (Howe, 1985).

A simplistic description might be that information enables to disturb the randomness of the learning process and hence to make sensible decisions about how to teach and learn. Educational and Training Technology is generally understood as the study and application of a systematic process of change in the ways in which people teach and learn. The early definitions that restricted it to technology in learning (the audio visual hardware) have now been extended to include the technology of learning. Barker (1986) offers more conventional definition of information of which can be paraphrased as that which enables man to make decisions. One can build on this to define information technology as the study and application of manipulating information - acquiring it, storing it, processing it and transmitting it. Information technology is concerned with the creation and collection, storage, processing, retrieval, dissemination, maintenance and protection of information. Most of the principles that it involves can be applied without reservation to any application domain (or subject area).

Definitions of information technology has been presented by Chatrand and Morentz (1979): "Information Technology means the collection, storage, processing, dissemination and use of information. It is not confined to hardware and software, but acknowledges the importance of man and the goals he sets for this technology, the values employed in making these choices and the assessment criteria used to decide whether he is controlling the technology and is being enriched by it." Within this definition, four important key word scan be identified: enriched, man, hardware and software. Together with liveware (the people involved - programmers, designers, analysts, users etc.), hardware and software represent the basic building blocks from which the information processing systems are constructed.

**Information Technology: Old Vs New**

Hubbard (1981) points out that the old information technology depends largely upon mechanical means of carrying out its functions. The postal service, the press, the book publishing industry, the film industry, the sound recording industry, even the telephone system, could not operate without depending upon machines that have a large number of moving parts.

One of the major reasons for the development of information technology has been the need to find appropriate means of handling the rapidly growing volumes of information produced by all forms of human activity - research, business, commerce and multitude of administrative process inherent in organizing and controlling large populations of people. Another important reason for the wide spread use of Information Technology within many organizations is the realization that they must improve the quality of the products (and the services) that they offer if they are to survive within highly competitive market place. From the individual's point of view, the most attractive reason for wanting to use Information Technologies, undoubtedly, the improved quality of life that this new technology is likely to bring.

**Information Technology in Education**

Education is an all-pervading endeavour. It percolates around and permeates through all other spheres of human activity - the service industries, the military, manufacturing, business, commerce and all the known professions. Fundamentally, it is a form of information dissemination, both of skills and knowledge. Because it is so information dependent, it is natural to suppose that any technology which influences information (such as IT) will also have a knock on' effect on education. This is indeed so. Within any universe of discourse, the activity of scholars and researchers generates information that causes its volume to expand. Teachers assimilate the
knowledge held within a universe of discourse and use this to instruct students. More able students, above a particular threshold age, are able to perform this task themselves through self-instruction. As a result of instruction, students may themselves become teachers, scholars, researchers, or they may offer themselves for employment within some other profession.

Amongst teachers there is a well-known saying, 'it is not what you teach, but the way that you teach it'. In other words, it is possible to optimize a learning or teaching process by selecting an appropriate technology with which to implement it. The term 'instructional technology' is often used to refer to the wide range of machines, devices and other aids that are used to implement a teaching or learning process.

Unfortunately, applying currently available information technology to the problem of teaching, training and tutoring is not always as easy to understand as it might at first seem. Teaching, training and tutoring often involve very complex type of student-teacher interaction. There is an urgent need to achieve the successful utilization of information technology within education and technology. Because education is so person oriented, each of these techniques will require a detailed understanding of student behaviour if they are to produce positive results.

**Instructional Technology**

The purpose of educational technology is optimizing learning by a learner - a student, a teacher or anyone for that matter. As an approach, it adopts systems approach to instruction. It relates the teaching learning process to a set of learning goals and specifies methods of evaluation. Essential emphasis of educational technology is on learning and not on teaching. Hence on one hand, it recommends use of variety of methods of instruction and no single ideal method. In the process of implementing a set of instructional methods, one may need a set of gadgets, like projectors, VCP etc. So, gadgets are only aids for implementing instructional designs. Some call these 'technology in education'; but certainly they are not equal to educational technology. Instructional Technology is a major area of educational technology.

Instructional Technology increases the quality of instruction and learning. It decreases the time taken for learning but increases the efficiency of instruction; consequently, instructional technology is the network of different techniques and devices that can be utilised by the teacher as well as the learner. It can be defined as the systematic way of designing, carrying out and evaluating the total process of teaching and learning. It is the selection and implementation of suitable method, media and strategy to produce the desired effect.

Instructional technology helps a teacher in his instructional designing. Instructional designing is nothing but a plan to get the best equipment, appropriate technology and the best strategy for facilitating learning for the right student to achieve more with less effort. Instructional situation may be individualistic, small group, large group or distant learning. It may be self-learning or instruction by a teacher or through a media use.

**INPUT: - Meaning**

Following are the definitions of the term INPUT: "contribution, amount, material or energy that is put in, power or energy or coded information, stored or for storage, process of feeding in data, to feed into..." (Chambers English Dictionary, 1990). “putted, putting n 1 that which is put in... the process of instructing... the available data for solving a technical problem.” (Random House Dictionary of English Language, 1966).

In computer language, input refers to transfer of data into suitably designed form for the purpose of entering them into the computers. According to Sharma (1980), input involves the entering behaviour of the learner. It includes previous achievement, abilities of student and motivation. It concerns with the comprehension level of the learner. It involves the skill of teaching and awareness of teaching and training methods. It considers availability and skill for teaching aids. The input unit provides some process by which material or information is entered into the system.

"In learning, the input is what is received from outside, the external stimuli". (Vedanayagam, 1989) In the present study, the term educational technology inputs refers to the application of information, method and material in the teaching-learning process.

**CONCLUSION**

Technology today is a vital aid to the growth of human civilization. It has entered into all areas of the human experience and has made life comfortable and meaningful. Scientific discoveries and technological advancements have effected drastic changes in spheres of human life. Even education is not an exception to this.

Educational technology is warranted to maximize the results. New application of knowledge, methods, techniques and media would certainly ensure effectiveness and efficiency in the educational system. Technology helps the learner in acquiring skills, knowledge and abilities and for the teachers it ensures effective instructional delivery.

Adequate technology inputs would definitely improve the quality and standard of teacher education programmes in India. While the present chapter clearly explains educational technology and input, the ensuing chapter deals with the research activities carried out in the related field of study.

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