

AN INTRODUCTION TO EDUCATIONAL TECHNOLOGY

PRASANTH VENPAKAL



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EDUCATIONAL TECHNOLOGY - CONCEPT, OBJECTIVES AND SCOPE

Modern age is the age of science and technology. The world of today is very dynamic and we are the witnesses of series of technological innovations in our day to day life. The life of man in the primitive age was altogether different from his life in this sputnik age. There have been tremendous changes in the life style of human beings which may be attributed to the contribution of science and technology. Its influence is being reflected in all productive endeavors. The contribution of science and technology has been experienced in almost all the spheres of human life including education.

EVOLUTION OF EDUCATION TECHNOLOGY

In the early period of human history, when writing was unknown, the method of presentation on the part of the teachers and citation and memorization on the part of the students was a common practice in almost all the civilizations of the world. Socrates' teacher-pupil oral dialogue system prevalent in the west and oral teaching tradition maintained by the ancient sages in the Gurukuls of our country may be cited as a testimony of the use of relevant technology in the field of teaching-learning at a particular age in the progress of human civilization.

With the advent of writing as the means and materials of communication, like writing on the leaves and tree-trunks, engraving on the metals and rocks, and then the use of some type of paper and ink material provided the next breakthrough in the use of writing technology for teaching and learning. In the time to come, it provided a great impetus in the field of teaching and learning which witnessed the use of the subject matter available in the form of printing material and textbooks, a great scientific and technological advancement.

The use of writing and printing technology then took its next leap in helping the cause of teaching and learning by being utilized in the production and use of the instructional material like chalk or blackboards, pictures, charts, models, maps, diagrams and other graphic material. Later on, with the industrial development and technical advancement, sophisticated scientific instruments, mass media and educational materials were used. It brought the use of sophisticated hardware and software such as radio, television, tape recorder, films, transparency, etc. in the field of education.

The concept of programmed instruction and theories of learning, later on, added another dimension to the meaning and concept of educational technology. This was again broadened hence the new approaches in the form of system-approach, microteaching, interaction analysis and computer assisted instruction came into existence. In Modern classrooms students experiencing more than that through digital classrooms, smart classrooms, online learning and e-learning methods.

MEANING OF EDUCATIONAL TECHNOLOGY

The term 'technology' implies the application of science to art. The concept of technology has developed during the last few years. It is a new area in the discipline of education. Educational technology is comprised of two words education and technology. When we apply the science of learning and communication to teaching we evolve a technology. There are three major factors that emphasize the linking of education with technology.

Educational Technology is concerned with the development, application, and evaluation of system, techniques and aids to improve the process of human learning. It could be conceived as a science of techniques, methods and media by which educational goals could be realized. "Educational Technology" may be defined as the systematic application of the knowledge of sciences to practical tasks in

Education. It is a communication process resulting from the adaptation of the scientific method to the behavioral science of teaching/learning. Educational technology is seen both as a means as well as service to effect and facilitate better and more productive learning systems. It may be defined as a separate field in the theory of education dealing with the development and application of the use of educational resources.

DEFINITIONS OF EDUCATIONAL TECHNOLOGY

G.O.M. Leith: "Educational technology is the systematic application of scientific knowledge about teaching-learning conditions of learning to improve the efficiency of teaching and training (Leith, 1967)."

Shiv K. Mitra: "Educational technology can be conceived as a science of techniques and methods by which educational goals could be realized (Mitra, 1968:4)."

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 (Kulkarni, 1969)."

D. Unwin: "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 the control of environment in so far as this reflects on learning (Unwin, 1969)."

W. Kenneth Richmond: "Educational technology is concerned with providing appropriately designed learning situations which, holding in view the objectives of teaching or training, bring to bear the best means of instruction."

I.K. Davies: "Educational technology is concerned with the problems of education and training context and it is characterized by the disciplined and systematic approach to the organization of resources for learning."

J.R. Gases: "Educational technology has to be seen as part of a persistent and complex endeavor of bringing pupils, teachers and technical means together in an effective way

Scottish Council for Educational Technology: "Educational technology is systematic approach to designing and evaluating learning and teaching methods and methodologies and to the application and exploitation of media and the current knowledge of communication techniques in education, both formal and informal.

John P. Dececco "Educational Technology is the form of detailed application of psychology of learning to practical teaching problems"

E.E. Hadden "Educational Technology is that branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process."

Richmond "Educational Technology is concerned to provide appropriately designed learning situations which, holding in view of objectives of the Teaching of Training, being to bear the best means of instruction."

Robert A. Cox "Educational Technology is the application of scientific process to man's learning conditions."

CHARACTERISTICS OF EDUCATIONAL TECHNOLOGY

Characteristics of Educational Technology are as follows:

- It is based on scientific and technological advancements.
- It is more a practical discipline and less a theoretical one.
- It is a fast-growing modern discipline.
- It makes use of the research findings of psychology, sociology, engineering, sciences and social psychology etc., and applies the same to the field of education.
- It brings pupils, teachers and technical means together in an effective way.

- It is the science of techniques and methods. It locates the problems in the field of education, remedies them and ultimately aims at improving the education system.
- It is bound to improve the teacher, the learner and the teaching learning process.

NATURE OF EDUCATIONAL TECHNOLOGY

- The basis of educational technology is science.
- Educational Technology studies the effect of science and technology upon education.
- Educational Technology is a continuous dynamic, progressive and effect-producing method.
- New conceptions are possible only due to educational technology such as programmed learning, micro-teaching, simulated teaching, interaction analysis, video-tape, tape-recorder, projector and computer, etc.
- Educational Technology accepts schools as a system. In this system, the school-building, furniture and teachers act as input while various methods, techniques, strategies and the teaching and examination with the help of audio-visual aids function in the form of a process. Lastly, the output is in form of ability of the pupils.
- Audio-visual aids cannot be termed as educational technology. It is because its concern is only with the process-aspect of educational technology and not with the input and output aspects. But if these A.V. aids are used to achieve educational objectives, then it can be put in the category of Educational technology.

- Programmed Instruction is also different from Educational Technology. Its main cause is that the student learns himself during the programmed instructions. It does not allow interaction between pupil and teacher.
- Engineering Technology is not the educational technology because the engineering technology has manufactured radio, tape- recorder, video-tape and T.V., etc., which are used in teaching as audio-visual aids.
- Educational Technology cannot solve each and every problem of education. It can be used successfully in teaching and instructional system only.

OBJECTIVES OF EDUCATIONAL TECHNOLOGY

Educational technology, provides valuable help in the total teaching-learning process for achieving the best possible results in an economic way through the available human and non-human resources. The major objectives of education technology can be summarized as follows:

- To identify educational needs and aspirations of the learners.
- To determine the aims of education, broad strategies and structure of education.
- To develop a suitable curriculum with interaction of science, art and human values.
- To identify man-material resources and strategies for achieving the stipulated aims of education.
- To develop certain models leading to improvement of the process of teaching and learning.
- To develop the appropriate aids and equipment to meet the educational purposes.
- To identify major constraints in the environment and the ways and means to tackle those.

- To help in extending educational opportunities to the masses especially the neglected section of the community.
- To manage the whole educational system covering planning, implementation and the evaluation phases.

SCOPE OF EDUCATIONAL TECHNOLOGY

Educational technology is concerned with all variables, phases, levels, and aspects of the teaching-learning process. In brief, it works for overall planning and organization of the system or subsystem of education. The areas of its operation in education system is summarized below;

1. **To Analyse The Teaching Learning Process:** Educational technology tries to discuss the concept of teaching, analysis of the teaching process, variables of the teaching, phase of teaching, levels of teaching, theories of teaching, principles and maxims of teaching, the concept of learning, relevance of the theories, the relationship between teaching and learning.
2. **To Identify the Educational Goals or Objectives:** Educational technology tries to discuss the topics such as identification of education needs and aspirations of the community, survey of the resources available for satisfaction of these needs.
3. **Development of Curriculum:** Educational technology is concerned with the designing of a suitable curriculum for the achievement of the educational objectives.
4. **Development of Teaching-Learning Material:** Educational technology is concerned with the production and development of the suitable teaching-learning material in view of stipulated objectives, design curriculum and available resources.

5. **Teaching Preparation or Teaching-Training:** Teacher is a key figure in any process of teaching and learning. Educational technology, therefore tries for the proper preparations of teachers for exercising their complex responsibilities.
6. **Development and Selection of The Teaching-Learning Strategies:** This aspect deals with the central problems of teaching learning act. Here educational technology tries to describe the ways and discovering, selecting and developing suitable strategies and tactic of teaching.
7. **Development, Selection and Use of The Appropriate Audio-Visual Aids:** Teaching-learning is greatly influenced and benefited by the use of appropriate audio-visual aids. Educational technology covers this aspect by discussing various types of audio-visual aids used for educational purpose, their proper selecting suiting to a particular teaching-learning situation.
8. **Effective Utilization of The Hardware and Mass Media:** Various sophisticated instrument, equipment, gadget and communication devices brought through mechanization and electronics revolution playing an effective role in the attainment of educational objectives by helping the teachers and learners in their respective roles.
9. **To Work for The Effective Utilization of The Subsystem of Education:** Educational technology considers education as a system operating, in a systematic and scientific way, for the achievement of educational objectives.
10. **To Provide Essential Feedback and Control Through Evaluation:** Educational technology I essentially concerned with the task of exercising appropriate control over the process of teaching and learning by planning and devising suitable tools and devices for the continuous evaluation of the process and products of the teaching-learning activities.

ADVANTAGES OF EDUCATIONAL TECHNOLOGY

Technology is one of the most valuable tools that we have available at our finger tips every day. The contribution of technology in education also uncountable one. The major advantages of educational technology are listed below;

1. **Individualized Instruction:** Educational Technology is very helpful in individualizing instruction by enabling us to make use of self-instructional programmes.
2. **Improvement in The Quality of Teaching:** “Educational Technology – learning process by enabling us to use more varied, rich and motivational programmes through T.V. and other media.
3. **Encourages Development of New Teaching Methods:** Rather than spend an hour or so talking while the students listen, or have them read an entire chapter in silence, teachers and professors now have the option to use advanced teaching methods, such as podcasts, blogs and social media. When working with a particular group or one-on-one, teachers can take advantage of web conferencing technologies other online communication tools.
4. **Meeting the Problem of Mass Education:** Educational technology helps in using programmes developed by experts for a large population of students with the use of computer and T.V etc.
5. **Equalizing Educational Opportunity:** Educational Technology assist us in making efforts for equalizing educational opportunity. Irrespective of economic, social and geographical status of the learners.
6. **Providing Continuing Education:** T.V. lessons and self-instructional programmed material sent to the learners or to in service personnel and vocational workers help them to keep themselves abreast of the latest material.
7. **Prepares Students for The Future:** From the way technological advancements are going, it is obvious that the future will be digital and

technology-focused. If students are well-versed on using technology to collaborate and communicate as early as now, they will not have trouble fitting in, competing and finding jobs in the future. Being familiar with using at least one form of technology at an early age will help them become comfortable using it, and eventually develop other skills necessary to handle other innovative devices and processes.

8. **Lowering Textbook and Tuition Prices:** With resources more accessible and in great abundance, the cost of textbooks is likely to decrease. It is also possible that students may no longer need to buy a textbook, if it is converted into digital format. The actual books can stay in the classroom, while the content is saved on a student's computer.

FORMS OF EDUCATIONAL TECHNOLOGY

Educational technology has a wide range of scope and applicability in the field of education. In a broader sense, it stands for the application of the principles and techniques of science and technology as well as psychology and pedagogy in the activities of teaching and learning. As a result, it has been capable of providing necessary ways and means, theoretical as well as practical, for improving the process and products of teaching-learning related both formal and informal education. These forms of educational technology, in general, can be classified as follows:

Teaching technology

Instructional technology

Behavioral technology

Instructional design technology

Teaching Technology

Teaching technology, as a sub-system of educational technology, is concerned with the task of systematization of the process of teaching. A teacher has to play the

role of technician by learning the art and science of teaching. Teaching must be regarded as a technology that a teacher should try to know and practice well if she wishes to be successful in his teaching job. If teacher is in the position to make the use of technology in teaching, he must be well equipped with the technological skills, besides having a good knowledge or mastery over the subject matter: Teaching is a scientific process and its major components are content, communication, and feedback.

Teaching technology process certain basic things in the shape of the philosophy and acts of teaching. A teacher has to imbibe the art and techniques of this technology. Davies (1971), in his work Management of learning, has presented the four steps systematically prescribe the contents of teaching technology to be learnt and practiced by a teacher for becoming a teaching technician. The four steps are planning of teaching, organisation of teaching, leading of teaching and controlling of teaching.

Instructional Technology

This kind of technology is meant for helping the instructor and the learner in the desired instructional task for the realization of the stipulated instructional objectives in a particular teaching-learning situation. The term instructional stands for a certain type of command meant for getting some specific information, knowledge and understanding about a thing system or a process. Instructional technology, in this way, first try to plan what type of instruction and instructional material are needed in a particular teaching-learning situation and then suggest ways and means for the utilization of this instructional material for the proper realization of the instructional objectives. Instructional technology may be defines as a subsystem of educational technology which helps the instructor or the learner himself as a part of his self-learning or auto instruction by determining the media,

methods and material for realization of the stipulated instructional objectives in a given teaching-learning situation.

Behavioural Technology

Behavioural technology, as one of the kind/type in its broad form, may be utilized to study and bring modification in the behaviour of all living organisms. Behavioural technology, in a broader technical sense, may also include behaviour modification strategies which are not based on learning principles. However, in school situations, the task of behavioural technology has almost become synonymous with the behavioural analysis and behaviour modification carried out through the principles of operant conditioning (shaping of the desired behaviour) and observational learning (imitation of a model behaviour)

Instructional Design Technology

Instructional as a process stands for helping the individual as a learner for achieving the suitable teaching-learning situation. A good instruction is goal oriented with a specific purpose or purposes implying that the manner in which the learner is imparted instructions (assisted in his learning process) should always be a well-conceived, planned and effectively controlled phenomenon. The term instructional design, in its simple meaning, thus stands for layout or plan describing the manner in which an instruction process (involving teaching and learning and its interaction) should be carried out for attainment of the stipulated objectives.

Instructional design technology, for exercising such control and manipulation, may be seen to adopt a new distinctive approach like systems approach, cybernetic approach and training psychology for generating effective instructional design with a clear-cut motive and helping the learner and teacher in the attainment of the stipulated instructional objectives.

TECHNOLOGY OF EDUCATION AND TECHNOLOGY IN EDUCATION

The term 'technology in education' refers to the use of technological advancement such as various equipment, materials and machines for educational purposes. It invokes the increasingly complex range audio-visual equipment, hardware and sophisticated electronic devices like projectors, films, radio, televisions, tape recorder, recording machines, tele-text and computer aided instructions for individualized and group learning. The term technology in education is thus a service concept like technology in the service of farming and agriculture or science in the service of mankind. In this sense, educational technology can provide its services to the teachers of the following grounds:

- For explaining the purpose and functions of different forms of appliances, equipment and audio-visuals material and mass media.
- For providing training and acquiring the material and handling the equipment to overcome their reluctance to use new media and materials.
- For showing the relevance to the use of equipment and material in the context of individualized and group learning for achieving the goals of formal or non-formal education.

The term 'technology of education' or 'educational technology' cannot limit itself to the role of service as confined in the case of technology in education. The term, technology of the education, does not represent something added or helped from outside as sounded in the case of technology in education. It signifies a system of technological approach to the problems of education. Technology of education deals with systematic application of the resources of scientific knowledge of the processes of learning that each individual has to pass through in order to acquire and use knowledge.

APPROACHES OF EDUCATIONAL TECHNOLOGY

There are mainly three approaches in Educational Technology. They are Hardware approach, Software approach & System approach. Hardware approach & Software approach plays a very essential role in the Educational Technology. These approaches in Educational Technology are briefly discussed below:

HARDWARE APPROACH

- ❖ Its origin is in Physical Sciences & Applied Engineering and it is based on the concept of Service.
- ❖ It adopts a Product-oriented Approach.
- ❖ It is concerned with the production and utilization of audio-visual aid material[such as CHARTS, MODELS, SLIDES, FILMSTRIPS, AUDIO CASSETTES, etc.], sophisticated instruments and gadgets[such as RADIO, TELEVISION, FILMS, PROJECTORS, TAPE-RECORDERS, VIDEO PLAYER, TEACHING MACHINES , COMPUTERS, etc.] and mass media.
- ❖ Hardware Technology utilizes the products of Software Technology [such as teaching strategies, teaching learning material, etc.] for its functioning.
- ❖ Hardware technology has the potential to hand over the educational benefits to the mass with greater ease and economy Too much use of technical gadgets may mechanize the process of teaching-learning as the Hardware approach tries to enter education from outside, operating more in isolation than in combination.

SOFTWARE APPROACH

- ❖ It is sometimes referred to as Teaching Technology, Instructional Technology or Behavior Technology.
- ❖ Its origin is in Behavioral Sciences and the applied aspects of Psychology of learning.

- ❖ It is a Process-oriented Approach. It utilizes the knowledge of the Psychology of Learning to produce learning material, teaching – learning strategies, etc.[Software Technology] for the betterment of the process of teaching-learning .
- ❖ It does not provide direct services to its users. Instead, it helps in the production of various Software materials which are used for developing the hardware appliances.
- ❖ It includes TEACHING STRATEGIES, LEARNING MATERIAL, EVALUATION TOOLS, TEACHING MODELS, PROGRAMMED INSTRUCTION, etc.
- ❖ Software technology does not require any aid form the hardware technology for its delivery. It becomes more useful and productive when assisted by the Hardware Technology.
- ❖ Software technology does not have mass appeal and is costlier in the long run, as compared to Hardware technology.

Difference between Hardware Approach & Software Approach

Hardware technology	Software technology
Hardware technology has its origin in physical sciences and applied engineering.	Software technology has its origin in behavioural sciences and their applied aspects concerning psychology of learning.

<p>It is more concerned with the production and utilization of audio-visual aid material and sophisticated instruments, and mass media learning for helping the teacher and learners in their task</p>	<p>It makes use of psychology of learning for the production and utilization of software techniques and materials in terms of learning materials, teaching learning strategies, and other devices for smoothening the task of teaching learning.</p>
<p>It tries to adopt product-oriented approach. What is produced through software technology in the shape of teaching-learning material and strategy gets utilized by the hardware instruments and gadgets for effective teaching-learning.</p>	<p>It tries to adopt a process-oriented technique or approach for the production of teaching-learning material. What is produced here is made available for being used by the hardware appliances.</p>

SYSTEMS APPROACH

- ❖ **SYSTEM:** A complex whole; a set of things working together as a mechanism or interconnecting network.
- ❖ A System is a set or arrangement of things so related or connected as to form a unity or organic whole. It's a regular, orderly way of doing things. Schools are viewed globally as social systems. Instruction/ Teaching are considered as a sub-system within the social system of the school.
- ❖ Classroom, faculty, student groups, informal groups, etc. are other subsystem within.

- ❖ Education is considered a complex organization of technical, managerial and institutional systems.
- ❖ The instructional system has three parts: The Instructor, the Learner, and the goals of Instruction.
- ❖ The System- Approach to education, thus, considers education as an Input-Output System.
- ❖ Instructor & his qualities, Learners and their qualities → feedback process system, technique, method, etc. → Changed learners (cognitive, affective & psychomotor transformation).

Systems Approach to education emphasizes:

- Identifying and stating the goals to be achieved;
- Identifying the processes, methods, techniques and strategies that may be most relevant to achieving the predetermined goals;
- Building up theoretical foundation justifying the relevance of these processes to achieving the goals;
- Determining specific interactions visualized existing among various other components of inputs;
- Specifying the various kinds of controls needed in the total system at different points; and
- Keeping the whole in mind all the time while preparing the model or the system.

RESOURCE CENTERS AND SERVICES IN EDUCATIONAL TECHNOLOGY

A learning resource center is a facility within a school, staffed by a specialist, containing several information sources. Information and communication

development opportunities and information flow are the big challenges arising from a dedicated review of most educational questions. School libraries are then considered one of the most important resources within educational facilities. The need to develop school libraries is urgent in that, on the one hand there is a need to convey information via a wide diversity of technologies and resources, and on the other hand, there is a myriad of new teacher and student roles to support. Within this view, came the project of learning centers. The objective is to raise school libraries to an international and more technical standard. Learning Resource Centers can also be institutionalized in various institutions for teaching and learning purposes. The purpose of a resource center is to advance the learning experience of students and teachers in any educational sector.

Concept A school utility driven by a qualified expert. It contains several information resources and their techniques, which the teacher directly deals to acquire searching skills of information, analyze and evaluate to build a new knowledge and experience, then develop them using several learning methods. It also provides services to, facilitate the useful for both teaching and learning. This view encourages educational trends, ruled in mid of 1960s and 1970s, whereas these are the methods of self-learning, from programmed learning and learning for mastery and learning throughout audio media to passing earliest beginnings to employ computer in learning process. And, information technology and teaching and learning theories have added a new dimension into learning resources centers concept.

Reasons for Establishing Resources Centers

- ❖ The strong connection between learning resources and method, and passing away supporting and cultural general role of school libraries into essential, accurately planned, role to achieve the method and its purposes.

- ❖ The book and printed material become not the only information resource.
- ❖ Development of educational theories, international trends to self-learning, taking in account differences of individuals, make the learner the axis of educational process, and the teacher role change into a leader and facilitator of learning process.
- ❖ Learning resources centers concentrate on amalgamation of resources, information and communication technologies with educational practices inside centers.

CIET (NCERT) - Central Institute of Educational Technology

The Central Institute of Educational Technology (CIET) is an autonomous organization, formed as a nodal agency under the National Council of Educational Research and Training (NCERT) for promoting the use of mass media technology for expanding and improving the quality of education at the school level. The Institute is funded by the Ministry of Human Resources Development, Government of India. The Central Institute of Educational Technology (CIET) was established in 1984 by the Ministry of Human Resources Development of Government of India, under the umbrella of the National Council of Educational Research and Training (NCERT). The Institute is located at NIE Campus, NCERT in New Delhi, and the capital of India.

The origin of the Institute was effected by merging two departments of NCERT, Center for Educational Technology and Department of Teaching Aids, with an aim to make the new age technologies in mass media available at the school level. The activities of the Institute are centered on the branches of media such as radio, television, movies, satellite communications and cyber media. CIET is involved in various activities such as design, development and dissemination of alternative learning systems, promotion of Educational Technology, training of

personnel in Educational Technology, coordination of activities of its subsidiaries like the State Institutes of Education Technology (SIET) and consultancy and media support to other constituents of NCERT.

The Institute is housed in a spacious building with open courtyards, amphitheater, two television studios, two sound studios, technical control rooms, workshop, seminar rooms, rehearsal areas and projection facilities, library, canteen, administrative areas and artists' studios. The Institute also provides courses in education at bachelors, masters and doctoral levels.

Functions of CIET

- To design and produce media software materials viz. television and radio (for both broadcast as well as non-broadcast use) film, graphics and other programs for strengthening the transaction of curricular and co-curricular activities at the school level.
- To create competencies in development and use of educational software materials mentioned above through training in areas such as script development, media production, media communication, media research, technical operations, setting up studios and repair and maintenance of equipment.
- To develop plans for the use of Information and Communication Technologies in education.
- To train the faculty of Institutes of Advanced Study in Education/Colleges of Teacher Education and District Institutes of Education and Training in the use of Educational Technology in their teacher education programs.
- To undertake research, evaluation and monitoring of the systems, programs and materials with a view to improving the materials and increasing their effectiveness.

- To document and disseminate information, materials and media programs for better utilization and to function as a clearing house / agency in the field of Educational Technology.
- To advise and coordinate the academic and technical programs and activities of the State Institutes of Educational Technology (SIETs) set up by the MHRD in six states of India.

State Institute of Educational Technology (SIET) in India

State Institute of educational technology has been set up in six states such as Andhra Pradesh, Bihar, Gujarat, Maharashtra, Orissa and Uttar Pradesh in order to implement the INSAT for education project effectively. These institutes are functioning under the administrative control of the SCERT in some states and in the Directorate of Education in other states. The Ministry of Human Resource Development (MHRD) renders financial assistance of SIETs. The State Council of Education Research and Training (SCERTs) are mainly expected to implement the educational technology projects utilizing all kinds of modern media, methods and materials.

The New Education policy emphasizes the modern educational technology should reach out to the most distant areas and the most deprived sections of the population. Acknowledging the potential of modern communication technology the NPE, 1986 and Programme of Action 1986 (POA) had spelt-out the actions that need to be taken in this important area. But modern technology requires supporting infrastructures like trained manpower, competent teachers and proper school buildings;

The six INSAT states were expected to create State Institutes of Educational Technology to function autonomously. So far, only our state like Orissa has taken a

decision on creation of this Institute. In the existing institutions, technical and professional posts have remained unfulfilled. The states are not providing full-time Directors. Consequently, the capability of the INSAT states to fulfil the objective of the New Education Policy has not been of the desired level.

side. In this regard the NPERC suggested measures for properly managing the technical and professional posts in the SIETs, so that the capacities of the SIETs are fully utilized.

SIET – KERALA

SIET is responsible for the planning, research, production and evaluation of educational soft wares like video, audio programmes and computer multimedia. SIET Kerala also aims to implement schemes to generate teaching technologies and learning process in modern context. SIET Kerala is latest in the array of seven SIET'S in the country. Government of India sanctioned the State Institute of Educational Technology in 1998. The Institute was constituted under the Travancore Literary Scientific and Charitable Societies Act 1951 on 08.09.1999 as an autonomous society with register No. T. 1373/99. The Rules and Regulations of the Institute are recognised by the State Cabinet. The Executive Committee, with the Minister for Education as Chairman, and the Secretary for General Education as the Vice Chairman, has 16 members in all.

Main Objectives of the Kerala SIET

- To promote awareness among students, teachers and parents on the possibilities of educational technology in the areas of applications like:
- Educational Radio
- Educational Television
- Computer Assisted Instruction/Computer Managed. Instruction Audio/Video Cassettes

- Satellite Communication
- Multimedia
- Local Area Network (LAN)
- Internet

Goals of SIET

SIET, Kerala is mandated to pursue the following goals:

- Production of Educational / Enrichment programmes for Telecast / Broadcast through TV / Radio and communication through CD/DVD
- Designing and production of teaching Aids
- To administer the Educational Technology Programmes and assignment of work to agencies in both Govt. and Non-Govt. sector
- Imparting training to production personnel and teachers
- Conduct research and evaluation of new media education materials.
- Assist schools to set up infrastructure to schools and monitoring their utilization activities
- Dissemination of TV / Radio (Audio Visual) programmes through available commercial channels
- Patronizing production of TV and Audio educational materials
- Implement CD library project in all the 140 constituencies of Kerala state and declare Kerala as the 100 percent e learning state.
- Research and develop learning materials for blind students

EMMRC (AVRC, EMRC and MCRC)

In 1984 University Grants Commission (UGC), New Delhi has launched Country Wide Class Room (CWCR) and production facilities at 6 universities in India through establishing media centers in the name of Audio Visual

Research Centers (AVRCs) later these centers have been renamed as Educational Multimedia Research Centers (EMMRCs). This was mainly to use electronic media for the quality enrichment of higher education. UGC began its transmission of Country Wide Class Room (CWCR) programme from 15th August 1984 through Doordarshan National network. Initially the co-ordination with these centers was done from UGC office with the support of a consultant. Subsequently, an Inter-University Center named as 'Consortium for Educational Communication' (CEC) was set up in the year 1993 to co-ordinate with media centers (AVRCs and EMMRCs) and to make CWCR mission most effective and successful.

The Educational Multimedia Research Center (EMMRC) was established as Audio Visual Research Center (AVRC) by the UGC-CEC under the Country-Wide Classroom (CWC) Project, with the following objectives.

- Production of educational programmes (especially video and audio) and related support material and setting up of appropriate facilities for this.
- Research related to optimizing the effectiveness of the programmes.
- Providing a forum for the active involvement of academic and other scholars in the creation of appropriate educational programme.
- Studying, promoting and experimenting with new techniques/technology that will increase the reach and/or effectiveness of educational communication.

The Center is presently funded by the UGC and MHRD for producing enrichment, educational video lecture and e-content programmes for broadcasting these through educational channel on Doordarshan and Internet streaming commanding a viewership of more than 25 million students. The Center is equipped with a large state-of-the-art studio with Chroma facility, latest technology broadcasting equipment and high-powered multimedia workstations to produce educational video content, LORs and e-content programmes. Besides this, the Center

also conducts research related to the creation, dissemination and evaluation of educational content.

AVRC: Audio Visual Research Center provides valuable resource material for higher education and mass communication. **MCRC** Mass Communication Research Center is a premier media institution in India BY UGC

The programmes produced at the center are televised under UGC/CEC countrywide classroom programme. During 1996-97, the center produced 16 educational programmes covering various subjects like earthsciences, ecology, wildlife, chemistry, maths, sports, social sciences and classical dance etc. despite staffing constraints. Of these 6 programmes were produced in Hindi.

The center also undertakes research in all aspects of educational technology in relation to learning for both urban and rural collage going students in various disciplines. It invites faculty from within and outside the University as subject experts to participate in the activities of the center to write scripts on the topics of their subject specialization followed by the production of film. The center has made about 180 programmes covering various subjects and areas.

Objectives:

1. To map the audience profile in terms of demographic, socio-economic and educational background along with their media habits.
2. To assess the usefulness of multimedia inputs in the lectures/topics telecast in the channel.
3. To examine the feedback about these programmes in terms of quality, content, presentation, language, usefulness towards their course or otherwise.
4. To examine whether it helps the teachers in higher education by enabling them to teach more effectively.

CONSORTIUM FOR EDUCATIONAL COMMUNICATION

The consortium for educational communication popularly known as CEC is one of the Inter University Centers set up by the University Grants Commission of India. It has been established with the goal of addressing the needs of Higher Education through the one of powerful medium and Television along with the appropriate use of emerging information communication technology. Subsequently CEC emerged in 1993 as a nodal agency to coordinate, guide and facilitate such educational production at the national level. Today 22 media centers are working towards achieving this goal under the umbrella of CEC. Realizing the potential and power of television to act as means of educational knowledge dissemination, UGC started the countrywide classroom programs in the year 1984. For production of such programs media centers were setup at 6 universities.

CEC's learning management system centre to educational requirements of the country and world over. The CEC provides various worldwide e courses through its virtual learning system for the masses across the country and can be used by Universities, Colleges and Students as a supplement material to the conventional teaching system. This will certainly help to increase the GER percentage of the country.

The objectives of CEC is close coordination, facilitation, overall guidance and direction towards the activities of the Media centers set up by the UGC in various universities throughout the country. Dissemination of educational programs through broadcast as well as non-broadcast modes. Production of educational Programs (Audio/ Visual and Web based) and related support material further setting up of appropriate facilities for such production. Research activities related to optimizing the effectiveness of such programs. Providing a forum for the active involvement of academic and other scholars in the creation of appropriate educational programs. Studying, promoting and experimenting with new technology that will increase the reach and/or effectiveness of educational communication.

EDUSAT is the satellite exclusively devoted to meet the demands of educational sector. It was launched on September 2004, 24 by Indian Space Research Organization (ISRO) to meet ever increasing demand for an interactive satellite based distance education system for the country. It has revolutionized classroom teaching through IP based technology. EDUSAT has five KU band transponder providing national beam and six extended C-band transponders providing national coverage beams.

Consortium for educational commission (CEC) is one amongst the five primary users of this educational satellite. ISRO has adjudged the CEC as “The Best EDUSAT National Beam User“ in July 2008. At present, there are over hundred Satellite Interactive Terminals (SITS) and Receive Only Terminals (ROT’s) and CEC EDUSAT network. Installed at various colleges, Academic staff colleges and universities across the country many more are being added with the purpose of providing quality higher education to the remote areas through satellite network. CEC EDUSAT network is empowering students through cutting edge technology and the needs of students across the country.

CEC EDUSAT network has done exceptionally well in the past and has won many laurels since it began live transmission on 5th September 2005. In the live transmission, CEC acts as the teaching end. Subject experts deliver lectures live. These lectures are received by various SIT’s and ROT’s. They are known as class room end. The teaching end can be shifted from one SIT to another. Thus the student can benefit from experts located in various educational institutions across the country. The expert can address the queries of the students in the live mode. The students can interact and ask questions using one following three methods (1) Audio/ Video Conferencing (2) Text Mode (3) Through Telephones.

CENTRE FOR DEVELOPMENT OF IMAGING TECHNOLOGY

The Centre for Development of Imaging Technology(C-Dit) was established by the government of Kerala in 1988 for the advancement of research, development and training in imaging technology. C-DIT has four groups, each specializing in a core area, viz. Communication Group, Technology Group, Education & Training Group and Operations Group.

Centre for Development of Imaging Technology (C-DIT) is a unique institution with diverse skill sets and achievements in the areas of Information and Communication Technologies and their applications. Founded in December 1988 as an offshoot of Kerala State Film Development Corporation, C-DIT started its operations with two projects funded by the Government of India- one in the field of research and development in film and electronics technology and another in the area of science and development communication using video. Subsequently, C-DIT diversified into Information Technology applications including software development and to providing IT enabled services. C-DIT has been functioning as a Total Solutions Provider in IT and Communication fields mainly in the Government sector for the last decade and a half. We have also made our mark in the areas of education and training by offering a stream of courses in communication, new media production and I.T.

Initially located in a corner of the Chitranjali studio complex of KSFDC, C-DIT set up its own campus in 1998 in three acres of land leased from KSFDC in Thiruvallam. When the activities expanded we had to hire many buildings in and around the city. Our search for more space within the city was rewarded when the Government of Kerala allocated 15 cents of prime land at Pattom. Since the formal land transfer got delayed due to various reasons, the construction could not be started. Now the formalities have been completed and the construction is ready to begin. The new campus will house the head office divisions as well as Technology and Communication divisions of C-DIT. The new building will use green

technologies with scientific energy saving methods. It will be perhaps the first public building in the city to use a dome structure built in steel.

During the last 24 years of existence, C-DIT has achieved many national and international laurels. The video productions of C-DIT cover different genres of development communication, science popularization, education, environmental awareness etc. Several of them have won the state and national awards as well as top recognition at the international festivals. The innovative TV reality show series produced by C-DIT in collaboration with Doordarshan on the achievements of local self-governments and on the success stories in school education have won wide acclaim. C-DIT has planned similar series on health care. C-DIT has been hosting and maintaining the Kerala government web portal - kerala.gov.in, as well as the websites of over 200 government and autonomous organizations.

Sutharyakeralam programme produced by C-DIT for the Government brings the Chief Minister interactive sessions with the general public providing instant relief and speedy decision making cutting red tapism. Kerala Chief Minister has opened new path of transparency in governance by making his office visible to the public round the clock through the live video streaming of his office done by C-DIT. Similarly, the mass contact programme of the Chief Minister which attracted tens of thousands of people in each district was also brought live to the public by C-DIT. Similar online grievance redress portals are being planned for other ministers and departments also. Incidentally, the live web streaming of Karnataka CM's office was also successfully taken up and executed by C-DIT.

E-grantz software, a web based application developed by C-DIT for SC/ST department got the national award for e-governance. This is one of the several software development and application projects undertaken by C-DIT for the Government departments and other agencies. The high security hologram labels produced by C-DIT have helped the State Excise Department to keep a check on the

counterfeiting of liquor bottles. C-DIT has also been supplying security holograms to the universities in the state for affixing on the degree certificates issued by them to prove their authenticity.

C-DIT had undertaken the printing and delivery of the computerized ration cards for the consumers in the state at record speed, with over 6 lakh ration cards issued as part of the 100 days programme of the state government in 2011. C-DIT has taken up many ambitious programmes in the field of IT applications for implementation in the coming months. These include Digitization of old manuscripts and palm leaf documents for the state archives department, setting up of a Professional skills academy for providing advanced IT training courses of international standards, a massive awareness and control programme on cyber security to check the rising threat of cybercrimes, expansion of IT education programmes through Cybersri for marginalized sections including SC and ST students, entrepreneurship training and skill building for women based micro enterprises etc.

The Governing Body of C-DIT headed by the Chief Minister of Kerala as its Chairman and the Minister for Information and Public Relations as its Vice Chairman, have been guiding the activities of C-DIT. We hope to develop C-DIT as a premier communication and IT solutions provider in the state by leveraging our strengths and core competencies as well as by ensuring constant capacity building through skill up-gradation of our internal talents and by forging collaboration with our partners.

ROLE OF EDUSAT IT'S FUNCTIONS IN EDUCATION

EDUSAT was India's first full-fledged educational satellite. Its first operational flight took place on 20th September 2004 from the Satish Dhawan space centre Sriharikottah . After a 17 minutes flight, the satellite weighing 1950 kg was successfully placed in a geo-transfer orbit at a height of 180 km above the earth. It

is manipulated by the satellite centre of the ISRO at Bangalore. The projected life of the EDUSAT is 7 to 10 years and it can cover whole geographical India. EDUSAT is mainly indented to meet the demand for an interactive, satellite based distance education system for the country. It is collaborative project of the MHRD, IGNOU and the ISRO.

EDUSAT can cover the whole geographical India with it's five sport beams covering the northern, north eastern, southern and western region of the country. The sport beams (in Ku-band frequency) used in the EDUSAT are more powerful than that of the INSAT -3B. As a result, it's signals can the received with a smaller satellite dish and consequently the reception terminal is cheaper. The EDUSAT is specially configured for an audio visual medium, employing a digital interactive class room and multimedia multi-centric system. It is primarily meet for providing connectivity to the school, college and higher levels of education and also to support non formal education, including developmental communication

Functions of EDUSAT

- 1) It covers all geographical area inside the country
- 2) It can provide interactive and cost effective education.
- 3) It can provide consistency to information.
- 4) The spot beams used in the EDUSAT are more powerful and signals can be received with a smaller satellite dish.
- 5) It is a satellite fully dedicated to the cause of education.
- 6) It is useful to implement virtual class room in remote and rural schools. The teacher at the transmission end virtually becomes available to all the virtual classrooms at the receiving end. This process can help in overcoming shortage of trained teachers if in service training is giving to the existing teachers in the most economical way.

- 7) It can provide audiovisual medium and interactive multimedia facility.
- 8) It can open up many possibilities like online teachings, video conferencing etc.
- 9) It can be used at all levels of education, from primary schools to professional courses.
- 10) It can provide live lecture session from the best and expert teachers.
- 11) It can facilitate provision of equality in educational opportunity. Before establishing the EDUSAT quality classes and classes handled by experts benefited only urban students. But with the working of the EDUSAT ruler students also can enjoy it's benefit.
- 12) EDUSAT has enhanced distance education in the country, especially in medical, technical and higher education streams. The project will be run by the ISRO and IGNOU, the former providing the technical infrastructure and the latter developing courses and training teachers.
- 13) Students will get the facility to see what they read in there textbooks and to do experiments with the help of multimedia technologies.

NATIONAL MISSION ON EDUCATION THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

The National Mission on Education through Information and Communication Technology (ICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode. This is expected to be a major intervention in enhancing the Gross Enrolment Ratio (GER) in Higher Education by 5 percentage points during the XI Five Year Plan period.

Objectives of NME ICT

The objectives of the National Mission on Education through ICT shall include:

- Building connectivity and knowledge network among and within institutions of higher learning in the country with a view of achieving critical mass of researchers in any given field;
- Spreading digital literacy for teacher empowerment;
- Development of knowledge modules having the right content to take care of the aspirations of academic community and to address to the personalized needs of the learners;
- Standardization and quality assurance of e-contents to make them world class;
- Research in the field of pedagogy for development of efficient learning modules for disparate groups of learners;
- Making available of e-knowledge contents, free of cost to Indians;

- Experimentation and field trial in the area of performance optimization of low cost access devices for use of ICT in education;
- Providing support for the creation of Virtual Technological University;
- Identification and nurturing of talent;
- Certification of competencies of the human resources acquired either through formal or non-formal means and the evolution of a legal framework for it; and
- Developing and maintaining the database with the profiles of our human resources.

NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING

The National Programme on Technology Enhanced Learning (NPTEL), a project funded by the Ministry of Human Resource Development (MHRD), provides e-learning through online Web and Video courses in Engineering, Sciences,

Technology, Management and Humanities. This is a joint initiative by seven IITs and IISc Bangalore. Other selected premier institutions also act as Associate Partner Institutions. NPTEL is a curriculum building exercise and is directed towards providing learning materials in science and engineering by adhering to the syllabi of All India Council for Technical Education and the slightly modified curricula of major affiliating Universities. It has developed curriculum based video courses and web-based e-courses targeting students and faculty of institutions offering UG engineering programs.

NPTEL provides free online courseware in the form of web courses and video lectures. These lectures utilize a multitude of facilities of the video medium such as chalk-and-talk, tablet writing, power point, two and three dimensional animations, interactive codes, etc. Each course comprises approximately 40 video lectures of about 1 hour duration. An online discussion forum is incorporated wherein students can post and review questions. Wherever applicable, course assignments, handouts, self-evaluation tasks, etc. have been integrated. Workshops are routinely conducted for institutes, students, mentors, etc. under the auspices of NPTEL.

There are approximately 921 courses (419 are web based courses and 502 are video courses) in various disciplines currently being offered across Engineering, Sciences, Technology, Management and Humanities. The online courseware provided by NPTEL is free. Institutions may provide hard disks and receive copies of these courses free of cost at the NPTEL office, IIT Madras. They are broadcast through the Eklavya channel provided by Gyan Darshan (Door Darshan Television, Govt. of India enterprise). Individuals who are unable to download lectures due to bandwidth constraints may purchase the video courses in DVDs from BodhBridge Educational Services Private Limited, Chennai, by paying a nominal fee that covers the cost of 2 DVDs and shipment logistics.

Seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and the Indian Institute of Science, Bangalore (IISc) have come together to create course contents for NPTEL. NPTEL contents are being used by various educational institutions as part of their teaching-learning process. While faculty members are using these contents as part of their lesson plan to teach university curriculum, students are using NPTEL not only to prepare for technical jobs and competitive exams, but also as a platform for constant learning and updating knowledge for the ever-changing environment and market realities. NPTEL contents are designed such that they enhance and complement students' residential learning experience at their given institutions.

Certification courses are offered by NPTEL in association with industry partners like Aricent, NASSCOM and Google. These courses offered 2 or 3 times every year are aimed at bridging the gap between academia and industry. On successful completion of the course, an in-person, proctored exam can be taken by paying a nominal fee. Those who pass the exam will be awarded a certificate. To encourage more students across colleges to participate in Online certification courses and learn from NPTEL course content, NPTEL Local Chapters in colleges are being set up (with the approval of the management). It will be under the headship of a faculty member of the college who is called a Single Point of Contact (SPOC).

SPOCs are updated about all the latest NPTEL initiatives. They in turn are responsible to disseminate it among the students. Responsibilities of the SPOC include, identifying suitable mentors for various courses, encourage students to enrol in courses, submit their assignments on time, clarify any doubts they may have and so on. NPTEL offers scholarships for students who have a Local Chapter in their college. As of August 2015, there are 76 colleges having NPTEL Local Chapters. 6658 students have applied for scholarships, of them, 4441 student scholarships have been approved. GATE (Graduate Aptitude Test in Engineering) is IIT's competitive

entrance exam for Master's and Doctoral programs across India. NPTEL provides GATE question papers and mock tests on its official website nptel.ac.in. Previous 3 year question papers with reference to NPTEL content are available. Practice tests (without solution) are also available for students that mimic the actual online exam pattern.

IT@SCHOOL

The IT @ School Project, is an information technology project under the Department of General Education, Government of Kerala in India. Launched in 2001, the Project has remodeled conventional teaching methodologies in classrooms through the use of IT. The project is being implemented in over 12,000 schools in the state of Kerala, and also in schools in Mahé, Lakshadweep and the Middle East which follow the state syllabus. The project also conducts specialized training for visually challenged teachers in that state. The project functions on a free software platform. The project gives training on;

ANTS(Animation training programme for students)

The project provided training in animated movie making entirely based on free and open source software such as KToon, Gimp, OpenShot Video Editor and Audacity.

ICT training: Training given to familiarise the basics of operating systems and office software packages and other application software.

Hardware training: 3 day training programme on hardware maintenance and basic support.

Internet training: This 20 hour training programme was given to all SITCs and interested school teachers. The trained SITC then trained all High School teachers in their school. The government also issued strict instructions that every student in Std X in the school should get at least 10 hours of internet exposure per year.

IT training for the visually challenged: In association with Insight scheme of Kerala State IT Mission, the Project has successfully imparted IT training using free software for teachers of special schools for visually challenged, by exclusively using free software based screen reading software named ORCA.

Camera handling training: Two day training on camera handling was given to the teachers, enabling them to create educational videos which could be beneficial in implementing ICT enabled education.

Training on ICT enabled content: Specific training on ICT enabled content was provided to teachers so as to enable them to use ICT enabled content in all subjects in order to equal teachers in classroom transaction.

IT@School GNU/Linux is a Debian based GNU/Linux distribution that was created for the IT@School project to impart ICT education in public schools in the state. The distribution was originally developed by SPACE and is currently being maintained by the internal team at IT@School project.

Implementation of SPARK

The "Service Payroll Administrative Repository for Kerala" (SPARK) is a program of Department of Information Technology (DIT) of the state's government for digitizing the service book details of all employees of the state so that the database could be used for the decision makers and to ensure the welfare of the employees. Through this process implemented by the Project, details of as much as 72,256 service books from 2266 schools were entered in the database. Currently 107 schools use this software to generate the monthly salary bills of teachers and staff.

Schoolwiki

Schoolwiki, modelled on Wikipedia, attempts to foster the culture of collaborative learning in Kerala's schools. The portal at www.schoolwiki.in provides a comprehensive knowledge database of all schools in the state. The innovative portal include the learning outcomes of students derived from group

activities as well as various educational contents prepared by the teacher groups. This collaborative website is completely prepared in Malayalam.

All high schools in the state include their educational contents and other details in their allotted space. Each school would be able to enter details such as basic elementary data, their historical references, statistics, infrastructure details, details of alumni, school websites and blogs, various clubs and forums, class magazines, supporting images and videos. Apart from these contents, analytical language projects such as “Pradeshika patram – [school newsletter]”, “Nadodi Vijnanakoshan – [Local Encyclopedia]” and “Ente Nadu- [My Village]”, which are part of learning Malayalam language, would also be entrusted to all students in Std 8, 9 and 10 respectively, which, under the guidance of language teachers, would be completed and the reports and findings would enrich the knowledge base of Schoolwiki. Schoolwiki also features an “ICT Learning Corner”, which include the various contents prepared by schools for all subjects in ICT enabled education. By facilitating the students to access and modify all contents in Schoolwiki, the project also ensures the participation of the general public including school alumni.

Sampoorna

Sampoorna is a school management system project implemented by the Education Department of Government of Kerala to automate the system and process of over 15,000 schools in the state. The main objective of ‘Sampoorna’ school management software is to facilitate the Principals, Head Masters and teachers to easily implement, track and monitor all activities of students of their school and that of the school itself. Various cumbersome processes such as preparation of Transfer Certificate, copying of Admission Register, generating various reports related to students, parents, teachers and non-teaching staff, generating lists for various scholarships, preparation of SSLC examination database, progress report preparation, promotion list preparation, entry forms for sports and games and also

for Kalotsavams etc. would be made easier using the online software. A time-table preparation software has also been integrated into the software.

VICTERS

IT@School is the nodal agency for implementing the EDUSAT network, and runs an exclusive channel for education called VICTERS (Versatile ICT Enabled Resource for Students), which is aired from 6am to 11pm. India's epoch making first broadband network on EDUSAT for schools, "VICTERS" inaugurated by A P J Abdul Kalam, the president of India, on 28 July 2005 in Thiruvananthapuram. VICTERS offers interactive virtual classrooms that enable the school students as well as the teachers to directly communicate with the subject experts and educationists. It also ensures the dissemination of high quality education to the students and teachers from the original source. Various programmes telecast through VICTERS are as follows;

- Padanakauthukam, Shastrakauthukam educational programmes
- Examination oriented programme for SSLC and Plus 2 level
- Shasthramuthukal (Science programmes).
- Vazhikaatti (produced by State Institute of Educational Technology)
- Ormayile Malayalam (Specific datewise regional programme)
- Kerala Sree (Produced by Department of Information & Public Relations, GOK)
- Deutsche Welle Time (DW Programme)
- Pusthakangalkkoppam (Introducing various Books)
- Haritha Vidhyalayam (Educational reality show for schools)
- Kadhaparayum Neram (Story telling time)
- Mozhimuthukal (Detailing famous quotes)
- Drishya paadam (produced by State Open School)
- Naadavismayam (Introducing Musical instruments and symphonies)

- Innalekalile Innu (Yesterday - Today)
- Samrakshithasmaarakangal (Protected monuments)
- Gaanamayooram (Familiarising patriotic songs)
- Great Teachers (Familiarising famous and renowned teachers)
- Career After 12th
- Kalothsavam (State School Youth Festival)
- IT for All (Technology outlook programme for students and public)
- Inspire (career guidance programme)
- Chithrashala (film based programme)
- MAT (talent time Special)
- Educational News
- Anukalikam (Weekly cultural news programme)
- Sasthra lokam (Weekly science based programme)
- Shasthra naadakam (Weekly science based programme)
- BBC TIME (BBC Programme)
- NFDC film (Classic films produced by National Film Development Corporation)
- Weekend (Weekly global news)
- Vibgyor (subject related programme)
- Adhithiyodothu Alpaneram (Interaction with a renowned personality)
- Tomorrow Today (DW Programme)
- Beyond the text (text based programme)
- Global Three Thousand (DW Programme)
- Magic fingers (tricks and plays on magic)

AKSHAYA PROJECT

The Akshaya project, first started in the rural Malappuram district of Kerala, India, and now spread all around the state, was the first district-wide e-literacy project in India and one of the largest known Internet Protocol (IP)

based wireless networks in the world. In November 2002, the state government of Kerala put into place a project, piloted in Malappuram, with the goal of at least one person in every family to be computer literate in that district. Malappuram is now what is said to be India's First E-literate District. The mission continues to make Kerala the First E-literate state in India.

In Malappuram district alone, Akshaya has conducted one of the world's largest computer literacy drives, claiming to reach over 600,000 households, representing more than 3.6 million people, in less than 6 months. The project has created a unique brand of state-funded computer access centers, and simultaneously led to a massive wireless infrastructure, providing a wide range of services and making way to many future opportunities.

The project offers lots of services like: E-Pay (electronic payment of utility bills like electricity, land phone, drinking water, university fees etc.); E-Krishi (for farmers to provide online agriculture trading and information portal, A to Z Solution) E-Vidya (advanced IT learning for e-literates and others); E-Ticketing (online train, flight, bus ticket reservations); PMRY online registration; online passport registration; a village kiosk for transparent collectorate program, online communication providers for expatriate Indians; an online medical transcription course, with extension programs for all the above-mentioned services.

In the nineties of the last century United Nations ratings for the different regions of the world recorded Kerala as an economic miracle. In several social parameters the State was at par with the developed West. This unbelievable feat was achieved in spite of a lesser per capita income and lack of industrial back up. The great economist –Amarthya Sen attributed this achievement to the spread of education to a wider level in Kerala society. A section of educated among Keralites utilised the services of information technology for further economic development.

But the vast majority did not take to this technology for consolidating and furthering the achievements on the social front.

A digital divide developed in the State as elsewhere between a minority that could use information technology for development and the majority that could not do so. Planners in the socio-economic front sooner realised that the consolidation of socio economic development in Kerala was possible only by removing the digital divide in the society. The vast majority of the populace have to be equipped with the tools of Information and Communication Technology to achieve tangible progress. The less privileged sections had to be empowered with ICT. Those at the helms in the three-tier panchayat system in the State realized the importance of ICT for socio-economic development and they came forward with plan proposals and programmes to bring information technology to common households. Meanwhile, Government constituted the State Information Technology Mission for achieving transparency and speed in administration so as to make it more responsive to the needs of the people and for grass roots level application of information technology as part of social engineering for development.

GYANDARSHAN

The Education Department has been able to reach IT-enabled to 54,000 teachers & 25 lakh student through the Edusat. One of the major responsibilities of the department is making IT-enabled teaching & learning of different subjects a reality in all sectors of education. The department will focus on setting up district-level resources centre aid the spread of IT-enabled education in the state.

The Edusat based educational channels would also be used to expose the children of Kerala to educational & cultural values. India's epoch making first broad band network on EDUSAT for schools, "VICTERS" inaugurated by A.P.J.Abdul kalam the president of India on 28th July 2005 in Thiruvananthapuram. Indian DD Gyandarshan is an educational television channel that relays programmes from

various Doordarshan Kendras in different languages. The channel is organized & administered by NCERT, IGNOU & The National Institute of Open Schools. IGNOU, Ministry of Human Resources Development & Prasar Bharti started the channel in January 2000.

GYANDARSHAN

- Gyandarshan was born on January 26, 2000. It is a bouquet of six channels. In essence, it is a co-operative venture with the Indira Gandhi National Open University as a nodal agency for coordinating the activities & up-linking the educational content.
- The programmes are a mix blend of core curriculum based programmes in the areas of primary, secondary, higher, open & distance education, extension, technical & vocational education along with general mosaic programmes in areas of health, hygiene, arts, culture, environment, conservation, science popularization etc.
- There are state wide initiatives such as the SAPNET (Society for Andhra Pradesh Network) in Andhra Pradesh & the University of Goa.
- SAPNET is a major communication infrastructure initiative of the department of IT & C, Government of Andhra Pradesh. SAPNET is mandated to run 5 television channels (under the name MANA TV) & one data channel.
- The programmes are telecast on Gyandarshan from 6am to midnight & also on DD1 & DD2.
- One of the most popular programmes of the channel is Nitter, which is an educational program that keeps pace with the improvement in the areas of technology hosted by National Institute of Technical teachers training & research.

Other Programmes

- Bhasha mandakini
- NCERT/ CIET
- North East Kaleidoscope
- Women's Empowerment
- Adult Education
- BROU
- IGNOU-SOSS
- IGNOU-SOCIS
- IGNOU-Urdu programme
- IIT

GYAN VANI

Conceived as a joint venture between MHRD and IGNOU, the Gyan Vani project comprises a network of 40 FM Educational Radio Stations located in different places across the country. Sixteen of these stations are already operational, viz., Allahabad, Bangalore, Bhopal, Chennai, Coimbatore, New Delhi, Kolkata, Lucknow, Mumbai, Vishakhapatnam, Raipur, Rajkot, Jabalpur, Gauhati, Varanasi and Mysore.

Each Gyan Vani radio station caters to a service area of around 60 km radius and can be received on normal FM radio sets. The programming mainly aims at local educational needs in the local language. The help of local educational institutions and educationists is sought in programme production. Live programmes with phone-in interactivity is a notable feature of Gyan Vani stations, which are particularly popular with the student population.

Interactive Radio Counselling

This is a phone-in programme which is conducted live across the country every Sunday between 4 and 5 p.m. and is relayed by all AIR stations. Resource persons present in the studio explain the topic of the day after which a live question-answer session follows. Students from some select cities in the country can phone-in by using a toll free number (16001-12345) and get their doubts cleared in real time. These phone-in counselling sessions are a boon to distance education students as they provide the much needed interactivity and human touch.

INFORMATION AND LIBRARY NETWORK (INFLIBNET)

The Information and Library Network (INFLIBNET) programme was started by the University Grants Commission (UGC) in April 1991. It is a cooperative venture for pooling, sharing, and optimisation of library resources in the country. It aims to provide a channel to the academicians and researchers for exchange of information from sources within the country and abroad. It is a major programme towards modernisation of libraries and information services in the country, using computer and communication technologies. INFLIBNET include participants from colleges, universities, R&D institutes, institutes of higher learning, information centres, institutes of national importance, and document resource centres (DRCs). All the disciplines such as science, technology, medicine, agriculture, fine arts, humanities, social sciences, etc., covered under this programme. The INFLIBNET programme has been set up with the following objectives:

- To modernize libraries information centers in the country
- To facilitate pooling, sharing, and optimization of library/information resources.
- To organise library services at macro level affordable cost and maximize benefits.
- To provide speedy and efficient services to the end users.

Functions of INFLIBNET

The Centre has implemented several projects for the development of library services in Indian Universities. These include the following:

- Financial support for the automation of University Libraries
- Development of a comprehensive database of the resources in various libraries in India
- Development of an integrated library management software called SOUL (Software for University Libraries)
- UGC-Infonet Internet Connectivity Programme
- The centre has taken several open access initiatives like:
- OJAS, a platform to faculty and researchers in Universities to host their open-access journals
- Shodhganga, a digital repository for theses and dissertations by research scholars in universities in India
- Shodhgangotri, a digital repository of synopsis of research topic submitted to the universities in India by research scholars
- An institutional repository called IR@INFLIBNET for papers published in the proceedings of the CALIBER and PLANNER
- Creation of R&D facilities and working groups to study and contribute to the open source movement
- Maintenance of a database of scientists, researchers and other faculty members working at leading academic institutions and other R&D organisations involved in teaching and research in India
- Bibliometric and scientometric studies
- e-PG Pathshala: A Gateway to All Post Graduate Courses

- Trainings in many various aspects related to Library and Information and Communication Technology (ICT) are frequently organized.

MEDIA IN EDUCATION

PRINT MEDIA

In order to communicate with each other human being is using means of verbal and non-verbal for centuries. Communication is used as an empowerment tool for developing society. In other words, communication is used as a tool to facilitate the participation of people in development activities. Millions of people in developing countries are excluded from a wide range of information and knowledge, with the rural poor in particular remaining isolated from both traditional media and new information and communication technologies which would improve their life. It is about using communication to change or improve something. The messages which are designed to transform the behavior of people or for improving their quality of life can be termed as development communication and these messages used to change the socio-economic condition of people. Even after the advent of electronic media-like radio and television, the print media has not lost its charm or relevance. Print media has the advantage of making a longer impact on the minds of the reader with more in-depth reporting and analysis.

The contribution of print media in providing information and transfer of knowledge is remarkable. Now-a-days, print media is faster than all ever before due to amazing advances in technology in recent years. Technical breakthroughs alter the way we perceive the universe and manner in which we communicate with one another. So it's become important to study recent trends of print media-newspaper, magazines, booklet etc in the development communication of country and worldwide.

Print Media in India

Before Freedom: History of print media and written communication follows the progress of civilization which in turn moves in response to changing cultural technologies. The transfer of complex information, ideas and concepts from one individual to another, or to a group, underwent extreme evolution since prehistoric times. It has been 30,000 years later since the first recorded evidence of written communication and it is still dramatically changing. The Press in India, particularly the Indian language newspapers, was in the forefront of the struggle for freedom. Many leaders from Mahatma Gandhi downwards used their newspapers to activate the people to participate in the freedom struggle. But the newspapers are no longer active in the fight against poverty, disease, illiteracy and superstition.

Political leaders used the Press to rouse the people. It was, therefore, natural that the British rulers of India used every weapon in their armoury to silence the nationalist press. Newspapers always had the sword of Damocles hanging over their head. Security was asked at the slightest pretext and editors and publishers were prosecuted for sedition. Some editors were even transported to the Andaman. For the editors and people who worked in newspapers, journalism was a mission. Even captains of commerce who published newspapers treated this activity as their contribution to the struggle for freedom. Wages for journalists were poor and there was no security. Newspaper publication was not profitable and journalism was not paying as compared to other professions but things changed after Independence and each year saw acceleration in change.

In India, whilst newspapers came much later as opposed to Europe or America, it has a rich pedigree of being a witness and a catalyst to the birth and growth of the nation. The first newspaper published in India was the Bengal Gazette started by James Augustus Hickey in 1780. Although the paper was rather frivolous in nature as it mostly only published gossip and advertisements, the thriving media industry owes its existence to James Augustus Hickey and his Gazette. Soon after,

papers such as Bombay Herald and the Bombay Courier were started in the country. Interestingly, the Bombay Courier later merged with the Times of India newspaper. In 1818, the first regional language newspaper Samachar Darpan was published in Bengali. The Bombay Samachar started in 1822, remains to this day the oldest newspaper in Asia. In the pre independence era, newspapers had one agenda in their minds – to further their ideology. Bal Ganghadar Tilak is a prominent stalwart of the pre-independence era and a revolutionary leader who used his newspaper as a vehicle of communicating his ideas and ideals of the freedom struggle. Kesari, which was established in 1880, was published in Marathi. Prior to 1947, the newspaper industry had only one goal – to proliferate the cause of Independence.

After India became Independent in 1947, British owners of the newspapers like The Times of India also left the country, handing over the businesses to Indian companies. Editors of profreedom struggle Indian newspapers had anti-British stance till 1947. These newspapers gradually changed their approach; some became pro-establishment and the others adopted aggressive anti-establishment strategies. The publishers during the subsequent decades expanded their groups and chains with additions of new editions at other centers or new publications.

It means after the independence of India scene of print media has changed. There has been a phenomenal rise in the number of newspapers and their circulation. The number of pages has increased. The quality of production has improved all rounds. Even medium Indian language newspapers have taken advantage of the advances in printing and communication technology to bring out multiple edition dailies. The best example of this one is Daily Sakaal which is among the first newspapers not only in Maharashtra but also in India, to have adopted modern management systems and processes. It has deployed the latest technology made available through partners who are world leaders in their areas of specialisation. Newspapers of the big chains face a stiff competition from these newspapers

because they are equally well produced. What is more, being rooted in the soil they are more aware of local problems and so they playing active role in the fight against poverty, disease, illiteracy and superstition. Colour printing has made the newspapers more attractive. Areas of national activity like commerce now find a prominent place in almost all-Indian language newspapers. New sectors of commerce and industry became available to businessmen. They found newspapers useful in influencing the Government and the people. Some British-owned newspapers passed into Indian hands and started newspapers in Hindi and other Indian languages. The government accepted the demand for security of service for people working in newspapers and news agencies. All this helped in the growth in the number of newspapers and their circulation. The eighties and nineties saw the growth of medium Indian language newspapers. They adapted the latest printing and communication technology to bring out multiple editions.

After Freedom: Post 1947, newspapers in India had a choice to make – either align with the government and support all its initiatives or act as a critique to the newly democratised country and its head. Newspapers at first acted as unofficial sponsors of its various initiatives and schemes. The five year plan especially came highly endorsed by the national newspapers. Most of the newspapers in India came into existence post-independence. Today thousands of magazines and newspapers are in circulation. Whilst in the early days of democracy, the Indian government enjoyed full support of the media houses.

In the pre-Independence era, the editorial in a newspaper was widely read for the lead it gave and used newspaper as an instrument of social change. But in the new era, the editorial became shorter in length and weak in impact. The new generation of industrialist-publishers is now more interested in profits instead of society's obligation. Therefore, they closed down serious literary and political publications so as to retain the profit from the flagship publications. The tendency

grew to treat the newspaper more as a marketable product than as an instrument of social change.

Presently in the 21st century, Indian print media is one of the largest print media in the world. The Times of India being the 8th most circulated newspaper in the world. With a daily circulation of 3.146 millions, The Times of India tops the list of the best newspapers in India, followed closely by local language papers. While Hindi dailies Dainik Bhaskar (2.547 million) and Dainik Jagran (2.168 million) compete for the second and third place respectively, the Malayala Manorama stands fourth with a daily circulation of 1.514 million. Circulation of the newspapers is certified by the Audit Bureau of Circulation (ABC).

Advantages of print media

- Flashy magazines are always popular among consumers and are often read by them for a particular period of time in a month. The monthly magazines are the best way to bring attention to any advertisements.
- Print media is an easy medium to spread awareness or advertise to any particular geographical area. Like, a local newspaper is the best way to spread news about any local event of the place.
- Some forms of the print media have a huge and trusted followers. This is definitely a great boost to attract readership.
- Print media allows you to choose your own space for advertisement, thus, you can manage your budget and expenses while planning for the advertisement.

Disadvantages of print media

- If you are targeting the global audience, then this is not the medium you should go for. Instead, the internet has a much wider reach than print media in this.

- Placing an advertisement in print media requires a lot of planning and time. In this case, you are faced with flexibility problem, particularly when you work in tight deadlines.
- In fact, there is much limitations when it comes to targeting your audience as the particular newspaper may not be available to the audience all the time. On the other hand, a person can get access to the internet from anywhere and everywhere.
- Besides, most of the time, your advertisement might get lost among all other ads and editorials. Plus, the lifespan of newspaper and magazines is very short as people have a tendency to throw them or keep them aside after one day of read.