CHAPTER V

METHODS AND MEDIA USED IN DISTANCE EDUCATION
5.1 Introduction

The success of Open learning of Distance Education lies behind the development of communication technology because its main objective is to provide wider access to education by different sections of people. For this purpose, the choice of media becomes important in distance teaching institutions like Open Schools, College/University taking up correspondence courses, Open Universities etc. From the very beginning, both conventional system of education and distance education use only one media i.e. print media. But there is a vast difference in instructional system/method between these two systems. Nowadays, distance education has been relying upon the new information and communication technology (ICT) to support the inter-personal communication and the print media. Before discussing it, a brief discussion on the components of ICT may be very helpful with present study.

5.1.1 Information

Education is to provide knowledge and information to the learners. In the glossary of DE the meaning of information is “... ... the first place to factual communication, including verifiable and objective fact about the world. More broadly, the term can include anything which adds to our store of knowledge about the world and people. In the sense, beliefs and opinion given and received could also be described as information. In our context it refers to details regarding examination, assignments etc.” For providing information wider exposure of the learner to various situations is also required.

5.1.2 Communication

The word communication has been derived from the Latin word “communicare” which means “to share”. It has been defined in different ways.

---

According to Rogers "Communication is a process by which people create and share information with one another in order to reach a common understanding."\(^2\) Again in glossary of Distance Education, it is defined as "The process of creating and sharing meaning through the transmission and exchange of signs. This process requires interactions with oneself between people or between people and machine."\(^3\) So, communication is a process which manifests itself at almost every moment of our lives. We communicate through verbally and non-verbally (i.e. facial expression, gestures, and technological means). From the above discussion it can be concluded that we communicate through two means of communications - interpersonal communication and mass communication. The former means of communication includes conversation between two persons. This is a common type of communication, in which two persons share their feelings, emotions, thoughts, ideas etc. For instance the interaction between two friends, between the teachers and students are some of the inter-personal communications. Nowadays, talking on the telephone to someone is also another example of it. But the latter means of communications involves more than two persons. In this case, the use of mass media proves to be more effective and efficient to communicate with a large number of participants. This means of communication includes face to face, print and non-print based communication as well. Two way communications is essentially required for making distance education programmes effective like tele-conferencing, tele-medicine and other advanced ways of two way communications. Use of modern technology is essential for making communication effective.

5.1.3 Technology

Technology is an application of science. It can be defined as a process of execution. Rogers describes technology as "a design for instrumental action that

\(^3\) STRIDE. *Op.cit.*, p. 12
reduces uncertainty in the cause effect relationships involved in achieving desired outcomes. Similar designs with corresponding purposes used in communication are known as communication technologies. In this context, communication technology is defined as a device by which the individuals collect, process, disseminate and store knowledge and information."

5.2 Uses of Information and Communication Technology in DE

The advancement of information and communication technology brings a lot of changes in human society. Now, in the 21st century it has become an integral part in every sphere of life and it has affected all walks of life in one way or another. But there are many challenges and barriers in the application of information and communication technology in the developing countries like India. Its needs and uses are increasing day-by-day and every person is intending to be information oriented. It is impossible to deny its importance in the educational, cultural, agricultural, scientific and technical disciplines of the world.

Nowadays, there are several modern communication media which have relevance to distance education such as e-mail (electronic mail) telex, computer, tele-conferencing, facsimile etc. It has assumed new meaning and relevance for distance education. The application of information and communication technology in the context of distance education is not just using these modern media but properly organising them into a well defined instructional strategy. The hallmark of it is their distributive power and their ability to reach to a large number of learners in the dispersed locations.

To fulfil the new educational challenges, the use of information and communication technologies in distance education is indispensable. The rapid

---

changes brought by ICT have opened new avenues in delivery of distance education and revolutionize mode of multi-channel learning. The utilization of it made effective and efficient in the field of distance education. It helped in making self-learning material and contact and counselling session more effective. In India, distance education institutions have also been using broadcast (TV and Radio) and audio and video cassettes, tele-conferencing, computer internet etc. for strengthening its learning system. Since 1993 IGNOU has been utilising these facilities in organising one way video and two way audio conferencing for effective running the study centres by the Co-ordinators, academic counsellors for counselling students. The National Open School has also been utilizing this technology.

5.3 Instructional System, Method and Technique of Distance Education System

The aims and objectives of education are based on the economic conditions, social structure, advancement of technology and need and requirement of a country. The educational aims and objectives of a country do not suit to another country. Therefore, it will not be possible to work with one instructional system all over the world. Likewise the instructional system of distance education is also somewhat different from one country to another. But the characteristics of distance education are same all over the world. The clientele of distance education, although may have such common attributes would vary considerably in terms of their educational needs, socio-economic conditions and background qualifications. The varied aims of higher education, the characteristics and needs of learners who enter the system would be the main consideration while organizing instructional system of open learning.
The teaching and learning strategies are designed to promote effectively education and training, especially through adoption of multi media approaches. As there is no one better choice of media for learning, there is no one best way of teaching with technology. Flexibility and innovation in teaching and learning are hallmarks of distance education system. The teaching-learning process is involved to suite the requirements of heterogeneous groups of learners.

The system of open learning is quite different from other existing education system. The teaching-learning process of this system is characterized by certain specific features and peculiarities which necessitate the use of various media. The transmission of knowledge/skill is carried out through study packages in the distance mode. In this context, the learner works on his/her own pace most of the time. Therefore, the role of electronic media has become increasingly significant in the teaching-learning process. All modes of communications would be used effectively as media. Educational media are, therefore, extensions of teachers, and facilitate the communication between the teachers and students. Media are used as a message delivery system to a large number of people who are located in far off areas. Therefore, choice of media are crucial where there is no provision for face to face interaction and the students depend on print materials with occasional face to face support.

Almost all open learning system follows the multi-media approach. The multimedia includes the print materials, audio-video materials and Radio and TV broadcasts. Contact programmes are provided at study centres in the case of higher education. Print materials are considered the most important in most of the open learning institutions. They are supported by radio and television broadcasts or/and audio and video tapes. For instance in the UKOU established in 1969 multimedia support to print materials is provided in the form of television and radio
programmes produced in partnership with the British Broadcasting Corporation (BBC). In addition to radio and television relays, there are provisions for audio and video cassettes. In the advanced countries like United Kingdom, individual student can afford to have audio cassettes and video cassettes but such supplementary devices will have to be provided at the study centres in some countries like India where the students cannot afford for themselves such devices personally. This also proves more cost-effective and efficient use of these facilities. Counselling session is an essential ingredient of the open learning educational system.

Besides the media support services, DE system used various facilities to compensate the deficiency of classroom interaction. There are two important services in the DE system i.e. study centre and personal contact programmes.

In the DE system study centres occupies an important place for providing student support services in the learning pursuits. Every study centre is headed by Coordinator for giving advice and guidance to the students on methodology or learning. The centre should have subject experts as counsellor who can provide guidance to the students through counselling. In the counselling session they discuss or teach various topics with the students. They even evaluate the students' assignments which are very important for distance learner because without submission of assignment a student could not appear in the term end examinations.

The personal contact programmes are very important for the distant learner. The learner should attend it without absent. In this regard UGC stated as “the provision of personal contact programmes should be regarded as an essential feature of correspondence through lectures, tutorials, seminars and discussions. The personal contact programmes through intensive classroom instruction,
individual guidance and counselling help in giving proper orientation to the students, add to their motivation encourage regular study habits and instil confidence in them.5 In this programme the counsellor or resource person clarify the doubts and difficulties faced by students. It gives wider academic exposure to the learners.

5.4 Instructional System, Method and Technique used in IGNOU

The instructional system, method and technique used in IGNOU is different from that of the conventional universities. It adopts different methods of instruction depending upon the needs and requirements. The Open University system is learner oriented. The learners participate actively in the teaching-learning process of distance education. Most of the instructions are imparted through distance education methodology rather than face to face classroom communication.

The success of the open learning system (OLS) depends entirely on the quality of services provided to the students. The IGNOU established a student service centre (SSC) at the IGNOU headquarters in July 1999. It follows a multimedia approach of instruction. The components of the learning package include self-instructional print materials; online material/CD-RoM, video and audio programme, radio counselling, tele-conferencing assignment and counselling sessions, programme guides and supplementary regarding material. Some courses have project work/practical as part of their learning requirement. For a better comprehension about the instructional system of IGNOU is shown here in a diagrammatical structure. The instructional system of IGNOU is shown diagrammatically in Figure 5.1.

5 University Grants Commission. *Scheme of Distance Education*, New Delhi, 1993.
The Instructional System In IGNOU

- Identify educations Needs and Target Group
- Plan & Design the Curriculum
- Production Multi-media Instructional Materials

Delivery System

- Printed/CD Rom/Online Materials
  - Audio Cassettes
  - Video Cassettes
  - Radio Broadcasting & Phone-in-counseling
- Target Groups
  - TV Broadcasting
  - Lab Practicals Including Face To Face Training
  - Contact & Counseling Sessions
  - Tele Conferencing

Evaluation

Certification

Feedback

One or More Than One Instructional Inputs
5.5 Role of Media in the Instructional System of Distance Education

Distance education has to be well designed, effective and affordable in order to provide a relevant, acceptable and long lasting alternative system of formal education. It covers a vast area and for covering the whole area the spread of communication aught to speed up. In the process, the media play a major role in distance education. The major objectives of any media are to help maximum number of learners to learn effectively or in other words to comprehend and retain knowledge. The main objectives of media as given by Y.R. Ramaiah in his book “Distance Education and Open Learning” could be mentioned here as follows.⁶

a] make learning process interesting and effective,
b] reduce hardship of learning,
c] sustain interest in learning,
d] cater to individual differences and preferences of learners,
e] enable the learners to solve their own learning problems,
f] inspire and initiate teachers to change their approach to teaching,
g] evolve new techniques to facilitate effective learning,
h] provide varied interesting and rich educational experiences to all learners,
i] minimize misconception of learning among learners, and
j] help in awareness raising.

It is observed from the above objectives that media is helpful not only for effective teaching-learning process but also for solving all the learners’ problems and difficulties. The teaching learning process in the distance mode is characterised by certain features and peculiarities which necessitate the use of

various media. They transmit knowledge through the study materials which was made by different experts and it is supplemented by multimedia approach. Therefore, the role of media has become increasingly significant on the teaching-learning process of distance education. These educational media are therefore extensions of the teachers and it has given facility to the communication between the teachers and students. In this context, they use one or more media to convey education, through one way or two way communication to the learners.

5.6 Multimedia approach in Distance Education

Distance Education, all over the world, adopts the multi-media approach. Multimedia refers to systems that integrate video, audio, text graphics etc.\(^7\) Distance education system as a whole depends upon the package of multi-media. Multimedia package is a course package that usually consists of the self-instructional units (\(i.e.\) in the form of blocks), assignments – tutor mark assignments (TMA) and Computer mark assignment (CMA), audio and video programmes, academic counselling sessions and if necessary extended contact programmes, workshops, lab experiments, home kits and projects.\(^8\) Any distance education institution can choose its own media-mix keeping in view the stage of technological development of its country. Therefore, media selection is country specific. According to the report of the UNESCO Regional Office, the selection of media should be laid down on the basis of availability, accessibility, acceptability, economy and validity.\(^9\) Some of the media which are commonly used in Distance Education for providing instruction to the learner are discussed as follows:

\(^8\) \textit{Ibid.}
5.6.1 Print Material

Print media is an essential component of all education process and especially of the education through the mode of distance education. Distance education cannot do without printed materials. It is the mainstay of instructional system throughout the world, both western and eastern. In this connection UNESCO Report mentions, "All the Open Universities in the world and other distance education institutions use the print material for instructional proposes."\textsuperscript{10} In fact, print media is one of the oldest and unavoidable media from any kind of educational instructional system. In the words of Holmberg, "by far the most important medium in distance education course is the printed word. This applies to conventional correspondence study as well as to highly sophisticate multimedia presentation like curses of the Open University."\textsuperscript{11} The above definition proves that print media is the heart and soul of distance education that without the heart whole body cannot function. Besides this, it has proved largely effective in cognitive, affective and psychomotor domain of the learner.

The use of print media in the open learning system is different from other education system. It is in the form of reading or study materials or programmed instructional material. The print material, which is used in distance education, are carefully prepared by a team of experts to suite to the needs and requirements of heterogeneous groups of students and to help them learn the subject of their own without much assistance from others. So it is treated as self instructional written material. The print materials prepared by the UKOU, STOU and IGNOU are good examples of this print media. Print based media played an important role in both education system (i.e. formal and distance education) not only in the past but it is using at present and will be used in the future also.

\textsuperscript{10} Ibid.
IGNOU's printed study materials are also written in self instructional style for both theory and practical components of the various programmes. It is supplied to the learner through postal service. Every course has some blocks (on an average 1 block per credit). A block which comes in the form of a booklet usually comprises 3-5 units. The units are again divided into sections for easy reading and better understanding to the learner.

Not only this, in the last section of each Unit, under the heading, “Let us sum up” to summarise the whole unit. There are also self check exercises under the caption ‘Check your progress’ and broad margins are provided for making notes and jot down important points in every page of booklets. This makes the learners easy to prepare for examination as well as writing the assignment. One interesting thing is that IGNOU’s study material is used by other state open universities and conventional universities students. Now, in Distance Education, printed study materials are supplemented by various electronic media.

5.6.2 Radio

The Radio is a twentieth century phenomenon. The growth of it took place between 1920s and 1940s. The broadcasting facility is increased rapidly to inform to the mass population till today. Radio has variety of purposes i.e. to inform, to educate and to entertain people. The innovations of technology made radio broadcasting available increasingly to a large number of people throughout the world. A person can get every information of all over the world by sitting in a corner. Radio is an effective medium and has been extensively used either to spread literacy or to give formal or non-formal education at various levels. In distance education, radio has been used as an important component of multimedia approach. The advantage of radio is that it is within the reach of the common people and can be carried along with anywhere. China’s Central Radio and TV
University (CRTVU) and UKOU are the good examples of using radio broadcast in the field of distance education.

In India also radio has been used from recent past for giving information and educating people. Some of the major educational radio projects in India to be mentioned are school broadcasts, adult education and community development project, farm and home broadcasts, university broadcasts, language learning project, educational technology project of Ministry of Human Resource Development (MHRD) using radio-cum-cassette player, (RCCP) and TV sets. Now IGNOU used radio for broadcasting their educational courses through Gyanvani. Electronic Media Production Centre (EMPC) has been identified as the nodal agency for implementation of Gyanvani project. Gyanvani is an educational FM radio network operating in the country. Under the Gyanvani FM radio initiative, the University has set up 17 radio stations for imparting education to a large population of primary, secondary, technical and higher education programmes. The vision of Gyanvani is to bring about educational and social development of the community. The channels are launched by Ministry of Human Resource Development.

Recently, in India, in distance teaching learning process, interactive radio counselling (IRC) is developed. IRC is broadcasting from 186 radio stations of All India Radio (AIR) all over the country on every Sunday. It also used FM Gyanvani station on other days. The audio programmes of IGNOU are also broadcasted on AIR Mumbai at 7.15 a.m. to 7.45 a.m. on Thursdays and Saturdays and AIR Hyderabad at 6.00 to 6.30 a.m. on Tuesdays, Thursday and Saturdays. It is very helpful to distance learners. The student or learner can raised question right from their home, working place and from their convenient place. Radio has been supplemented by TV in distance education.
5.6.3 Television

Television has been considered the most common, popular and effective media for disseminating information to its viewers and distance learners. It is also an important component in the open learning all over the world because a lesson received through the sense organs or eyes and ears has a double chance of retention by the learners. It has been generally believed that we remember 20 percent of what we hear, 30 percent of what we see and 50 percent of what we see and hear. There is an old saying that I hear, I forget, I see – I remember, I do – I understand. So in developed and developing countries, the television broadcast is becoming an important component of the distance teaching learning system. It is used for the distance students by the majority of open universities throughout the world. There is no wonder that television is used in the UKOU, China’s Central Radio and Television Universities, Athabasca University of Canada etc. for their distance teaching learning process.

A historical perspective of the Indian experience of television in the field of education can be mentioned here. They are – secondary school television project (1961), Delhi Agricultural Television project: Krishi Darshan (1966), Satellite Instructional Television Experiment (SITE) (1975), Post SITE Project (1977), Indian National Satellite (INSAT) (1982).

The University Grants Commission (UGC, the apex body of higher education of India, realize the potential of the use of electronic media in education as a means of cost effective, to the larger number of audience and to enrich the quality of higher education. The Commission has been utilising the Indian Satellite (INSAT) system for broadcasting high quality educational material and is aware of the vital role that a powerful medium like TV can play in the field of education. Recognising this potential of TV, the UGC has taken up a project on Higher
Education Television (HETV) to use the vast TV network to take high quality university level education to even the most remote parts of the country. This educational television (ETV) project is known as Countrywide Classroom (CWCR) and its programmes are started to telecast since August 15, 1984.

These programmes aimed at improving the quality of higher education, they were produced at the Educational Media Research Centres (EMRCs), Audio-Visual Research Centres (AVRCs) and other UGC sponsored production centres situated in different parts of the country including Manipur. Besides producing programmes at these centres, some programmes are imported from foreign countries and are edited to suit the requirements of the Indian students. There are 7 (seven) EMRCs and 9 (nine) AVRCs and one consortium educational communication (CEC). These media research centres are now renamed as Electronic Multimedia Research Centre (EMMRC) from this year 2005. Now there are 17 EMMRCs in India.

Besides this, IGNOU also developed an Educational Channel of India in collaboration with MHRD, Doordarshan, and other organisations. This educational channel is known as DD Gyan Darshan. The Electronic Media Production Centre (EMPC) is identified as coordinating transmitting agency. This regular transmission of educational programmes from the EMPC is started on January 10, 2000. All the video programmes are telecast on the National Channel DD-I and on Gyan Darshan. At present, the University has a bouquet of six digital channels under the collective name of Gyan Darshan (GD). It may not be out of place to point out here the detail activities of various GD channels.

12 IGNOU. Vice-chancellor's Report 2005, New Delhi, 2005, p. 18
a] Gyan Darshan-1 (GD-1): It is a 24 hour exclusive channel devoted to education. In addition to educational programmes of IGNOU, the broadcast time is allocated to NCERT, national Institute of Open Schooling (NIOS), State Open Universities, and several training institutions of government.

b] GD-2: It is used exclusive for conducting interactive programmes for our students at Regional Study Centres. The facility is made available to various government departments as and when required.

c] GD-3: The ‘Eklavya’ is a 24 hour technology channel for technical education, featuring tele-courses produced by IITs. The uplinking of this channel is done from IGNOU Studio.

d] GD-4: the Vyas 24 hours channel is the curriculum based higher education channel. It is being coordinated by CEC-UGC. The uplinking of this channel is done from IGNOU Studio.

e] GD-5: is earmarked for agriculture and development related programmes and is intended to be used to bridge the gap between the laboratory, field scientists and the farmers.

f] The sixth channel serves as a backup. The transmission of GD channels is almost completely automated through the installation of the video server at IGNOU Studio. More than 500 centres of IGNOU and around the same number of institutions of higher learning including SOUs have downlink facilities to receive these channels.

The exclusive National ETC Channel Gyan Darshan is providing educational programmes from school to tertiary levels for 24 hours through different cable operators in the country for wider outreach.

Through radio and television broadcast can come into contact with the most talented teachers of the country. It minimise the gaps between the haves and have nots among the students or between the rural and urban. But only through the broadcasting
of radio and television could not meet the demand of distant learner of all section. In this situation the learner need more convenient type of technology in the teaching-learning process of distant education. Thus, in Open University system they provide more convenient type of technology to the learner i.e., audio cassette and video cassette, computer, fax, etc.

5.6.4 Audio Cassettes

The audio cassettes are focussed on the pre recorded sound delivery in a more permanent form than a transitory radio broadcast. A cassette is a device on which information is stored for the future and repeated use. The audio cassette presents considerable freedom to the students. It is under the control of the user and can be used when it appears most relevant to the individual needs of the students and at a time and place convenience to them. It is more appropriate for distance learning students for its flexibility to stop, pause and replay the difficult section according to the preferences. One more use of the cassettes in the words of a student is “I find the tapes very useful, particularly the discussion ones. It is definitely a contact with the staff even though it is remote.”

Audio cassette is used in all over the country for imparting education to the distant learner. Almost all the open learning system used audio cassette as a part of education. For instance, in the UKOU, audio cassettes are used extensively and making more material for use on cassette than radio. In Thailand’s STOU audio cassettes are used to provide orientation of the courses, to clarify certain complex ideas, to give feedback to the students’ activities and assignments, to summarise major ideas of each unit and to present the views of external experts. In India’s IGNOU also used to produce audio cassette for its distant learner to supplement the print study material and radio counselling. These audio cassettes

13 Gough J.E. and R.J. McDonald. Audio Cassettes in Distance Education. Paper presented to RSDTA, Penang (Malaysia), p. 16.
are not mailed to the students but are made available at the regional centre and study centres which are opened for the students on weekends and holidays. The students listen to the audio cassettes in groups and in the presence of the academic counsellor. The academic counsellor discusses the lesson with the students after listening to the cassettes.

5.6.5 Video Cassettes

Video cassette, yet become popular in teaching-learning process and is considered to be more effective medium than the radio and TV broadcast. Video cassettes are like broadcast television as they combine moving picture with the sound. But it has certain advantages over the TV. They are more flexible and convenient in their use because they are under the control of the user who can watch the programme whenever desired. In addition to this, it has the advantage of pause and replays. It is equally useful to the distant learner as well as face to face classroom teaching.

The use of video cassette has some complication in the developing countries like India. It is dependent on the availability of the video cassette replays (VCR) equipment, and it can not ensure to each distant learner. The cost of a cassette replay equipment and lack of its availability to most students at home are serious problems of using it. To overcome this problem it made the video cassette available to the study centre.

IGNOU makes use of the video cassettes also to supplement the printed text and these programmes have become an important component of course materials. Cassettes are made available to the students through network of study centres all over the country. The students can go to the study centre at weekends or holidays according to their convenience. Of course, they have to make arrangement
with the Coordinators of the centre to listen or view the audio-video programmes. Video cassettes are viewed in groups at the study centre and so the cassettes are designed for group viewing. At the end of each programme there is a general discussion among students and with the academic counsellor on the content presented. Some of the video cassettes are produced for individual use. Now IGNOU made an arrangement for easily available to both the students and general public.

5.6.6 Computer

Computer is a device of modern information technology and a very good tool to improve the teaching-learning process. It has several uses. It is being used for teaching as well administrative purposes. Now, it becomes a key element in the process of imparting education. Computer literacy has been made an important component in addition to knowledge of 3R’s. The use of computer in education has given birth to computer based learning (CBL). CBL can further be sub-divided into computer assisted learning (CAL) and computer managed learning (CML). CAL is the study of any part of the curriculum aided by some applications of the computer. CAL has assumed a great deal of significance as a teaching aid with the spread of microcomputers. The study plan in CAL is absolutely student centred.14 And the CML is the use of the computer to monitor, analyse and report on students learning when on a course.15

Computer provides a great help to distance learning. Computer can acquire and store a large amount of information for dissemination. It is adopted to the varying needs of the individual learners in terms of time, place and choice of study. It can help to meet these changing needs. In this 21st century, the popularity of computer is increasing in all over the world. In the developed countries like United Kingdom, the Open Universities courses are provided to the student

15 Ibid.
through cheap micro processor as a home experiment kit. The uses of computer in education in India is initiated (in the school sector) by the project of Computer Literacy Aid in secondary schools (CLASS). Though the coverage was modest (2,598 schools) the CLASS project has led to increasing awareness of computer literacy among students, teachers and parents.\(^{16}\) In the university sector the UGC is supporting the programme in three parts:\(^{17}\)

a] A set of personal computers has been given to college for use in educational management and for promoting computer literacy,

b] Starting certificate, diploma and degree courses in universities in computer science,

c] By giving sizeable computers as central computation facility for research and higher study purposes universities have been assisted.

But computer is not yet being used extensively for teaching learning purposes by distance education institution in India. However, IGNOU as the leading national Open University in the country has given a lot of importance to computers and have provided computers in the study centres. The IGNOU has made efforts to computerise all its activities. More than 2,500 computers are in place on the main campus, Regional Centres, tele-learning centres and study centres. It connects all the schools of studies and service divisions with recourse like internet, e-mailing and website. Now, the student can admit or submit their examination form through online. Not only this, the students can get result from online and also able to see the status of despatch of their study material through online. It solved some of the problems which are very often faced by the distant learners.


\(^{17}\) *Ibid.*
5.6.7 Telephone

Telephone is one of the effective means of communications. It offers two-way interactive communication across distance i.e. people can talk to each other and discuss the problem. The innovation of this technology contributes lots of facility like long distance to travel, high cost of travel etc. In modern world, telephone is used as a medium of instruction. It helps to reduce the sense of isolation about a distance student may feel, it can contact with the teachers avoiding problems of travel and inconvenient of time. However, telephone teaching is not suitable for lecturing or for courses in which visuals are necessary.

The use of telephone in education is not very much popular in India but some developed countries like UK, America, Canada, European countries, Australia etc. it is used in large scale. The advantages of the telephone in teaching are noted in terms of interactive communication across the distance. It facilitates the teaching-learning process effectively. It can be effective as a medium of instruction in distance education. It can overcome the limitation of the distance mode of teaching such as isolation, remoteness, lack of peer group interaction etc. It can be used to assist and direct the students in place of face to face teaching. It can motivate the distance students to contact their teachers or academic counsellors as and when required. This is one of the common and effective uses of the telephone in distance education. The telephone is being extensively used by some open universities for pedagogical interaction in the developed countries such as United Kingdom, Australia etc.

Some of the latest innovations of telephone are tele-tutoring and tele-conferencing. These can be developed into a very useful student support service in the distance teaching learning process. It makes enable the student to contact the teacher or the expert from a distance easily. The students get immediate feedback from the teachers and fellow students as well. Tele-conferencing can be used in three ways – (i) audio teleconferencing, (ii) video tele-conferencing, and (iii) computer tele-
conferencing. These all are two-way communication. Audio teleconferencing is rapidly becoming a preferred instructional medium of Open University and its low cost is less than video-conference and computer conferencing. But video and computer teleconferencing is more effective than audio even though it is costly. The computer teleconferencing has the adequate facility of hardware; information can be sent and received at the convenience of both the teachers and the students with the use of computers.

The use of teleconferencing as a medium of instruction is being experimented in all the institutions of open learning all over the world. The United Kingdom Open University experiment of teleconferencing “CYCLOPS” can be cited as an example of using it. Experiments on teleconferencing are being conducted in IGNOU since February, 1995 through the training and development communication channel (TDCC) as stated earlier. The schedule is made available at the study centres. The student or distance learner will have to go to the nearest reception centre at the schedule for taking the benefit of this facility. This makes very effective in imparting education and more convenient to the learner.

5.6.8 **Electronic Mail (e-mail)**

E-mail is a method of transferring data between remote computers according to a data communication standard. The data are stored in a host computer for later access by the receivers.¹⁸

Nowadays, e-mail has become quite popular in the developed countries as well as developing countries. It is primarily a store and forward messaging service. E-mail uses computer, text processing and communication tools to provide high speed information exchange services. It can transmit information in

seconds or minutes across the continent. E-mail needs four components: a telephone line, computer, a modem and communication software. It helps a lot in students specially who are learning in distance education to get many kinds of information sources. Moreover, it can remove the barriers of time and space and the teacher can response to the student by sitting at home.

5.6.9 Facsimile (Fax)

It is "transmission of text or graphic images using a fax machine to convert them into electronic signals for transmission via the telecommunication network. The signals are reassembled in a legible form by the receiving machine." \(^{19}\)

Facsimile machine is popularly known as fax all over the world. It is most often used in office as communication tools. A fax machine scans a document electronically and converts the information to the receiving fax machines. The receiving machine converts the received electronic codes into something like photocopied information, reproducing the original document. In India, IGNOU provides a fax machine in every regional centre and in some it is provided in the study centre for better and effective communication with the Headquarters.

5.6.10 Video Text

Video text is one of the latest technologies and it seems to offer great help to education. It makes the home television set to function like a computer terminal and retrieve text information and graphics from a remote data base. It is a two-way interactive communication. Videotext uses television and telephone in order to provide access to the computerised information. It allows the student or learner to put question to or ask for information from the data base.

\(^{19}\) Ibid.
Application of videotext is currently at initial stage. In distance education, videotext can be used for the transmission and two-way interaction on information courses. Thus videotext system provides means for delivering instructional material to the distance learner. At present few instructional programme are being delivered by this method. In the developed countries like UK, France, Japan, Canada and America use videotext for various purposes and to help the students to receive variety of material for study and research.

At IGNOU, videotext is used for various purposes (e.g. giving general and specific information, attending to the students’ queries and two-way didactic interactions). In this the students have to go to the study centre to make use of this facility. It introduced as for group use not for individual use because a large number of IGNOU students have no direct access to television sets equipped with decoder facility. Thus, the success of this technology is still in dark in the developing countries like India unless the necessary infrastructure is created at both the institution and students.

5.6.11 Teletext

Teletext is a computerised device and used as a medium of instruction. It is one of the new telecommunication media used in the educational purposes for wide spread dissemination of information through an electronic device. It uses medium of television for transmitting information. This advance communication technology is great helpful to the distance learner. It provides individualised instruction and useful for student counselling. This technology easily transmits the information about courses, careers, job opportunities etc.

In India, teletext service was inaugurated by Doordarshan, Delhi on November 14, 1985. It is known as Intext (meaning Indian teletext). India’s
teletext service is used for the news items, sports events, financial trends, timing of arrival and departure of trains, weather forecast, city engagement, AIR and TV programmes to be telecasted etc. But it is not being used for educational purposes in our country and in advanced countries also the application of it has been on experimental basis so far.

5.6.12 Video Disc

Video disc is new educational technology and it has widened the scope of use of TV set. It carries both the audio and visual components. Video disc players are available in two models – consumer model and educational or industrial model. The first model is basically a play-back medium and it mostly used in home and the second model is more versatile and can be used for individualised instruction. It makes opportunities for individualised instruction for the distant learner because it can record materials from a variety of media such as films slides, audio printed text etc. It has facilities to stop, slow motion, fast motion, moved backward and forward. One of the great advantages is that its recording and storage capacity is very large. For instance the entire Encyclopaedia Britannica could be stored on a single video disc.

There are certain limitations in using the videodisc in the field of distance education. The most important problem is the non-availability of the courseware. It has no use without adequate course ware. Again it acquires highly sophisticated equipment. As the cost of courseware is very high, Indian students cannot afford. So, it has limited utility in distance education because of the non-availability of courseware in the market.

After mentioning some of the electronic media which are used in distance education in one or another country of the world, a big question has come
out in front of us: How to choose or select the media when we are imparting education through distance mode? In this situation, the decision makers may consider the following criteria for selecting media in a distance teaching institution.\(^{20}\)

a) **Availability:** It is important that the technology or media selected should be well established and available in the local environment, so that sufficient trained manpower is available to facilitate the continued reliable use of the medium.

b) **Accessibility:** The chosen media should be universally available to all students. If all students cannot get immediate access to the media the institution must provide resources to ensure a fair treatment of all students. This may be done through various study centres.

c) **Acceptability:** The attitude of both academic staff and students must be favourably disposed towards the use of the technology. Without such a positive orientation, the success of the medium will be severely limited. They must also be given the necessary orientation and training in the use of technology.

d) **Economics:** It is self-evident that the technologies should not be selected if they are overly expensive. In a sense, considerations of scale and cost effectiveness are important.

e) **Validity:** The technology must be appropriate to the teaching of the course content.

All the media is perfect and useful under all circumstances. No one is superior to the other and each serves different functions. In the conventional system of education, lectures and print materials dominate whereas in the case of Open Universities, different technologies need to be used to provide access to

knowledge and skills. So media should be selected on the basis of the above criteria given by UNESCO.

Recently, a new satellite dedicated to education popularly known as EDUSAT (1950 kg) has been launched from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota into a Geosynchronous Transfer Orbit (GTO) by Indian Space Research Organisation (ISRO). Geosynchronous Satellite Launch Vehicle (GSLV) in September 2004. EDUSAT will reach the 36,000 km high geostationary orbit from GTO. This is first Indian Satellite entirely dedicated to all the sectors of education throughout the country. It is mainly intended to meet the demand for an interactive satellite based distance education system for the country. It aims to provide satellite based ICT enabled education to all age groups, sexes and areas. It has a capability to provide C-Band national beam, KU-Band national beam, five KU-Band regional beams. It facilitates to imparting education in regional language and meets the needs of state governments. It provides the technology like radio-broadcast, TV broadcast, online education through internet, computer connectivity and data broadcasting; talk back, audio-video interaction, voice chat on internet, and video conferencing.

To understand the present scenario of education and basic needs of different sectors of education, a series of meeting have been held with education boards, educationist, academicians, policy makers and others during July 2003 to share sector-wise requirement and expectation from EDUSAT. It make five spot beams of EDUSAT for covering the whole country as southern region, eastern region, western region, northern region and north eastern region.

EDUSAT makes possible to apply in different sectors of education like primary, secondary, higher secondary and distance education. It gives a new life to
the distance learners and it tries to provide home based learning through e-media, use electronic media for teaching, offering online courses in DE and to provide teacher student interactivity as well as interaction with subject experts.

In this perspective, states of NER jointly organised consultation with Development and Communication Unit (DECU) to make a presentation on the needs and requirements of education in the eight states of the region at IIT, Guwahati on 27th and 28th March 2004.

Now we have come across with the importance of ICT and its utilisation in the 21st century as a medium of teaching-learning process, how medias play their role in the instructional method of distance education and how EDUSAT will supplement to the existing ICT facilities. Next Chapter indicates how far it is used effectively in different study centre of NER, the problems faced by different personnel and other related matter through the analysis of available data.