CHAPTER I

INTRODUCTION

1.0 OVERVIEW

The Present Chapter deals with the Conceptual Framework of the study. It starts from the Concepts of Communication, various definitions of Communication, Principles of Communication, Theories of Communication, Modes of Communication, Communication process in Teaching and the Evolution of Technologies right from Radio to different ICTs. The importance of ICT in Higher Education and the role of teachers in the Utilization of ICT devices in teaching are briefly narrated. This chapter ends with the Rationale for the Study and the Chapterization.

1.1 QUALITY IN EDUCATION

Efforts are made in every country for a sound system of education which can cater the educational needs of all citizens. When the problem of quantity of education is being tackled, there is an urge for raising the quality of life, which is possible only if there is raise in the quality of education. The quality of life and the quality of education go together. Educationalists are of the opinion that the educational problems relating to the quality and quantity could be tackled by the development of an Educational Technology. Therefore, in recent years all over the world there has been a rapid development of
Communication Technology in education at all levels with a purpose of extending educational facilities and upgrading instructional methodology.

Technology refers to techniques and procedures derived from scientific research about methods for promoting change in human performance. Technology is not machines and hardware alone, but technology is a way of organizing thought, Science, Art and Human values. Each technology has its advantages and limitations and no single technology is useful for all types of learning. The teacher has to play a pivotal role for the success of using the educational technology. The instructional material cannot be prepared by educational technology and it will not replace the human teacher but will help him in improving teaching-learning process.

1.2 CONCEPT OF COMMUNICATION

A person who speaks, writes or issues some instruction is the sender and the person for whom the communication is meant or who receives the message is the Receiver or Communicate. Communication involves at least two persons, a Sender and a Receiver. The sender is called Communicator and the receiver Communicate. A message is the subject matter of communication, e.g., the contents of the letter or speech, order, instruction or the suggestions. A communication must convey some message. It refers to the exchange of ideas, feelings, emotions and knowledge and information between two or more persons.
1.2.1 Definitions of Communication

D.E. McFarland, “Communication may be broadly defined as the process of meaningful interaction among human beings. More specifically, it is the process by which meanings are perceived and understandings are reached among human beings.”

Koontz and O’Donnell, “Communication is a way in which one organization member shares meaning and understanding with another.”

Fred G. Meyer, “Communication is the intercourse by word, letters or messages, intercourse of thoughts or opinions. It is the act of making one’s idea and opinion known to the other.”

Keith Davis, “Communication is the process of passing information and understanding from one person to another.”

Louis A. Allen, “Communication is the sum of all the things one person does when he wants to create understanding in the mind of another. It is a bridge of meaning. It involves a systematic and continuous process of telling, listening and understanding.”

Combing all the above definitions it is understood that communication is a continuous process of exchanging ones ideas to the other in a systematic way with the use of a language known both to the communicator and the communicate. Communication is generally understood as spoken or written word. But in reality, it is more than that. It includes every thing that may be used to convey meanings from one person to the other, e.g.,
movement of lips or wink of an eye or the wave of hands may convey more meanings than even written or spoken words. It involves both information and understanding. Communication usually flows from downward from a superior to subordinates and upward from subordinate to a superior. It also flows between two or more persons operating at the same level of authority. Communication is not complete unless the receiver has understood the message properly and his reaction or responses is known to the sender. Understanding is the ultimate result of communication.

1.2.2 Principles of Communication

There are different principles which are responsible for the good communication. Some of them are given below:

i. **Clarity.** The communicated message should be clear. It should be communicated in simple, easy and commonly understood language. It is the speaker who makes them meaningful and it is the receiver who interprets them. Therefore, whatever is conveyed should be conveyed in unambiguous clear words.

ii. **Attention.** The recipient’s attention to the communicated message must be drawn to make the communication effective. The communication is always meant for action. Mere words may not help in communication.

iii. **Consistency.** Communications should be consistent with the plans, policies, programmes and objectives of the enterprises.
Communications should be consistent among themselves. Inconsistency creates confusion. Better co-ordination is achieved by consistent communication.

iv. **Adequacy.** Communications should be adequate and complete. It should not be broken or incomplete. Inadequate communication delays action. It spoils understanding as well as good relations. Efficiency of both the communicator and recipient is affected due to lack of adequacy.

v. **Proper Time.** Information should be communicated at the right time. Wrong choice of time may not have the desired impact on the recipient. Sometimes information communicated in a wrong time may have adverse effects too.

vi. **Integration.** Communication is a means to attain the objectives of the enterprise. It tries to get cooperation of all to see that the work is accomplished satisfactorily. As far as possible it should be based on the policy of integration of efforts in order to avoid confusion and help in better understanding. It should help in achieving a genuine spirit of co-operation among the personnel of the organization.

vii. **Informality.** The executive should try to remain informal in his behavior with subordinates. But in a certain situation, he may bid good bye to informality and become formal in his relations and conduct.
viii. **Feedback.** Communication is two ways traffic. Messages, policies, programmes, directions, opinions etc., are communicated downward. Grievances, complaints etc., are communicated upward. Both are necessary in an organization. Thus communication is also termed as a two-way process. It follows the principle of ‘give and take’. It is meant for being communicated. The reaction should be calmly watched, sympathetically received and incorporated whenever and whatever is necessary.

1.2.3 **Communication Channel**

The basic communication involves an informational or interpretive process in which messages, information or reactions to information travel from the indicator to the receiver through the route called Communication Channel. The message conveyed by the teacher or the educational media may be verbal or visual and the receiver may listen or see and react in other ways. The communication channel in the classroom should ideally carry both messages and counter-messages.

The communications must be kept open, only when the teacher and pupils are able to communicate with clarity and without interference of understanding and appreciation are ensured. But unfortunately many interferences and communication barriers arise which impede the smooth flow of communication between the teacher and his pupils in the classroom. The communication channel employs media of teaching and learning.
1.2.4 Modes of Communication

There are different modes of communication. Some of them are

a. Speaking-Listening – In this type of communication one speaks and the other understands it by listening to him/her. For example, in the classroom the teacher speaks and the students listen and understand. Similarly, listening to a talk over the radio or in the tape recorder and understanding it also comes under this category. This type of communication may be also called as Oral Communication.

b. Visualizing-Observing – In this type of communication the sender encodes his thoughts, ideas etc., into some pictures or other visual symbols. The receiver observes the pictures or other visual symbols and understands the thoughts, ideas or messages communicated through them. For example, we know the various traffic signals and symbols and understand what they indicate. This type of communication may be called Visual Communication.

c. Speaking-Visualizing - Some times the communication may be sent through speaking and visualizing both occurring simultaneously. The receiver may listen and observe at the same time and understand the communication. For example, when we watch the Television programme or see a sound film we understand both the spoken words and the visuals. Generally, it is agreed that this kind of communication is very effective.
d. Writing-Reading – In this type of communication the sender writes the words and sentences on something. The written words and sentences are read by the receiver and understood. The reading always need not be performed through the eyes. For example, in the Braille system of writing, raised dots are used. The blind people touch these dots and understand the messages or information conveyed through them.

1.2.5 Communication Process in Teaching

Teaching is a complex activity carried out in the complex situation of school by complex organisms-human beings (teachers) directed towards more complex organisms (students) who are constantly undergoing complex changes. In the present fast-growing age, a lot of information has to be collected from multifarious sources, integrated and then processed in a gainful manner not only within self but to the next generations. Teachers have been shouldered with the responsibility of processing it through a formal system to the level of the students. Teachers handle information coming from outside, organize data, enable the learner to raise problems, generate concepts and solutions to the problems with the use of verbal and non-verbal symbols. Teacher is a powerful agent in determining the processing of information by reducing the amount of natural behavior of children instituting the instructional patterns, building a social system and regulating the instructional process.

Teaching may be considered as a sort of communication. The teacher is supposed to communicate new ideas, attitudes, information,
behavior, skills etc., to the students. Teacher’s communication will be fruitful only when students receive, and understand it and learn from it. Here the teacher is the sender of the communication and the students are the receivers of the communication. Only when the students understand the communication they will respond to it in the appropriate way. This response may be in the form of an answer to a question put by the teacher. This response may be in any other form also, for example attitude change or behavioral change etc. If learning is to be effective it should be ensured that the communication process travels along a channel, clear of any interference. To be a successful communicator, a teacher should be aware of all the barriers in the class room communication and he should know all the techniques of communication for which he needs practice.

The teaching process has two major components – Content and Communication. The Content of teaching determines method and Communication decides the medium. In organizing teaching, main problem is to take decision about an appropriate communication media. An effective presentation media helps in achieving the learning objectives which have been formulated at planning stage. Therefore, it is essential to understand the term media, theory of communication and communicating channels.

Education is not limited to the class room teaching only. It is broad-based and multi-dimensional. It is life long, universal, free and open. Education is learning and learning is life. Learning, living and working should go together. Education is not only life long, but also life-wide. Hence, there is no end to learning and no frontiers of learning. School is not the mere
institution for learning. Schooling is not the only education or education is not the only schooling. The traditional curricula, methods, organizations and examinations are found irrelevant to the modern age. Therefore, flexibility and multiplicity of media and materials are to be encouraged. Since the children of today are the citizens of tomorrow, they have to be provided with all kinds of facilities and techniques for effective as well as efficient learning.

1.3 TOOLS FOR COMMUNICATION

Information and Communication Technologies (ICTs)—which include Radio and Television, as well as newer digital technologies such as Computers and the Internet—have been touted as potentially powerful enabling tools for educational change and reform. When used appropriately, different ICTs are said to help, expand access to education, and strengthen the relevance of education to the increasingly digital workplace. They raise educational quality by, helping teachers to make teaching and learning into an engaging, active process connected to real life.

However, the experience of introducing different ICTs in the classroom and other educational settings all over the world over the past several decades suggests that the full realization of the potential educational benefits of ICTs is not automatic. The effective integration of ICTs into the educational system is a complex, multifaceted process that involves technology, curriculum and pedagogy, institutional readiness, teacher competencies and long-term financing, among others.
1.4 RADIO

Radio has been playing an important role for promoting relevance and interest in education. It brings the outside works into the classrooms and makes the educational programme very attractive and useful. It not only informs, but also inspires the listeners. It inculcates values, develops virtues and encourages imagination. Therefore, Radio is a potential medium for helping in realization of educational objectives most efficiently. Being an inexpensive medium, it has reached not only the villages but in all the nook and corner of the society. Radio at present is not only one of the most popular mass media, but also a potential instructional tool in the formal, informal and non-formal education.

1.4.1 Educational Radio Programmes in India

The Radio Club of Bombay broadcasted the first radio programme in India in June 1923 (Sharma, 2002). Later a Broadcasting Service was set up that began broadcasting in India in July 1927 on an experimental basis at Bombay and Calcutta simultaneously. This was done under an agreement between Government of India and a private company called the Indian Broadcasting Company Ltd. In the year 1947, the All India Radio (AIR) network had only six Stations located at Delhi, Bombay, Calcutta, Madras, Lucknow and Tiruchirapalli with a total complement of 18 transmitters - six on the medium wave and the remaining twelve on short wave. Radio listening on medium wave was confined to urban limits of these cities. As against a mere 2,75,000 receiving sets at the time of Independence, now there are
about 111 million estimated Radio sets in about 105 million household in the country. Presently the broadcast scenario has drastically changed with 198 broadcasting centers, including 74 local Radio Stations, covering nearly cent percent country's population (http://www.air.org.in). As on today AIR network broadcasts nearly 2000 programme hours every day in 24 languages and 146 dialects. It reaches 97.1 per cent of the population, which includes substantial population in rural area, and covers 89.7 percent of the Geographical area of the country (source: http://www.allindiaradio.com). The AIR is expected to cover an estimated 97.7 percent of population in the country on completion of various ongoing projects under the 8th Five-Year Plan (IGNOU, 2000).

1.4.2 School Broadcast Project

School Broadcast Project was commissioned in 1937 and the target group was School students. This programme started from Delhi, Calcutta, Madras and Bombay. In the beginning the school programmes were not strictly governed by the curriculum. With the passage of time and acquisitions of more experience, the AIR tried to make its radio broadcasts more curriculums oriented, but due to the absence of common syllabi and time tables in schools, even within the same state, it could not succeed in its aim.

1.4.2 Adult Education and Community Development Project (Radio FORUM)

Adult Education and Community Development Project commenced in the year 1956. The 144 villages in the vicinity of Poona in Maharashtra
state were the main beneficiaries of this project. That was agriculture-based project, which was originally designed and tried out in Canada. With the help of UNESCO, it was tried in 144 villages of Poona and was named as 'Radio Forums Project'. The members of the forum could listen thirty-minute radio programme on some agricultural or community - development programme, then discuss and decide regarding its adoption in their own village. This project was a great success. Many action programmes were planned and put into practice.

1.4.4 University Broadcast Project

University Broadcast Project for University students was initiated in 1965, with an aim to expand higher education as widely as possible among the different strata of society. The programme consisted of two types-'General' & 'Enrichment'. The General programme included topics of public interest and Enrichment programme supported correspondence education offered by Universities in their respective jurisdictions. School of Correspondence studies, University of Delhi and the Central Institute of English and Foreign Languages, Hyderabad is well known for preparation and broadcast of their programmes through AIR.

1.4.5 Language Learning Programme

This Language Learning Programme, popularly known as 'Radio Pilot project' was started in 1979-80 jointly by AIR and Department of Education Government of Rajasthan, with an aim to teach Hindi to School going children as first language in 500 primary schools of Jaipur and Ajmeer.
districts on experimental basis. The project was found useful in improving the vocabulary of children. With that success, a similar project was repeated in Hoshangabad district of Madhya Pradesh with some modifications but had less success.

1.4.6 IGNOU-AIR Broadcast

In collaboration with IGNOU, AIR stations of Mumbai, Hyderabad and Shillong started radio broadcasts of IGNOU Programmes from January 1992. Main target group of this project were students of Open / Conventional Universities. Although Shillong started Radio broadcasts, it could not continue it. Therefore presently it is being broadcast from AIR Mumbai (Every Thursday and Saturday from 7:15 am - 7:45 am) and AIR Hyderabad (Every Tuesday, Thursday and Saturday from 6:00 am - 6:30 am) only. This programme is still popular in the respective region.

1.4.7 GYAN-VANI (Educational FM Radio Channel of India)

Gyan Vani (Gyan = Knowledge, Vani = Aerial broadcasting) is Educational FM Radio Channel of India, a unique decentralized concept of extending mass media for education and empowerment, suited to the educational needs of the local community (Sharma, 2002b). It is operating presently through Allahabad, Bangalore and Coimbatore FM stations of India on test transmission mode. Gyan Vani stations will operate as media cooperatives, with day-to-day programmes contributed by different Educational Institutions, NGO's and national level institutions like IGNOU, NCERT, UGC, IIT, DEC etc. Each station has a range of about 60-km radius,
covering the entire city /town plus the surrounding environs with extensive access. It serves as an ideal medium addressing the local educational developmental and socio cultural needs (IGNOU, 2001).

Gyan Vani is not only for the conventional educational system but also a main tool in making available the dream of education. Gyan Vani’s main intention is to take education to the door steps of the people. Gyan Vani, in addition to giving the hardcore education also deals with awareness programmes including the ones for Panchayat Raj Functionaries, Women Empowerment, Consumer Rights, Human Rights, the Rights of the Child, Health Education, Science Education, Continuing Education, Extension Education, Vocational Education, Teacher Education, Non-formal Education, Adult Education, Education for the handicapped, Education for the down trodden, education for the tribal and so on.

1.4.8 Advantages of Radio in Class Room Teaching

Originally devised for entertainment purposes, the radio is now being used for education for the following reasons. They are,

i. **Supplements Instruction.** It supplements class room instruction. It widens the general knowledge of the pupil and the teacher. It rearranges the content of the curriculum in a new pattern. It takes cross-sections and panoramic surveys of the subjects to enable the listeners to see the March and sweep of events in clear perspectives. In the hands of a thoughtful teacher it may become a highly educative labor-saving and timesaving device.
ii. **Infuses New Life.** By correlating knowledge and skills to the immediate needs and the natural environment of the learner. Radio infuses a new life into the curriculum. Scattered heads of facts and information are strung together as integrated knowledge having social relevance enriching the curriculum.

iii. **Direct Contact With Great Personalities.** Radio enables the students to listen to the expert, the historian, the author, the scientist and the fast-rate teacher. This direct contact with great personalities gives the students a lot of pleasure and an opportunity to gain more knowledge on different subjects.

iv. **Reflects on-the-Spot Current Events.** In the Radio, the running commentary of some inauguration ceremony by the President, a detailed description of some matches or some similar events has an attraction of its own.

v. **Provides Sense of Participation.** By presenting significant events as they unfold Radio gives the pupils a sense of participation. When the pupils listen to a stirring address or to a vivid description of some events, they feel that they are actually participating in the event.

vi. **Inspires.** Radio gives breathing life to dead words the radio and also provides a source of inspiration to speakers. Though often scripted before hand, broadcasts are not merely written to be read
aloud, but to be spoken with all the stimulation and the nerve of life.

vii. **Brings Reforms.** By presenting various responsible views concerning controversial issues Radio challenges dogmatic teaching and passive learning.

viii. **Suited to Group Instruction.** Distance and number are immaterial. Any number of pupils, scattered all over the world, may at the same time listen to the same broadcasts.

ix. **Reinforcement.** Radio reinforces the intellect with contrived emotional factors such as drama and music.

x. **Provides Source Materials.** Sometimes radio provides source materials for the main stream of classroom work also.

xi. **Supplementary Source of Information.** Radio constitutes a supplementary source of information enabling the pupils to listen to original instructional talks given by the specialists, which awaken their intellectual curiosity and convey new ideas to them, bringing them into contact with eminent personalities.
1.5 TELEVISION

Television constitutes an important medium widely used to disseminate information to its viewers. It has the unique feature of combining Audio and Visual technology and thus considered to be more effective than Radio. It serves the multiple purposes of Entertainment, Information and Education. Besides performing motivational function it helps in providing discovery learning and cognitive development of its viewers. Because of its better accessibility, it can bring learning materials to the masses in more direct, effective and personal way than other educational media.

1.5.1 Major Educational Television Projects in India

In India, since the inception of Television network, television has been perceived as an efficient force of education and development. With its large audience it has attracted educators as being an efficient tool for imparting education to primary, secondary and university level students. Some of the major educational television projects are discussed as hereunder:

1.5.2 Secondary School Television Project (1961)

Secondary School Television project was designed for the secondary school students of Delhi, with an aim to improve the standard of teaching in view of shortage of laboratories, space, equipment and dearth of qualified teachers in Delhi. This project was started on experimental basis in October 1961 for teaching of Physics, Chemistry, English and Hindi for students of Class XI. The lectures were syllabus-based and were telecasted in
school hours as a part and parcel of school activities. According to Paul (1968) ‘by and large, the television schools did somewhat better in the test than the non-television schools’ did.

1.5.3 Delhi Agriculture Television (DATV) Project (1966)

The project named Krishi Darshan was initiated on January 26, 1966 for communicating agricultural information to the farmers on experimental basis for the 80 selected villages of Union Territory of Delhi through Community viewing of television and further discussions among themselves. Experiment was successful and that there was substantial gain in the information regarding agricultural practices. (IGNOU, 2000)

1.5.4 Satellite Instructional Television Experiment (SITE) (1975)

Satellite Instructional Television Experiment project was one of the largest techno-social experiments in human communication. It was commissioned for the villagers and their Primary School going children of selected 2330 villages in six states of India. It started on August 1, 1975 for a period of one year in six states Rajasthan, Karnataka, Orissa, Bihar, Andhra Pradesh and Madhya Pradesh. The main objectives of that experiment were to study the process of existing rural communications, the role of television as new medium of education, and the process of change brought about by the community television in the rural structure with the following two types of telecast:
a. Developmental education programmes in the area of agriculture and allied subjects, health, family planning and social education, which were telecast in the evening for community viewing.

b. The school programmes of 22 ½ minutes duration each in Hindi, Kannada, Oriya and Telugu were telecast on each school day for rural primary school children of 5-12 years age group to make the children realize the importance of science in their day to day life.

SITE experiment showed that the new technology made it possible to reach number of people in the remotest areas. The role of television was appreciated and it was accepted in rural primary schools as an educational force (IGNOU, 2000).

1.5.5 Post- Satellite Instructional Television Experiment Project (1977)

The target group for this post project was the villagers of Rajasthan. This was a continuity project and was initiated in March 1977 when a terrestrial transmitter was commissioned at Jaipur. This project was also successful. The main objectives of continuity project were to:

i. Familiarize the rural masses with the improved and Scientific know how about farming, the use of fertilizers and the maintenance of health and hygiene;

ii. Bring about National and Emotional integration; and
iii. Make rural children aware of the importance of education and healthy environment.

1.5.6 Indian National Satellite Project (INSAT) (1982)

The prime objective of INSAT project was aimed at making the rural masses aware of the latest developments in the areas of agricultural productivity, health and hygiene. It was initially targeted at villagers and their school going children of selected villages in Orissa, Andhra Pradesh, Bihar, Gujarat, Maharashtra and Uttar Pradesh. As a part of INSAT of Education project, ETV broadcasts were inaugurated and continued through terrestrial transmission from 15 August 1982 in Orissa and Andhra Pradesh. Later, other states namely Bihar, Gujarat, Maharashtra and Uttar Pradesh were covered under INSAT service using INSAT-1B in June 1983. In each state, a cluster of 3-4 districts were selected on the basis of backwardness of the area, availability of suitable developmental infrastructure and utilization of existing production facilities.

Besides developmental programmes for community viewing, educational programmes (ETV) for two different age groups of school children (5-8 years and 9-11 years) are telecast daily. A capsule of 45 minutes duration consisting of two separate programmes - one for the lower age group and the other for the upper age group - were telecast regularly. Each programme runs for a duration of 20 minutes with five minutes change over time from one age group to the other. As of today, these ETV programmes are offered in five languages - Oriya, Telugu, Marathi, Gujarati and Hindi - for a
large population of primary school children. Programmes telecast in Hindi are being received in all Hindi-speaking states in the northern belt (IGNOU, 2000).

1.5.7 UGC-Higher Education Television Project (HETV) (1984)

The University Grants Commission in collaboration with INSAT started educational television project, popularly known as ‘Country wide Classroom’ on August 15, 1984 with the aim to update, upgrade and enrich the quality of education while extending their reach. University students were the beneficiaries of this project. Under this programme, one-hour programme in English on a variety of subjects is presented with the objective of general enrichment for undergraduates, educated public and the teachers as well. An inter-university Consortium for Education Communication (CEC) along with a chain of about 20 audio-visual media Mass Communication Research Centers was set up by the UGC at different institutions in the country, to ascertain high quality of programming for this project. Besides producing programmes at these centers, some programmes are imported from other countries, and are edited to suit the requirements of the Indian students. This project is very popular among students, teachers and other learners.

1.5.8 IGNOU-DOORDARSHAN Telecast (1991)

The IGNOU-Doordarshan telecast programmes, designed mainly for Distance learners of Indira Gandhi National Open University started in May 1991. Initially they were telecast on Monday, Wednesday and Friday from 6.30 am to 7.00 am through the national network of Doordarshan with
an aim to provide tele-counselling to students of open universities in remote areas. Owing to the encouraging response from viewers, the frequency of this project was increased to five days a week. This programme is very popular.

1.5.9 GYAN-DARSHAN Educational Channel (2000)

Ministry of Human Resource Development, Information & Broadcasting, the Prasar Bharti and IGNOU launched Gyan Darshan (GD) jointly on 26th January 2000 as the exclusive Educational Television Channel of India. IGNOU was given the responsibility to be the nodal agency for uplinking/transmission. It started out as a two-hour daily test transmission channel for students of open and conventional Universities. This duration was increased in February to nine hours a day. The time slot transmission was further increased due to good response up to 16-hours by 1st June and by 1st November it turned out to be 19-hours channel. Within one year of its launching, 26th January 2001, it became non-stop daily 24 hours transmission channel for educational programmes. “The programme constitutes 23 hours of indigenous programmes sourced from partner institutions and one hour of foreign programmes. Transmission of 12 hours each for curriculum based and enrichment programmes is being made. The programmes of IGNOU CIET-NCERT including telecast for four hours each, IIT programmes for three hours, UGC programmes for two and a half hours and one hour each for TITI and Adult Education.” (IGNOU Profile – 2002).

Gyan Darshan has not only made its presence felt in all Open Universities and most of the prominent conventional Universities /schools,
but also has the potential to reach to the door steps of learners through cable TV network. At present Gyan Darshan through the cable transmission covers about 90 percent in Kerala, most parts of Tamil Nadu, a few districts in the North East, Nashik, Ahmedabad and Pune. Asia Net has been providing it free of cost in Kerala. Efforts are being made to make Gyan Darshan available through terrestrial transmission.

1.6 ADVANTAGES OF TELEVISION AND VIDEO IN EDUCATION

As a teaching aid Television has several advantages and can play a very important role in making learning effective and joyful. Some of the advantages of television over other media are:

i. Television can bring the whole world into the classroom and makes the past alive.

ii. TV combines both sound and pictures, moving and still, gets the attention of viewers and has great motivation power.

iii. It is a mass medium and can reach vast number of viewers simultaneously and at distant places. It can bring distant objects, places, people, events and processes to the class room.

iv. It can magnify even small objects which can be seen by several students at a time and it can also show events in slow and fast motions.
v. Live and dramatized situations presented through television can be used to educate the viewers. Equipments and materials not generally available in school laboratories can be shown on television.

vi. In teaching foreign languages, the native speaker can be brought in the classroom for ideal demonstration of speech.

vii. TV can also cut down the cost of education to some extent, if more and more pupils are allowed to have access to television programmes.

Television may be used along with other media in distance education for interaction and to support learning materials, depending on the educational system and desired outcomes. As a corollary to above, unit cost will come down and the effectiveness of education will increase.

1.7 ADVANCES IN EDUCATIONAL TECHNOLOGY

A well known historian of Instructional technology Paul Saettler states, “the word technology, does not necessarily imply the use of machines, as many seem to think, but refers to any practical art using scientific knowledge”. Technology of instruction can make ordinary person capable of superior performance and a means, either printed or electronic, to distribute that instruction. Educational technology aids to improve the process of human learning. “Educational Technology is a complex integrated process of involving people, procedures, ideas, and devising, implementing, evaluating
and managing solutions to those problems in all aspects of Human Learning. In other words, Educational Technology is the technology that prescribes the design of instructional materials and then structures learning interactions for maximum benefit.

The field of educational technology, and particularly of instructional design, now has a good history of creating innovative technology-based learning resources through the application of principle development methods. Educational technology is facing a new kind of challenge or more positively, a new area of opportunity. If we want to develop new practices within educational technology that are compatible with a valuing of autonomous lifelong learning, then we need to recognize that an image of the competent learner has had a strong influence on the mainstream of educational technology.

Newer advances in educational technologies make earlier Educational Technologies obsolete. A few examples of technologies that have combined to make the communications revolution and information age a challenging era for educators are: computers, electronic mail, interactive video, laser discs, satellites, teleconferencing, etc.

1.8 INFORMATION COMMUNICATION TECHNOLOGY INFRASTRUCTURE IN INDIA

India is a major contributor and developed nation in terms of ICT infrastructure. The reduced tariff of telephones, the charges had drastically reduced attracting many users on to the mobile era. These reduced charges
had brought a revolution towards mobile phones and Internet access by bringing more people on to the network. After identifying the need to develop the rural area, India had taken major steps towards rural development.

Community Internet centers was established all over the country, connecting the isolated villagers to the knowledge base. Government of India had established 487 community information centers in the northeast India, which is geographically isolated.

The infrastructure of India for the year 2000 is given in the table 1.1 below.

Table 1.1: ICT Infrastructure in India

<table>
<thead>
<tr>
<th>S. No</th>
<th>Items</th>
<th>India (2000) (Per 1000 People)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Telephone Mainlines</td>
<td>32</td>
</tr>
<tr>
<td>2.</td>
<td>Mobile Phones</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Daily News Papers</td>
<td>48</td>
</tr>
<tr>
<td>4.</td>
<td>Radio’s</td>
<td>121</td>
</tr>
<tr>
<td>5.</td>
<td>Television Sets</td>
<td>78</td>
</tr>
</tbody>
</table>

(Data source: Development Data Group, World Bank)

Though the expenditure for research and development is constant for several years (16% of GNI in 1995 and 2000), the improvement in technology and development is large in India. The online services of the Government are is high and if the Governments of North East Indian states are have online the services online, India shall reach the best. Though there is
a high competition among the Internet Service Providers (ISP), the effect of Internet on business is below average due to the speed and access of the Internet is average. The ICT infrastructure is in under developing stage in India whereas India takes a lead role in South Asia towards this aspect. The reduced hardware costs are contributing in increasing the number of people with computers as well as Internet users.

The data related to the users of Computers and Internet, as on the year 2000 is given in the table 1.2 below.

**Table 1.2: Computers and the Internet**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Personal Computers</th>
<th>India(2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Per 1000 people</td>
<td>4.50</td>
</tr>
<tr>
<td>2.</td>
<td>Installed in Education (Thousands)</td>
<td>238.70</td>
</tr>
<tr>
<td>3.</td>
<td>Networked (%)</td>
<td>45.10</td>
</tr>
<tr>
<td>4.</td>
<td>Internet Users (Thousands)</td>
<td>5000</td>
</tr>
</tbody>
</table>

(Data Source Development Data Group, World Bank)

### 1.8.1 Growth of Internet in India

The last decade has seen the birth and growth of Internet in India as a phenomenon that has transformed the life of the people in several respects. Its presence has been universal. The following table 1.3 shows the yearly data of the number of Internet connections as well as Internet users estimated.
Table 1.3: Growth of Internet in India

<table>
<thead>
<tr>
<th>Month &amp; Year</th>
<th>Internet Connection (Millions)</th>
<th>Internet Users (Millions)</th>
<th>Direct Exchange Lines (DELs) (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 1996</td>
<td>0.05</td>
<td>0.25</td>
<td>11.96</td>
</tr>
<tr>
<td>March 1997</td>
<td>0.09</td>
<td>0.45</td>
<td>14.54</td>
</tr>
<tr>
<td>March 1998</td>
<td>0.14</td>
<td>0.70</td>
<td>17.80</td>
</tr>
<tr>
<td>March 1999</td>
<td>0.28</td>
<td>1.40</td>
<td>21.61</td>
</tr>
<tr>
<td>March 2000</td>
<td>0.90</td>
<td>2.80</td>
<td>26.65</td>
</tr>
<tr>
<td>March 2001</td>
<td>2.30</td>
<td>7.0</td>
<td>32.71</td>
</tr>
<tr>
<td>March 2002</td>
<td>4.50</td>
<td>13.50</td>
<td>40.53</td>
</tr>
<tr>
<td>March 2003</td>
<td>10.0</td>
<td>30.00</td>
<td>48.40</td>
</tr>
</tbody>
</table>

From the above table it is inferred that the number of Internet connection, User and Direct Exchange Lines has increased from 0.05 to 1.00, 0.25 to 30.00 and 11.96 to 48.40 within a period of seven years March 1996 to March 2003.

1.8.2 Broad Band Internet Connectivity

Widespread use of “convergence”, however, revolves around next generation applications taking the advantage of increased bandwidth. While a large number of technologies are getting developed for broadband access such as DSL, Cable Modems, Wireless Technologies, the mix of deployment would depend upon the market forces and promotional efforts made by the government. International Data Corporation (IDC) has recently carried out a market survey giving the future projections covering interlaid, worldwide
broadband penetration, outlook as well as possible technology choice in India are given in the following tables 1.4 and 1.5:

**Table 1.4: Broadband Penetration Worldwide**

<table>
<thead>
<tr>
<th>Category</th>
<th>2000</th>
<th>2004</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet HH</td>
<td>108</td>
<td>192</td>
<td>15%</td>
</tr>
<tr>
<td>Broadband HH</td>
<td>10</td>
<td>104</td>
<td>79%</td>
</tr>
<tr>
<td>Broadband HH as % of Internet HH</td>
<td>9.5%</td>
<td>55%</td>
<td>-</td>
</tr>
</tbody>
</table>

(HH - Households   CACR - Compound Annual Growth Rate)

**Table 1.5: Global Scenario and India DSL - Digital Subscriber Line**

<table>
<thead>
<tr>
<th>Category</th>
<th>2000</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Global</td>
<td>India</td>
</tr>
<tr>
<td>Cable</td>
<td>56%</td>
<td>65%</td>
</tr>
<tr>
<td>DSL</td>
<td>43%</td>
<td>35%</td>
</tr>
<tr>
<td>Subscriber</td>
<td>14 Million</td>
<td>13,000</td>
</tr>
</tbody>
</table>

1.8.3 Importance of Information and Communication Technology

Advocates of Educational Technology claim that the use of Radio, Open and Closed Circuit television, Video tapes, Audio tapes, Computer based instruction and satellites to reach distant educational markets etc., is revolutionizing education. Technology based instruction produces measurable
and significant changes in the learners. Entire courses can be video taped and offered in remote areas. Computer can be programmed to interact with students, sometimes more effectively than a teacher can interact. The new technologies have freed many individuals to enjoy their leisure and to work at home in distraction-free environment. New technologies, beyond doubt, are enhancements to traditional instruction. Computers are proved to be a major stimulus for initiating studies and for formulating new ideas about teaching methods and the process that facilitate learning.

A. Modern Methods of Teaching

Modern constructivist educational theory emphasizes critical thinking, problem solving, authentic learning experiences, social-negotiations of knowledge and collaboration etc. The teaching methods concerned change the role of the teacher from a disseminator of information to a learning facilitator, helping students as they actively engage with information and materials to construct their own understandings, ICTs have a potential to be used in support of these new educational methods, enabling students to learn by doing. ICTs can make it possible for teachers to provide students with self paced, self-directed problems-based or constructivist learning experiences, as well as to do best students learning in new, interactive, and attractive ways that may better assess the depth of their understanding of content and process.

Connectivity is one of the main differences between older and newer ICTs. The first aspect of connectivity concerns access to material resources. Digital library initiatives that will provide collection that are electronically accessible on the internet, including printed works,
photographs, films and videotapes, paintings, 3D models, graphics animations, software, reference materials, audio files and so forth are being undertaken in countries around the world. Thousands of websites that contain collections of high quality curriculum guides, lesson plans and instructional activities now exist. In addition to efforts to digitize existing physical resources, many new information resources are being created which can only be accessed electronically. As digital representations of physical resources are created and as more information resources are distributed in digital format only, it will be critical that students and teachers have ICT access.

Since not all resources are inanimate, a second important aspect of connectivity deals with human resources. ICT enables educational collaboration between individuals and groups of people. E-mail, computer mediated conferencing and desktop video conferencing are all being used to support collaboration between individual and groups. Collaborations are also taking place by means of real time chat systems: whiteboard; newsgroups; Computer Mediated Conferencing (CMC) and specialized software like CaMILE; Collaborative and Multimedia Interactive Learning Environment and the knowledge integration environment.

ICTs make it possible for people in widely dispersed locations to participate in ‘virtual learning communities’: who are learning groups based on shared purpose, rather than on distinctions of locations or age. Through the ICTs, learner can be drawn together almost from anywhere in the world and even construct their own formal of informal learning groups. Such
communities may cross barriers of them, geography, age, ability, culture and social status.

Virtual education allows students to study at their own time, place and pace. In essence, a virtual education means having educational transactions accessible from the home, the workplace of anywhere that the student chooses, to be Virtual Design Studios, begun in 1993, are a form of collaboration among teams of architecture-students in universities worldwide.

Teachers and students, on different continents and different time zones, work on common design projects using computer aided design systems, E-mail, a central database, and videoconferencing. Virtual Design Studio Technique is also being utilized by other disciplines, such as engineering.

Using specialized software, teachers can create Internet-based simulations for role-playing activities in language learning. The simulations, incorporating e-mail, chat, and online creation and editing of documents, are thought to motivate oral and written communication among the participating groups, while students are guided scenarios relevant to the country of their chosen language.

B. Virtual Educational Programmes

ICTs make it possible to extend the reach of educational programmes in two important ways. First, educational programmes can be delivered anywhere in the world. Second, ICTs can help individuals learn
throughout their life time. Distance education programmes, are those in which the teacher and students are physically separated, and learning and teaching takes place by means of single technologies or combinations of ICTs. In the past, such programmes made use of print, radio and television. Today, new ICTs are leading to changes in these traditional open or distance educational programmes. This approach is thought to be particularly useful, as many of the participating institutions either have no qualified teacher or insufficient enrollment to justify individually offering some of the course, which are available through this collaborative scheme.

C. Literacy of Information.

There seems to be a growing consensus that all students must achieve’ information literacy’: ‘It is the task of general education to provide every girl and boy with the versatile basic skills in acquiring, managing and communicating information which are necessary in the information society and essential for successful further study.’ Focusing on the concepts for successful further applications may be essential in planning and developing new curricula.

i. Cost-Effectiveness

The important issue when accessing the effectiveness of ICT in education is the question of cost-effectiveness. Information is of critical importance, especially to developing countries with fewer resources to invest. However, Assessing the cost effectiveness of ICTs in the education is difficult, if not impossible, for at least four reasons; lack of material data,
variability in the use of ICTs, difficulty of generalizing from specific programmes and difficulty of assessing the value of qualitative educational differences. In addition, traditional cost-analyses cannot take into account the societal and economic consequences of not investing in ICTs for education.

**ii. Cost Comparisons**

Nonetheless even in the face of such obstacles, attempts to establish the relative costs of ICTs in education have been reported. In general, studies found that the use of new ICTs is more expensive than instruction delivered by older technologies like print and radio, but less expensive than instruction delivered by television. In a World Bank report on education and ICTs in Latin America and the Caribbean, the costs of using a computer with internet connection in a school was much less expensive per pupil than broadcast television, but substantially more expensive than Radio.

**iii. Alternatives**

Another factor that must be considered when calculating the cost-effectiveness of ICT use is the question of alternatives. The cost of building sufficient campuses to handle the rising demand for education may be prohibitive. Virtual educational institutions do not require the same campus infrastructure and related costs incurred by campus-based institutions.

**iv. Social Costs**

Lastly, when discussing cost effectiveness, the societal costs to developing countries of not preparing their citizens to participate in an
information-based global society must be considered. The World development Report 1998-99 warns that the Global Explosion of Knowledge may either lift hundreds of millions of the world’s poor out of poverty or it may create a widening knowledge gap, in which poor countries lag further and further behind.

1.9 DEVELOPMENT OF HIGHER EDUCATION THROUGH ICTs

Higher education has an important role to play through its graduates who should provide leadership roles in education. Researchers, teachers, consultants and managers should create and apply new knowledge, innovations and should provide analytical perspectives on development problems and service to public and private sectors. Higher education through its research function could identify the preconditions for a supportive policy context for the development of basic education and explore techniques of mobilizing resources. Through its research, training and service programmes, it could contribute to build national technical capacity and contributes to strengthening international solidarity. An institutional framework is essential for the development of basic education within the institutions of higher education.

In the case of higher education there are four ways by which ICTs can support basic education. They are

a. Supporting education in the educational institutions.
b. Supporting non-formal education for adults by providing the necessary material through the technology devices.

c. Supporting pre-service distance education to teachers and their in-service professional development and

d. Enhancing the management of educational institutions.

1.10  NEED FOR ICTs IN HIGHER EDUCATION

“Institutions of higher education in developing countries have mostly kept to their traditional functions and objectives, and the ‘ivory tower’ idea that they should only deal with theoretical knowledge, show interest to the formation of theory and research and value knowledge ownership and preservation idea.” It has hardly concerned itself with other levels and types of education except through some adhoc individual efforts without any institutional mechanism, which lays at the basic education level has been ignored to make the whole education system weak and fragile.

In the light of changing perceptions about what constitutes appropriate skills for the modern era, some organizations are promulgating educational standards that attempt to define what all students should know about ICTs. Although it may be assumed that students will have to acquire new skills in order to compete and contribute in an increasingly ICT dominated global economy. It is not clear what skills are necessary; ‘Unlike the more stable content and goals we have for other areas of study, technology continues to change and evolve; with these changes come ever-new goals for
how technology should serve learning, and what students should know about technology’.

A wide range of initiatives are taking place all over the world, at all levels of education, showing a potential for developments which looks almost unlimited. ICT equipment and Internet connectivity is much more widespread in schools around the world. In the United States the ratio of the students per computer dropped from 63:1 to 6:1 in 1997 while the number of internet access has grown from 35% to 72% from 1994 to 1997. In Japan over 94% of the public schools were equipped and 10% were connected to the internet as per 1997 report. In New Zealand 83% of primary schools and 94% of secondary schools have Internet access. In the United States a 1998 survey found that 735 of the nation’s public libraries offered basic Internet access to the public.

1.11 EMERGING CONCERNS AND TEACHER EDUCATION

India is passing through a period of an all-pervasive change. Science, technology and information and communication technology are transforming the traditional way of life and making inroads into beliefs, values and norms. In spite of their desirable contributions, science, technology, industrialization, westernization and modernity are creating considerable social instability and value crisis. The impact of value crisis, especially among the educated youth, is a matter of grave concern. The national curriculum framework for school education (2000) and that of 2005
have certain expectations from teacher education which have been well articulated in these documents.

Valuable contributions have already been made by Information and Communication Technology as an aid to teaching and learning within and outside the school campus. The opportunities for acquiring information and life-long learning have multiplied. A knowledge society is now taking shape in our country. It should, however, not remain an urban or metropolitan phenomenon or a privilege of the rich. Information and learning experiences acquired through ICT need to be interconnected and transformed into knowledge. If ICT is not utilized as an aid to the teacher, it may create alienation between the teacher and the taught and the gaps between the schools managed by the rich for affluent children and the state school where children from poor families and rural areas study can widen. A situation like this may create a national divide. Hence it is necessary to devise need-based, affordable and 'alternative' but 'appropriate' ICT plan in teaching learning process. Teacher educators involved in the preparation of educational packages through ICT may have to exercise constant vigil about its intelligent and expedient use. In a knowledge society, students need to be empowered to reconstruct knowledge and utilize it when the situation demands.

1.12 INFORMATION AND COMMUNICATION TECHNOLOGY (ICTs) IN TEACHER EDUCATION

Since most teacher education students receive much of their content instruction in the colleges of arts and sciences, it is important that effective
teaching- including teaching with technology- is modeled in the other parts of the university in the preparation of prospective teachers. This is particularly important as states cut back the number of education courses, a prospective teacher can take, and as they move to abolish the undergraduate degree in education.

Coverage of Technology in Teacher Education can be divided roughly into three types:

i. Discussion /Demonstration

ii. Technology practice and

iii. Professional practice.

A faculty member conducting a science teaching methods course might be as follows. Discuss how computer-based simulations could be used in a high school science class. The instructor might even demonstrate a few simulations for the class using a large monitor or projection panel. This occasionally occurs in teacher education. The next level of engagement with technology involves hands on technology practice. In the science methods course, the instructor might take the students to a teacher education computer laboratory and have them install science simulations into the computer and examine how they work. At the third and most critical level of engagement, professional practice, students in the science methods class might see simulations being used in a high school chemistry or physics class. They might visit a classroom, view a classroom via a television connection, or watch it from a videodisc or video tape. At the level of professional practice,
these students would also practice teaching with technology. In the methods course, they might create lesson plans that include technology and practice in teaching exercises.

1.13 ROLE OF TEACHER IN THE UTILIZATION OF ICT IN TEACHING

Teaching is one of the most complex human endeavors imaginable. Teachers arrange content information around an organizing idea, determine appropriateness of available resources, and make judgment about the people involved. Generally, the teacher serves as decision maker regarding what to teach, when to teach and how to teach it. The teacher is often the primary information of source. The teacher has to play a pivotal role for the success of the educational technology. The teaching aids either modern or traditional only supplement the efforts of the instructor to enhance the learning process. They cannot be a substitute for him. The technologies assist him to do his work in an efficient manner to achieve the educational objectives.

Although Education is involved with a number of technological improvements, it takes long time for all the educators to gain mastery in their applications. There must be a provision of allocating some budget for purchasing and maintaining a few instructional media which are absolutely necessary in every educational institution. There is no convincing reason to believe that technology will isolate students or de-humanize the learning process because the teacher is the master for the students and the machine. He should encourage the technology that would help to make teaching-learning
process a complete success. For this, he should not only provide the best instructional tools but also use them to the best advantage of the students. Further he should design instructional management system that welcomes teachers as important partners.

Each Technology has its advantages and limitations and no single technology is useful for all types of learning. While selecting the media, the criteria to be kept in mind are Availability, Accessibility, Acceptability, Cost and Validity of the media. The fear about technology among the teachers is that it will replace the teacher and will create unemployment. No technology can produce new things because output depends on the nature of input. The input aspect is more important and it depends on the teacher. The instructional material cannot be prepared by educational technology. Therefore, Educational technology will not replace the human teacher but will help him in improving teaching-learning process.

In recent years, educational access to digital information and communication technologies (ICTs), tools, applications, networks, and media worldwide has grown dramatically. Education is facing a significant challenge in preparing students and teachers for our future ‘knowledge-based’ society because most of the teachers are to be trained to use ICTs and the majority of existing school buildings are not equipped to integrate the new information and communication technologies. ICTs are quickly becoming more accessible, but it is important to note that earlier technologies play a critical role in education worldwide. Access to Films, Videotapes, Telephones,
Television or Radio is still far more commonplace than access to a Computer or to the Internet and World Wide Web (WWW).

The new digital ICTs are not single technology, but combinations of hardware, software, media, and delivery systems. They differ in several important dimensions from older technologies: they can integrate multiple media into single educational applications; they are interactive and include the capacity to control, manipulate, and contribute to the information environment. They are flexible, offering freedom from rigid scheduling and barriers of time and location; through connectivity, they provide access to every other person on the planet who has an internet account, to thousands of information archives, and to millions of web pages. These four dimensions such as integration of multi-media, interactivity, flexibility of use, and connectivity-distinguish digital ICTs from previous technologies. Because of these differences, educators are finding new powerful ways to integrate digital ICTs in to the curricula.

1.14 ICT TRAINING FOR TEACHERS

Teacher training must deal with at least two aspects. First, teachers need technical training to learn how to use and maintain ICT equipment and software. Such technical training is being offered to teachers in a wide variety of ways. Pre-service university –based courses, in-service workshops, commercial training programmes and other opportunities abound, many of which make use of ICTs to deliver the training. Second, since ‘integration of technologies into curricula requires changes of huge technologies in to
curricula requires changes of huge magnitude’, training in how to integrate ICT use into the effective ICT is necessary. Such training should include effective ICT teaching methods and the use of discipline-specific applications.

### 1.15 DIFFICULTIES OF TEACHERS IN ICT TRAINING

Teachers who want to use technology also may find that educating themselves enough to be able to use a particular piece of hardware or software can require considerable amounts of extra time and effort. Teachers may also need more knowledge about how to organize and effectively manage their students in technology-based environments. One of the barriers to increasing technology training for teachers is the many competing priorities for limited staff developments time. This makes scheduling technology training difficult. States have multiple instructional goals, approaches, and philosophies they want teachers to learn about and use. Some teachers observe that the content of training they receive is inadequate; there seems to be focus on basic training in the mechanics of operating machines, with little training about integrating technology into various subjects or learning to use it as a pedagogical tool. Many teachers have not had the opportunity to observe and learn about the wide range of Educational Technology usage particularly how Educational Technology can be incorporated in various ways in different curricular areas.
1.16 RATIONALE FOR THE STUDY

Teacher Education institutions are faced with the challenge of preparing a new generation of teachers to effectively use the new learning tools in their teaching practices. For many teacher education programmes, this daunting task requires the acquisition of new resources, expertise and careful planning.

On examining the B.Ed., curriculum prescribed by the National Council for Teacher Education (NCTE) it is found that has recommended the removal of dead wood from the curriculum and the incorporation of Computer Education. It is also insisted that the B.Ed Student-Teachers should be trained in utilizing Radio, Tape Recorder, Television (TV), Film Strip Projector (FSP), Over Head Projector (OHP), Computers and Liquid Column Display (LCD) etc. As the Investigator who was formerly serving as Lecturer in Physical Science, he was intended to know to what extent the B.Ed., Student -Teachers are Aware of the ICT devices available to them in their Colleges of Education and Utilizing the ICT devices in teaching. Hence he was motivated to take up the study “UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN TRAINING THE B.Ed., STUDENT-TEACHERS IN TAMILNADU”.
**1.17 CHAPTERISATION**

The Thesis contains five chapters as follows:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chapter I</strong></td>
<td>Introduction of the study deals with the Concept, Various Definitions, Principles, Theories, Modes of Communication, Communication Process in Teaching, Emerging concerns and Teacher Education, ICT in Teacher Education, Role of Teachers in the Utilization of ICT in Teaching, ICT Training for Teachers, Difficulties of Teachers in ICT Training and Rationale for the Study and the Chapterisation.</td>
</tr>
<tr>
<td><strong>Chapter II</strong></td>
<td>Review of Related Literature concentrates on the studies related to Information Communication Technology done in India and Abroad and the Analogy of the studies related to the present Topic.</td>
</tr>
<tr>
<td><strong>Chapter III</strong></td>
<td>Methodology of the Study provides the Information regarding the Design of the study, Selection and Size of the Sample, Sampling Technique, Tool Development, Data Collection, Statistical Technique used for the Data Analysis, Delimitations of the Study.</td>
</tr>
<tr>
<td><strong>Chapter IV</strong></td>
<td>Data Analysis deals with the results of the Data Analysis with respect to the Variables such as Sex, Locality, Age, Marital Status, Community, Basic Qualification, Major under Degree Course, Parents Education and Parent’s Occupation of the Student Teachers.</td>
</tr>
</tbody>
</table>
### Chapter V

Summary and Findings of the Study deals with the Findings, Discussions and Conclusion of the Study, Recommendations for the Further Study based on the results obtained in the Present Study in detail.

### Bibliography

Bibliography Provides list of Books, Dissertations, Government Reports and Research Articles which helped the Researcher in the process of the Study.

The ensuring chapter deals with the Review of Related Literature.