CHAPTER 2

REVIEW OF LITERATURE

This chapter covers literature collected from various topics such as Education, Information and Communication Technologies available for higher education and distance education in particular. The chapter reviews radio, TV, computer, Compact Discs (CDs) and internet as educational media. The content of the chapter includes details on the evolution and applications of various electronic media such as radio, TV and internet, Tele Conferencing, video conferencing and Compact Discs. The chapter examines emerging trends in utilization of educational media.

2.1 EDUCATION

Education is the process of nourishing, rearing or bringing up people in particular manners, habits, or ways of life. The Oxford Dictionary describes it as ‘the systematic instruction, schooling, or training of young people, or, by extension, instruction obtained in adult life; the whole course of such instruction received by a person that aids the development of mental or physical powers and moulding of some aspect of character is called as education’. Education is a crucial investment in human development. It is an instrument for developing an economically prosperous society and for ensuring social justice. Education aims at liberation from bondage and ignorance, backwardness and gravitational pulls of the lower human nature. Education, being an evolutionary force that enables both the individual and the group/society to evolve various faculties and to integrate them by the
superior intellectual, ethical, aesthetic powers, should aim at developing a new type of humanity, which is highly humane, cultured and integrated.

According to Committee on the Rights of the Child (CRC) report (2001), education should develop as a harmonizing force to relate the individual, environment and cosmos in a total harmony by the purification and cultivation of various domains of outer space and inner space. It should be so designed as to become a powerful carrier of the best of the heritage. It should aim at transmitting to the new generations the lessons of the accumulated experiences of the past for further progress in the present and the future.

Education is transmitted through effective communication. In order to fulfill the purposes of education, institutions depend on communication as the vehicle that takes education to the recipients and deliver it effectively with minimum loss in content and focus. Hence, the researcher examine the meaning and nature of communication along with its relevance and significance in the context of emerging trends in formal education and changing needs of students. The literature brings to light multiple ways of relating education and technology with communication, as discussed in the ensuing passages.

2.2 COMMUNICATION

Communication is a tool in the context of shared possession, common participation and similarity. According to the Oxford Dictionary, ‘Communication is the action of conveying feeling, emotion the transmission or exchange of information and news’. Some refer to communication as the science and practice of transmitting information. In general, communication is information transmission/transfer, dissemination, contact, getting in touch,
radio/phone link, connection, interface, social intercourse. Information is synonymous with the communication of the knowledge of some fact, occurrence, subject or event. Information revolution refers to the economic and industrial impact of the increase in the availability of information and the changes in its storage and dissemination.

According to Reddi (1994) two important factors that shape our lives are education and mass communication. Simply defined, communication is the art of transmitting information, ideas and attitudes from one person to another. It means a sharing of elements of behavior and modes of life. Communication can take place between two persons or a group of persons, and between one person and a mass audience. Communication includes habits or gestures like movements of hands, eyes, face, nods, smiles, frowns, handshakes and other gestures, which can convey subtle and difficult ideas according to CRC Report (2001).

2.3 INFORMATION AND COMMUNICATION TECHNOLOGY AND MEDIA IN EDUCATION

Attention paid to media and technology in education is due to a variety of factors. People want to know whether various new technologies are more effective for teaching and learning than traditional classroom approaches, whether some are more motivating than others, or whether technologies can be used to increase access or reduce costs within education. Questions about the impact of media and technology in terms of increasing access to education and reducing the costs of education are especially high on the agendas of politicians and government agencies around the world.

In the USA, the Panel of Educational Technology of the President’s Committee of Advisors on Science and Technology (1997) said as one of its
six major strategic recommendations that technology be used to ‘Ensure equitable, universal accesses’. The same report called for realistic budgeting for technology related expenditures within educational institutions, noting that the much-touted return-on-investment for educational technology was a long term prospect. Technology per se does not enhance education. The report recommends that at least five per cent of all public educational spending should be earmarked for technology related expenditures, indicating commercial interest on technology. Importance of technology in education may be understood by the fact that global corporations are investing in large scale educational technology initiatives. Focus on media and education stems from sharp disagreements about the value of media and technology in education. Enthusiastic endorsements of new media and technologies in education are easy to find in news reports and political speeches, which seem overtly optimistic.

Perelman (1993) said: ‘We now are experiencing the turbulent advent of an economic and social transformation more profound than the industrial revolution. The same technology that is transforming work offers new learning systems to solve the problems it creates’.

2.4 WORLDWIDE TRENDS IN EDUCATIONAL MEDIA

Recent decades have ushered in enormous technological breakthrough throughout the world. High-tech media now offer expanded capacities in terms of speed, storage, delivery, clarity, reach and simplicity of usage. Venkataramana and Chandrasekhara Rao (1998) say that the world is witnessing a revolution in computer and communication technology leading to the emergence of multimedia, an effective and efficient means of communication with capabilities of stereo, sound, animation and video. Unlike in the traditional system which is teacher centered, the new system
emphasizes individualized, self-directed learning, leading to more creativity, flexibility, decision making, analytical thinking and design skills among the users than the conventional systems. Discussing the nature and role of IT in the developing countries Garg et al (1999) suggest that IT can broaden the educational base and make tailor made systems available at reduced costs. They opine that by linking the education system with IT, it could be possible to surmount geographical barriers, overcome time and space constraints, enhance communication, make the education system all pervasive, speed up the learning process, bring about conceptual clarity in the faculty and improve the organizational effectiveness. They propose an educational model called ‘Learning The Automated Way’ (LTAW). Providing access to facilities like TV, personal computer, internet, and CD-ROMs to students, an ‘Any time – anywhere’ model of education can be created in which students are no longer treated as receptacles but as co-discoverers.

Rogers (1986) says ‘one important function of telecom is to provide a substitute for transportation: instead of moving people to ideas, telecom moves the ideas to people’. That is what the mass communication media do through their various channels i.e. moving ideas to people. Supporters of ICT have advocated integrated rural development through telecom by highlighting many of their uses and applications in developing countries. ICTs include expanding educational opportunities such as distance learning.

All societies have been information societies and what has significantly changed is the manner in which the information is collected, stored, processed and disseminated. Newspapers, periodicals, books, radio and TV form a part of the development of communication technologies in the first phase of industrialization. Subsequently, the development of computers facilitated the convergence of all media. This in turn is supported by rapid
advances in telecom technologies. ‘All the media together have significantly helped in the creation of the global village’ says Sanjay (2002).

The ICT genre involves the use of all tools in the forms of software, online programmes, and resources to create new and improved conditions for learning. The ICT genre, it implemented, will correspond with the selected organizational model and instructional strategy. The layers of virtual learning scaffolding model (VLSM) work in unison and require that online instruction utilize the many different combinations of the four layers in order to meet the different types of intelligence and learning styles the students possess (Witfelt 2000). Users of ICT want information access to meet their purposes ‘pin pointedly, expeditiously, exhaustively and economically’ in the words of Ranganathan (2002). The qualification of, ‘economically’ might be different for donor and recipient users of ICT like administrators, academicians or industrialists with the required ‘literacy’ and access to the tools provided by or paid for by others.

The communication technologies of computer, including its various applications are driving social shift toward an information society. These technologies, once considered as distinctive components, are converging so that the point at which one technology stops and the next one begins is no longer clear, says Singhal and Rogers (2001). Communication technology includes the hardware equipment, organizational structures by which individual collect, process and exchange information. The new media have certain characteristics that are similar in some respects to those of both interpersonal and mass media communication.
2.5 RADIO AS AN IMPORTANT TOOL FOR EDUCATION

Radio refers to the organized sound broadcast through the transmission and reception of radio frequency electromagnetic waves, especially as a means of communication. In the age of the electronic revolution, students learn from various sources. Before the advent of TV, radio played a significant role in reaching people, informing and educating. Radio is still a dominant medium with wide access.

Radio Technology was first developed during the late nineteenth century and came into popular usage during the early twentieth century. Though sometimes overshadowed by television, radio represents a medium capable of reaching a wide geographic audience at a low production cost with proven educational results (Couch 1997).

Studies by the United Kingdom Open University (UKOU) have demonstrated that radio has a greater value for weak students who benefit from radio as a supplementary learning tool. The Agency for International Development has shown that radio is more cost-effective and greater learning effect in education (Tripp and Roby 1996). Radio has the advantage of teaching subjects in which classroom teachers are deficient or untrained. An added benefit for multi-grade classrooms is that it provides instruction for one group of students while the teacher works with another group.

Radio broadcast, both for information and education, is fairly old in India. However, until recently, radio was a government-controlled medium used extensively for information, education and entertainment. Expansion of radio transmission has been rapid, and today there are over 197 radio stations reaching 97.3% of the population and 90% of the geographical area (Government of India 2003). In India radio successfully used for rural
education and development (Long 1984). Various agencies at the level of conventional and distance universities are making use of radio for broadcasting their educational content as a cheap local supplementary alternative. The educational radio efforts indicate that radio can be an effective medium in reaching out quality education and training to the needy ones according to Vyas et al (2002).

Regarding the strengths of radio Chaudhary and Bansal (2000) assumed that radio can cater to region-specific needs of learner groups. A decentralized approach to radio broadcasting can develop a healthy academic relationship between resource person and students. Use of local language for interaction may motivate students to pursue their course of studies.

Reports confirm that radio has supported educational programmes in a wide range of subject areas in many different countries from the beginning. Nwaerondu and Thompson (1987) reported that Switzerland used the radio for public health purposes. Mali and Mexico were effectively used for literacy training and other programmes. The Philippines and Sri Lanka used the radio for nutrition education and family planning, health respectively. The Dominican Republic and Paraguay were used the radio development of primary education. Radio was used as an effective supplementary to teach mathematics to school children in Thailand.

Educational radio has been employed within a wide variety of instructional design contexts. It is sometimes designed so as to permit and encourage listener reaction and comment. Indeed, in some cases, there is provision for the audience to raise questions and to receive feedback. Sweeney and Parlato (1982) concluded that radio plays an effective educational role both as the sole medium and in conjunction with print and group support. For example, in Nicaragua, students who were taught through
radio lessons achieved significantly higher scores than those taught through regular classroom instruction.

Bansal and Chaudhary (1999), in their evaluative study of the effectiveness of interactive radio instruction on students, were encouraged to find in interactive radio sessions the participation not only students, but also the enlightened public. They also found higher student participation in interactive radio sessions than in teleconferences and face-to-face personal contact sessions. Satyanarayana and Sesharatnam (2000) pointed out that radio is useful in providing remedial tutorials, as well as some other forms of tutorial-based feedback such as providing corrections, alterations or updates to material.

Sukumar (2001) studied the extent of utilization of Interactive Radio Counselling (IRC) by the students of IGNOU. The results showed that IRC was more attractive to students than any other media. The main reason given was that students had easy access from their homes. The author has suggested that since the medium is so popular, there should be provision for all the programmes to have equal weight in the IRC sessions. Sharma (2002) examined IRC through radio to ascertain its overall effectiveness. The participants of IRC reported that the level of content matter and the level of clarity in the presentation were satisfactory. It was suggested that all educational systems that aim to expand their reach to students would do well to integrate IRC into their student support services.

Dikshit (2003) tested the feasibility of using new digital technology for cost-effective transmission of audio-visual courseware. The project proved that FM radio transmitters and Satellite Radio transponders could be used successfully to transmit, downlink and download multimedia courseware. Usha Chander and Sharma (2003) gathered the feedback from the audience of
Gyan Vani, which revealed that learners prefer discussion-based programmes (43%) followed by quiz (40%). Most of the respondents (62%) highlighted the need for interactivity in Gyan Vani programmes.

Literatures suggested that there are number of educational courses, social education that relies on radio, more so in case of distance education. Various applications of educational radio in developing countries are proved that it is an effective medium for education. Radio’s widespread availability in developing countries underscores its educational potential and importance.

2.6 TELEVISION AS AN EDUCATIONAL MEDIUM

TV promises to be a medium which can be used effectively to teach. It is a system for reproducing visual images transmitted with sound on screens. It is the medium of art form, or occupation of telecasting on electronic gadgets. By 1984, entrepreneurs in cities had begun wiring apartment buildings to transmit several films a day. Within a few years, this phenomenon became widespread in other urban centers. The number of cable operators in India exploded from about 100 in 1984 to about 60,000 in 1999 (Kumar 1998).

Kheda Communication Project (KCP) was a decentralized experiment as part of SITE 1975 in community based TV (Kalwachwala and Hoshi 1990). It promoted rural development and social change at the local level. Audience participation was aggressively encouraged at all levels. A campaign approach was followed, synchronizing TV programmes with local efforts by development agencies.

Educators across the USA used the Chicago TV College experience as evidence of a significant audience of adult students who desired an
alternative to an on-campus experience. Claims were made that students taking educational TV courses received an education comparable to on-campus education. Research during the 1950s and 1960s considered the personal, social and demographic aspects of students who were attracted to this form of education and the processes involved in producing and offering TV courses appropriate for them (Zigerell 1979). ‘Tests showed that students did significantly better when they viewed the lessons that demonstrated planned visual continuity, contained visual reinforcement, and had been the result of a team approach to make effective use of the TV medium’ (Chu and Schramm 1967). Without the Instructional Television (ITV) technology students would have limited access to courses (Garland and Loranger 1996).

Research presents a methodological approach for evaluating student satisfaction in ITV courses. Phipps and Merisotis (1999) claim the weaknesses involved in distance education research typically pertain to lack of experimental designs, including randomization and treatment groups, and lack of statistical sophistication. Although the authors agree these elements would make any research more methodologically sound, it is impossible to include all these elements in studies of this nature. On the face of it there is little difference, from the audience’s point of view between a TV and a cine film presentation. The ‘here and now’ aspects of a TV image, coupled with qualities such as less precise definition and presence in your own home, make the TV image more acceptable, and hence a more powerful, medium of communication than the cine film. There is evidence to support this view, from measures of the relative success of advertising on the two media. However, when both media are removed to the relatively artificial setting of the classroom or workshop, there seems to be little difference. A research reported on the use of TV in education than on films. However, most of it is subjective and poorly designed. Those studies that are properly controlled generally repeat the pattern of ‘no significant difference’ found earlier in the
bulk of research into film. There are hundreds of reported studies comparing TV with traditional methods, but no conclusive results are presented. Chu and Schramm (1967) reviewed 207 studies involving 421 separate comparisons. At the college and adult level, results of 235 comparisons indicated that 176 found no significant differences between televised and conventional instruction, 29 favored TV over conventional instruction and 30 favored conventional methods.

Studies in which experimental classes taught by TV were compared with control classes receiving no televised instruction. They identified 42 studies that could be considered to be comparable on the basis of several criteria, namely, instruction lasted at least one term; identical, written course content examinations were used for groups being compared; similar methods of instruction were experienced by both groups. First, when teaching methods were matched, face-to-face instruction was superior to two-way instructional TV, and then only when the lecture method was used by each medium. Second, one-way instructional TV produced the same amount of learning as face-to-face teaching by lecture, by a combination of lecture-discussion-demonstration, or by discussion alone. Third, instruction by either method yielded no significant differences when the studies were grouped by the broad subject area headings of humanities, social sciences and science/mathematics. In rigorous ‘meta-analyzes’ of a group of 74 video based studies, Cohen, Ebling and Kulik (1981) found slight benefits for the video mediated instruction as opposed to conventional instruction, but the benefit was of the order of 1 or 2 percentage points only.

A series of experiments on the effect of telecasts on the attainment and attitudes of students taking City and Guilds ‘G’ courses at technical colleges in England. The largest experiment involved students in 27 technical colleges watching a BBC TV series on engineering science. Some students
watched the broadcasts. The control group did not. In all over 800 students were involved in the study, and were carefully matched for ability. There were no significant differences between groups on the attainment test used to assess the instructional effects of the two treatments. On the other hand large and significant differences both in ability and attainment were found when the scores for individual colleges were analyzed separately. The telecasts appeared to have a greater impact on students who were above average ability, and to have more effect on performance in mechanics. Research of this nature suggests that there may indeed be differences between media. This factor has been obscured in earlier studies. However, more research at this ‘micro’ level is still needed before a comprehensive picture emerges.

Sultana (1998) found that the television has been recognized as a tool to make education accessible to the masses, both in urban and rural areas in Bangladesh. Karim et al (2001) conducted a survey on the role of radio and television programmes among the students of the Graduate Diploma in Management (GDM) programme of the Bangladesh Open University. They found that the programmes were appreciated and benefitted by 85% of students. Das and Das (2001), in their study on the viewing of Doordarshan programmes by high school students, examined the students’ viewing preferences, particularly of Grade 9, in relation to various television programmes. The findings of the study revealed that the students expressed interest in learning through television and video programmes.

The inferences drawn from the study of Ranganathan (2002) and their implications to the CWCR are given below: Watching TV is popular among students and not all of them watch TV for entertainment alone. Considerable numbers among them are on the look out for useful and usable information. They seek information that will enhance their general awareness and help them in their educational pursuits. Among the TV viewers there are
some who watch CWCR occasionally. Ways should be evolved to hold on to the existing viewership by enhancing viewer interest in these programmes and attract others by extending the scope of programmes. It is imperative that the programmes are different and contain something special to get noticed among the plethora of programmes offered by various channels. The focus ought to be not on undergraduates but all the information and knowledge seekers. It is necessary to produce need based programmes like for example; preparatory courses for those who to take the competitive examination at various levels. Promotion of CWCR through cross channel publicity is absolutely essential. TV expansion in years has been phenomenal. TV covers over 85% of the country’s population.

Garland and Langer (1996) found that ‘adult students have generally positive attitudes toward their ITV classes. Essential to the success of distance education programmes that use ITV is the training of professors and students to be involved in this emerging technology’. The study found that 75% of the students evaluated, rated their teleconference course ‘excellent’. A slim majority of students preferred the traditional classroom setting while 30% of the students ‘strongly disagreed’ that ‘presentation methods, discussions, student technical skills and cohesiveness amongst students were made more effective in the ITV classroom’. A positive comment from the Garland and Laranger study was that ‘it saves students travel; the university from duplication at various sites, and it provides an interaction of ideas from various regions’. ‘Interactive TV will eventually provide easily accessible and affordable means of connecting classrooms with a faculty of education, promising to bring closer together educational theory, research and practice’ (MacKinnon 1995).
2.7 COMPUTER AND INTERNET IN EDUCATION

Compared to the mass media of radio, TV, and film, the new communication media, namely computer and internet have a higher ratio of information to entertainment. Many individuals adopt computers because these tools allow them to obtain more information about study, education, financial data, world news, government actions and travel schedules. These users tend to be highly educated and of higher socio economic status. Once public access to computers becomes more widespread through cyber cafes, internet community centers, and public schools, the digital divide will eventually be crossed, Singhal and Rogers (2001) feel. Technologies such as email, fax, internet, and high-speed data-links fundamentally change the way nations, communities, organizations, and individuals communicate.

As expounded by Pachler (2001) development during the 1990s, in the field of new technologies, in particular interactive multimedia and the Internet brought about an information revolution changing cultural practices by reshaping the way we work, study, play, form relationships and communicate”. Integration of ICT would demand that educational planners look beyond the current urban classrooms by devising updated plans for education in an electronic environment, even in the far-flung rural areas, and by expanding their design so that the computer becomes more than a subject of study. It becomes instead, an integral part of the schooling process, resulting in universal computer literacy, computer-aided learning and finally, computerized learning throughout the country, as per the CRC Report (2001). ‘Changes in people’s attitudes toward technology seem to be related to their familiarity with it’ as suggested by Ghasemi (1996). New technology can support and enhance distance education. An important thing is the way in which these tools are used; the focus must not be mainly on the technology itself but on the students’ learning and how we can enhance their learning.
Computers and internet have started influencing the way one learns. Many students are familiar with internet and several of them use it frequently. Majority of them access it not at home but at the cyber cafes. A large chunk of the clientele of cyber cafes are students, professionals and jobseekers. Internet is the medium of the future and the number of users is likely to increase day by day. Most of users of internet seek information on education, career guidance, career advancement and a host of other areas. Media centers may have their web sites depending on their strengths in terms of the expertise available in the region, proximity to national level teaching and research institutions and the infrastructure available. Media centers can design interactive learning modules for the emerging/frontier areas of various subjects. Eventually media centers can network themselves and provide web education to those who wish to continue their education. From all this may emerge a system which provides knowledge ‘Anywhere, Anytime and to anyone who seeks knowledge at his/her pace’ Saiprasad (2001).

The latest proficient development in the information revolution is the E-Learning through World Wide Web (WWW). It is network accessible information that uses the method of cross referencing. Communication technologies that increase access to faculty members help them share useful resources and shared learning. They can usefully augment face-to-face contact in and outside of class meetings according to Balasubramanian and Shajehan (2001).

During the last two decades researchers have been interested in attitudes toward technology, with emphasis on computers, and several studies look at computer experience, attitudes toward computers and even personality characteristic, according to Brosnan (1999). Some studies have looked at perceptions of self-efficacy, expectation and success among teachers in relation to computers according to Rosen and Weil (1995) and student
attitudes toward information technology is considered a major factor in their success says Liu (1997). Johnson and Liu (1998) found that teacher education students were positive about their learning experience with technology and found it relevant and meaningful to use information technology and students were comfortable with the distance education technology.

The delivery of instruction in courses, using internet technology is known as Web based Training. It uses any combination of texts, graphics, animation, sound, video or external data banks to present a course of instruction. It is more interactive and can send information and receive feedback. Instant updating of information and immediate feedback from users via e-mail is possible. It is obvious that training becomes mandatory for teachers, which helps them transform lifeless equipment into useful tools. Creating hi-tech educational tools without training the teachers to use them effectively would be as futile as inventing new generation of planes without pilots stated Balasubramanian and Shajehan (2001).

Internet centres, gyandoot and related initiatives in many states are indications of the will to make it easy for common people to participate and enjoy the benefits of the knowledge society. Sanjay (2002) stated that, it has to be reiterated that all societies have been information societies and what has significantly changed is the manner, in which the information is collected, stored, processed and disseminated. The development of communication technologies, their sectoral use in the first phase of industrialization (newspapers, periodicals, books, radio, TV and to some extent, cinema), and the subsequent development of computer facilitated their convergence. This in turn was supported by rapid advances in telecom technologies-telegraph-basic telephony to value addition, that has significantly helped in the creation of the so called global village marked by instantaneous communication.
Internet enables citizens to have access to anything and everything of their choice like books, news, bank accounts, peer and interest groups and at a time of their choice without stirring out of the comfort of their homes. But like roads one may have to pay tolls for using internet. ‘Unparalleled and unlimited human connectivity and interactivity without stirring out of homes, is set to transform intellectual, cultural, economic and political life’, says Yadava (2000).

Canada’s SchoolNet and LibraryNet programme that partner with the provinces to connect schools and libraries to internet. In 1999, Canada became the first country in the world to possess this degree of connectivity (McKeough 2000). SchoolNet’s Grassroots programme has allowed students and teachers to create over 20,000 funded internet based projects. Up to 5 million students will gain the knowledge and experience needed to contribute to Canada’s future competitiveness in the global marketplace according to Licenik (2000). The goal of these programmes is to increase access, stay ahead and build information technology skills. Industry Canada administers the Community Access Programme first launched in 1994 to rural communities smaller than 50,000, partnering with schools, libraries, volunteer groups, social agencies and businesses ‘to establish up to 10,000 affordable public accessible internet sites throughout Canada’ (Latta 2000). ‘Well designed online learning materials that engage learners in meaningful experiences and provide opportunities for collaboration are costly to develop, maintain, and deliver’ (Killion 2000).

Online learning would involve purchasing copyrighted print and electronic material. Even if a school division develops its own online courses, copyright clearance for reference articles could be expensive, asserts Bartolic and Bates (1999). Saskatchewan Education has only developed three online databases with rights cleared and providing full text journal articles of
Canadian Business and Current Affairs, Info Track and Repere, Saskatchewan Education (2001). More learning resources need to be offered online and accessible to students. Commercial publishing has limited academic electronic materials available. To provide student support and manage copyright limitations and restrictions, a large scale electronic library would need to be developed with an electronic reserve collection of material and links to online documents (Inglis, Joosten and Ling 1999). ‘Taking into account current trends in technology, education, and training, you can anticipate where you want your programme to be in the future’ (Porter 1997).

More learning resources need to be offered online and accessible to students. Commercial publishing has limited academic electronic materials available. To provide student support and manage copyright limitations and restrictions, a large scale electronic library would need to be developed with an electronic reserve collection of material and links to online documents (Inglis, Joosten and Ling 1999). The web, interactive multimedia and computer mediated communication convergence over three decades have created a ‘watershed’ for education and online learning. Education and training providers are making the transition to the knowledge media for three main reasons: ‘The knowledge media offer the possibility of delivering courses in ways that are cheaper, faster and better’. These should not be the reasons for transition. Delivering online courses may not be cheaper, but as or more expensive than existing instruction. They studied the economies of scale rule and found several notable misconceptions and variances, dependent on previous distance education delivery. An appealing aspect of accessing information through the WWW is that it is presented in a range of multimedia styles, such as text, graphics, sound and video, making the web popular with students of all ages, at least until the novelty effect begins to wear thin (Junion and Metz 1996). Browsing and selecting appropriate information on
internet requires students to acquire research skills and discernment between authors and website designers.

Computer Mediated Communication (CMC) includes text formats of communication such as email, bulletin boards, synchronous and asynchronous communication. Group communication events include ‘one-to-many,’ ‘many-to-many,’ or ‘computer conferencing’ (CC). These formats are open documents available to all members of a course. Interaction appears to be an important factor in learning. While the advantage of CMC is that it reduces the constraints of time and location says Ahern and Repman (1994), it is demanding for students and instructors to read all their messages (Hara et al 2000).

Computerized instruction and interactive video may be effective means of achieving educational objectives, both as the principal means of instruction and as a supplement to other forms of instruction according to Bailey (1990). Franchi (1992) found that, when compared with media that do not account for individual differences, computerized instruction can produce more learning in a given amount of time, or can produce a given amount of learning in a shorter period of time. Papert (1996) believes that computers in the home are ironically the biggest source of change in education. He persuasively argues that for this reason students will be less and less willing to be educated in ways that are inferior to what they can achieve at home with their computer. Wyld and Ecklund (1997) found that, despite the small amount of experience that schools have had with internet, there is almost universal enthusiasm among school teachers about the potential of internet in education. In order to capitalize upon ‘life in the real world’, technology in classrooms is no longer a luxury.
Cummings and Kraut (2002) studied Pew internet survey data from the years 1995, 1998, and 2000 and analyzed how computer use has changed over the past several years. They predicted that internet and computer usage had become more ‘domesticated’ over this timeframe, with higher usage at home than work and use for personal activities than work activities. Their preliminary statistical analyses suggested that there were positive trends away from work use to home and personal use, though the authors suggested their conclusions were not definitive.

Thompson (2000) reported on demographic and motivational variables associated with internet use in Singapore. The study on the four internet activities, messaging, browsing, downloading, and purchasing with the factors of sex, age, and education, found a positive relationship between gender and messaging, with females more likely to use internet for messaging than males.

Park and Jun (2003) found that the total hours spent per week on internet were higher in Korea, at a mean of 18.15 hours than 11.30 hours for U.S. This demonstrated a distinct difference in cultural usage of internet. This study generally supports the limited research done on demographic analysis of internet usage and it found regional differences over and above age differences. Katz and Aspen (1997) found a bias toward male users but a growth among female users. There remain differences due to gender and regions.

Internet has become a major factor in most media newsrooms. A large portion of print and broadcast operations have moved onto internet to reach their audiences in new ways. Research shows that rural and agricultural audiences prefer receiving their agricultural information in print form. A study done, among readers of an agricultural journal, with mostly rural
readers showed that 71% of respondents reported having a website associated with their publication. Websites contained links to other sites, graphics, current stories, archived stories, and advertising. The majority of respondents indicated that the main audience for their website included the agricultural industry and producers. It is important for students coming out of agricultural programmes to possess these skills.

Media operations have begun gathering and disseminating online news resources (Garrison 2001). Meyer (1998) found a remarkable growth rate in online newspapers worldwide from 745 in 1996 and 2,059 in 1997 to 4,925 in 1998. In a census of dailies, Garrison (2001) found that newsrooms were not only using computers to gather information, but were using online technology as part of their daily means of reaching their markets. Magazines like other forms of print media are developing a presence on internet. In a readership study Turley and Tucker (2002) found that 25% of respondents indicated preference for electronic newsletters over print. Over the years the use of internet has literally exploded. From 1992 to 2002, the number of users on internet had grown from practically nothing to over six hundred million in the world (Jupiter Media Corporation 2003).

Rafi Nachmias (2005) examined internet usage among 384 junior-high and high school students in Israel. Its focus was on the purpose and patterns of internet usage by 12 to 18 year old youngsters, and on the linkage between internet usage and school activities. The findings showed that about half of the research population used the net, mainly for communication. Search for information comes second. Low degree of connection was found between internet usage and school practice. The results showed significant gender differences. More boys were using internet, extensively than girls. Only some differences among age groups were found. The results of the study are discussed in terms of the range of internet use
among youngsters and its emerging role as an alternative knowledge resource outside school.

The Pew Internet and American Life Project data (2001) on internet usage tested whether observed regional and demographic differences in internet usage are statistically significant (Spooner, Meredith and Rainie, 2003). The report reviewed regional and demographic differences separately and found significant variation across twelve regions and ten demographic categories. It then reviewed demographic differences within regions. Tests found a series of null hypotheses proposing no significant differences between regions based on the demographic factors rejected with noted difference. The report concludes with a call for further study to refine the impact of regional and demographic differences in internet usage. Variations in usage of internet among countries, regions and demographic groups seemed significant. The growth and usage of internet has not been the same across all regions of the country. Focusing on age, income and education the study found limited usage of internet for students under 18 at that point in time, with only 2% using internet. It proposed a view that young internet users tended to use it as a communication device whereas older (30+) users tended to use internet as a device for information retrieval.

Miller (1996) suggested that the older group used internet more for finding information than the younger group. Emmanouikides and Hammond (2000) studied internet usage over the period of 1995-1997 via surveys. Their study examined usage, frequency, locations, applications, and demographics and focused on continuity of use. They found that users were still early adopters or pioneers and that internet use at home or work provided more continuity than those who used public accesses. Communication was popular, but information seeking and services were the best predictors of use. Internet usage is linear in that the longer someone has been a user, the more likely he is to be a heavier user.
2.8 INDIAN EDUCATION AND EDUCATIONAL MEDIA

India is a country where the population growth tends to outsmart every form of infrastructural development. This is especially so in the field of education, where the state outlay is less than a mere 2% of the Gross Domestic Product (GDP). Studies on the scope, utility and limitations of educational media among educational institutions in India, point out that the facilities to utilize the media produced educational programmes in the schools, colleges are inadequate. Special media rooms were unavailable in the schools and the services for maintenance of media sets were not efficient.

The universalization of education has become top priority in social development, especially for the developing countries. But the extension of quality education to remote and rural regions becomes a Herculean task for a large country like India with a multi-lingual and multi-cultural population separated by vast geographical distances and inaccessible terrains. Since independence, India has seen substantial increase in the number of educational institutions at primary, secondary and higher levels and in student enrolment. But the lack of adequate rural educational infrastructure and non-availability of good teachers in sufficient numbers adversely affect the efforts made in education according to Sekar (2004). India used to place too much emphasis on the book as knowledge source. Due to the lack of infrastructure, practical training has been kept to a minimum. Generally, teachers in classrooms feel at ease with standard textbooks than to connect education to life and to development related activities. According to Reddy (1995), Indian educational system has remained indifferent to new technologies and maintained a distance from them, while all other facets of life such as industry, commerce and engineering are adopting and integrating new technologies into their profession. New communication technologies are bringing about noticeable changes in Indian society. As India moves forward
on its informatization road, the study of social science, humanistic, and policy aspects of communication technologies becomes even more crucial.

In 1956, India was the site of the Pune Radio Farm Forum Project. The Project was inspired by Canada’s experience with radio farm forums in the 1940s. It was a field experiment to evaluate the effects of radio farm forums, each consisting of several villagers who gathered weekly to listen to a half-hour radio programme broadcast by AIR and then discuss its contents (Kivlin 1968). The theme of the radio forums was ‘Listen, Discuss and Act!’ Radio is an extensive network. Radio signals cover almost the entire country. The number of radio sets is estimated at 111 million. However, on an average there are only 12 radio/transistor sets per 100 persons. In 2000, AIR’s programme could be heard in two-thirds of all Indian households in 24 languages and 146 dialects, over some 120 million radio sets (AIR 1996).

Higher education in India is facilitating access to the common heritage of knowledge and research. It is fulfilling its moral obligation to society in exchange for the resources assigned to it by society. Reddi (1994) opines that despite all the weaknesses, India must be applauded for its freshness of approach and for the willingness of its planners and educators to make a quantum leap to a satellite based system and exploit some of the latest technologies to meet the requirements of education. Multi channel TV environment available in India poses many challenges to educational TVs. All along the people have perceived TV more as an entertainment tool. Unless attempts are made to render the educational TV more appealing, interesting and need based, it could be swept of its feet in no time. It is a stupendous task and can be achieved only with the support of research inputs. This well articulated enthusiasm diffused through various media in the country has raised the hopes of the people.
With the expanding and enormous capacity of TV and radio to deliver their goods to the people many new channels have emerged. Moreover, they are working for almost 24 hours a day. This has encouraged the authorities to start Gyan Darshan on TV and now Gyan Vani for radio. These channels are dedicated to transmitting educational programmes. As per the plan Gyan Vani, more and more radio stations would be set up in the country. FM stations are expected to be allocated for the purpose of education and development. A study by Ila Joshi (2001), to gauge the situation pertaining to radio listening and the number of FM sets and the educational programmes on radio suggested that, in urban areas there was higher listening compared to rural area. The average listening among the total number of respondents was 85%. No other detailed information regarding educational programmes on radio was available which is directly applicable in a media scene. Radio is still a dominant medium with wide access. Computers and Internet have started influencing the way of learning. All these media are powerful to reach, teach and enrich.

According to Arulchelvan and Viswanathan (2006), most students were not aware about the Gyan Vani radio programmes. Also a majority of the respondents stated that Gyan Vani was not fulfilling their requirements. They also suggested, awareness on Gyan Vani needs to be enhanced through advertisements and publicity. Encouragement has to be given to the creation of more educational FM radio stations throughout the country. Local inputs and interaction should be made a regular feature in the radio programmes.

The concept of beaming educational programmes through satellites was effectively demonstrated in India through the SITE. During this unique experiment, which is hailed as the largest sociological experiment conducted anywhere in the world, programmes pertaining to health, hygiene and family planning were telecast directly to about 2,400 Indian villages spread over six
states. Later, with the commissioning of INSAT system in 1983, a variety of educational programmes were telecast. In the 1990s, Jhabua Developmental Communication Project (JDCP), TDCC further demonstrated the efficacy of tele-education. With the success of the INSAT based educational services, the need was felt to launch a satellite dedicated for educational service and ISRO conceived the EDUSAT Project in 2002. EDUSAT is the first exclusive satellite for serving the educational sector. It is specially configured for audio-visual medium, employing digital interactive classroom and multimedia multi-centric system. The satellite will have multiple regional beams covering different parts of India.

According to CMS ENVIS STUDY (2004) over the years TV has become a central dimension of every day lives, and in India it has grown at a phenomenal pace. In India TV was introduced through government efforts to introduce public service broadcasting. The idea was primarily education and access to the vast rural population. In 1991, the gulf war introduced us to the charms of satellite TV. The proliferation of cable and satellite TV channels has penetrated all corners of the country cutting across demographic and geographic barriers. In this respect TV has enables a level of playing opportunity and has become a homogenizing of socio-economic differences, unlike any other policy instrument of the state. Over 10 million Indian homes have cable and satellite connections. The viewer has access to information from local, national and global levels. The sheer number of channels gives him a plethora of options. TV is a powerful medium with extraordinary reach. No one can doubt its potential as a catalyst of social change. TV is still the strongest and most important medium of communication among all sections of the society. Irrespective of age, class and education about 99% of the respondents watched TV regularly. Mostly entertainment based programmes are being watched by the respondents. Around 43% of the respondents watched entertainment programmes on TV.
With the advent of satellite and cable TV, the expansion of TV in India has got an enormous boost, both in terms of reach and choice of channels and programmes. About 40,000 cable operators are doing good business in information and entertainment that has emerged as a major industry and a major culture force. The video has reached small town restaurants, and even remote villages, serving as a new status symbol for a large number of people in the country. Cable TV is largely used for entertainment but it has great potential for being used for education as well, according to Yadava (2000).

Usha Kumar (1990) analyzed the contents of UGC CWCR and she found that in most of the programmes information transfer Pedagogy was mainly used and 17% of the programmes were devoid of any learning factors like interest reinforcement, motivation, recapitulation. She found that the creativity aspect and skill development were, by and large, ignored in the programmes. The UGC’s programmes are weak in terms of translating the CWCR credo consisting immediacy, omnipresence, animation and special effects, visual power and intimacy. This could be due to technological limitations, constraints of time and resources. These limitations, they believe are hampering the use of this medium as an effective tool for enriching higher education.

When the content of CWCR programmes telecast during 1990 and 1991 was analyzed, it was that majority of the programmes telecast during the period were of ‘information transfer’ only and no attempt was made to transfer skills or to raise questions. None of the programmes attempted to initiate interaction according to Mohanty and Sahoo, (1991). They made an appraisal of some CWCR programmes and concluded that the knowledge objective has been emphasized in 88% of the programmes where as due importance was not given to other objectives like knowing and application.
Metallinos and Nekos (1991) studied the TV Aesthetics in education and concluded that knowledge; knowing and direct application of established aesthetic principles governing the medium of TV certainly resulted in the development of better educational TV programming in the short run and improved the entire field of education in the long run. Jaiswal and Goel (1991) referring to the CWCR programmes suggested that different pedagogical fields such as methods, media, techniques, devices, aids and formats have to be well selected.

Saiprasad (1992) reported on the National Talk back Experiment - 1991 which was organized by ISRO and UGC as follows. The results have shown that in 8 out of 12 programmes, the experimental group which watched the proceedings but did not participate in the talk back, obtained higher scores than the control group. The data gathered from the participants by way of perception scores and interviews conclusively established the superiority of talk back approach in improving the quality of classroom participation, for example the ability, motivation and desire among students to interact with subject experts, a new interest in CWCR as a form of educational TV content to their specific needs. Results of the survey by Govindaraju (1992) on the CWCR viewing habits of Indian college students stated that telecasts had the desired effects to some extent. The results showed that a large number of students watched these programmes at home than at the college. He surmised that since the programmes are being watched by a considerably large number of students they ought to be interesting.

A committee consisting of eminent educationalists and media persons to assess the CWCR programmes and to suggest ways of improving the programmes in terms of aesthetics and educational effectiveness emphasized the need for better planning, conceptual clarity, and proper programme design. The committee felt that the programme planning ought to
include learning goals and the objectives and the proposed treatment must be
guided by the learning goals set for the programme. Results of a study by
Sinha et al (1994) on the ISRO - IGNOU Experiment in Interactive
communication for distance education indicated that a majority of the
participants from all levels found that the interactive mode of teaching was
useful for the extended contact programme. However it was found that
technical improvement was needed for better reception of the audio quality
from the participating centres.

Reddi (1995), concluded in her report on the CEC-IGNOU-ISRO
National Talkback experiment 94 that there have been gains in knowledge.
According to her the observation data confirm findings from world wide
research that TV viewing is a dynamic process with group viewing, shifting
attention levels, participant interaction, all playing an important role in this
activity. Mishra Rajendra (1996) delineated several points in terms of
formative evaluation, and summative evaluation culled from various studies
carried out in the realm of CWCR. He concluded that a good number of
individual programmes and all the series have been produced incorporating
formative research inputs and few studies were conducted on the impact of
CWCR programmes.

2.9 EDUCATIONAL MEDIA AND DISTANCE EDUCATION

There is a vast scope for media usage as part of distance education,
especially in India. Among the various users of educational media, the
students of distance education could benefit immensely through the usage of
mass, interactive electronic media, to make up for the absence of face-to-face
guidance from teachers. Since distance mode is emerging as a major force in
higher education among people of all age-groups, effective provision of
media resources in this mode could enhance the quality of education of the entire population.

Over the years, distance education has come into its own as the mainstay in the field of education. In addition to existing institutions for distance education such as the open universities, many traditional universities are becoming interested in distance learning activities. Distance education is the fastest growing form of domestic and international education McIsaac and Gunawardena (2001).

New opportunities are emerging in the area of web-based distance education as bandwidth and transmission speeds increase. These new opportunities are increasing accessibility and the quality of distance education. An important thing is the way in which we use new technology tools; the focus must not be mainly on the technology itself but on the students’ learning and how it can enhance their learning. ‘In distance education there can be an effective learning environments other than the traditional classroom’ Lochte (1993). ‘Distance education should be guided by sound pedagogical principles that support an effective educative environment, than determined by particular technologies or economic circumstances’ STF (1997).

The integration of satellite technology and education has yielded rich rewards socially, culturally and economically, to name a few, distance education has been a boom in a more specific sense to educational institutions themselves as it allows extremely useful contact across national and international borders. This is especially true in the present context, for online education that is transforming knowledge delivery processes and ‘virtual education’. The newly arrived e Learning has caused profound changes in the way people learn and train, allowing them to do it anywhere, at any time.
Through the web, a user can access content from any point, off campus or in campus, through a computer and connectivity medium. The web is being used for delivering content that is more extensive on a particular course. The EDUSAT technology allows asynchronous delivery of various kinds of data presentations including Power Point, server hosted digital data, still pictures and graphical information. While ISRO will provide the space segment for EDUSAT System and demonstrate the efficacy of the satellite system for interactive distance education, content generation is the responsibility of the user agencies.

In the USA, almost all the traditional universities and colleges now have WWW pages and offering various kinds of distance education. Universities are moving into a situation that is called a ‘mixed-mode’ or ‘dual-mode’ teaching situation. The implicit assumption is that adding tele-learning to the traditional instruction will make the university activities more efficient and productive. The benefit of tele-learning, therefore, should be found in the other variable of the efficiency equation: effectiveness and quality. For traditional universities tele-learning should be introduced in circumstances where it provides a benefit to the existing situation. The implicit assumption thereby is that the quality, and thus the effectiveness, of the courses will increase. In addition to the suggestions made above, there is another kind of activity that can contribute to the efficiency of higher education. A variable neglected in media research is the time involvement of the student. Research has indicated that computerized learning motivates students to invest more time in a subject area (time-on-task), in particular when the student can work according to his own pace and time schedule (Worthen, Van Dusen and Sailor 1994) and when the system creates extra possibilities for the student to communicate with other students (through e-mail, bulletin boards and computer conferencing). The enthusiasm of students working with the WWW is a clear illustration of these research
findings. Research has shown that using computerized learning can reduce the necessary learning time of students to 2/3 of the time needed in a conventional course Kulik and Kulik (1991). The major reason for this result is the more effective structure of the learning materials according to Inspectie Hoger Onderwijs (1990) and the better organization of the instructional process used in a computerized context.

Tele-learning is well-structured and well-organized; a positive result can be expected from it. Better structured and better organized situation using tele-learning will contribute to a better time investment for students. In a report, Jensen (1993) concluded that using educational technology would only become efficient if a system can transfer more of the work to the learner. Using tele-learning can be the way to materialize that approach. In summary, tele-learning in higher education should be used to provide benefit and quality to the existing modes of teaching, thereby optimizing the use of available student time. In that way tele-learning can contribute to the efficiency of the teaching learning process.

Tele-learning is an excellent approach to make this possible and is becoming widespread because of this benefit. Curran (1994) even concludes that cost savings arising from distance and flexible learning is due not to a reduction in the cost of training time. Tele-learning can be used to bring down the costs. In principle, the registration costs can be brought down when a course is delivered to a large audience.

The Trans-European Learning System for Cross border Open and Interactive Applications Project named Telescopia (1995) investigated cost-effective solutions to realize an infrastructure comprising interactive TV, audio-video connections and facilities such as computer conferencing with or without using ISDN connection according to Keskinen (1995). Six course
providers participated in the project offering a diversion to students. Each course provider offered a variety of tele-matics facilities. These might include web facilities and Video Conferencing or lectures to students distributed through an internal TV-distribution system, with e-mail, telephone and a connection between lecture and students via a microphone. They might also include interactive TV and Video Conferencing via ISDN, or TV-broadcasting via satellite, with regular feedback via regular mail, fax, phone, e-mail; or computer conferencing, interactive TV, phone, e-mail, and fax; Video Conferencing via ISDN connections and application sharing with the Pro-Share system.

There is a public appeal for the hope of inexpensive and convenient education, especially for people who are working or who have extensive family commitments. Unfortunately, few studies about distance education in any of its modes effectively identify the complexities of working and communicating with ‘new media.’ Most of the diverse literatures, emphasize the likely value of internet-enabled distance education to institutions for reaching new students and generating new revenues and to students for convenience, and possibly enriched educational experiences, although there is some debate about the actual costs and profits of these new distance education courses Green (1997).

Bates (1996) studied the effectiveness of TV as a medium for distance education in light of the experiences of the Open University in Britain. He concluded that TV is an important component of high quality open and distance education, but only when its unique teaching characteristics are exploited, and that the effectiveness of TV depends to some extent on how the material is structured and to some extent on the technology available to the student. Ila Joshi (1987) analyzed the content of CWCR Classroom programmes and found that special efforts have not been made in the
programmes to reach the rural audiences. The UGC-ISRO talk back experiment of 1991 has shown that interactivity is technically feasible and is within Indian educators’ reach and that the student is both able and interested in using this form of distance education. After experimental stages, India is on the threshold of operationalization.

ICT play a major role in the distance education system. Educational technology, which had a modest beginning with audio cassettes and today we use computers, Internet and multimedia. Bates (1995) puts it, “the value of technology is its ability to reach learners not well served by conventional education institutions, to meet better the newly emerging educational needs of an information society, and to improve the quality of learning”. Bates (2000) have suggested that a new instructional paradigm is likely to result, given the way the concerns of online teaching and learning are being addressed by open universities the world over.

The national Task Force for IT-2000 made recommendations designed to promote the use of Internet and IT technologies for educational purposes (Government of India 2000). McIsaac and Gunawardena (2001) state that the development of internet and new cost-effective technologies has promoted an astounding growth of distance education. Traditional distance education courses of the industrial era are slowly being eroded as internet and new technological developments challenge educators to re-conceptualize the idea of learning.

IGNOU entered into the arena of computer-mediated learning through the Virtual Campus Initiative (VCI) in 1999 for distance education. The learning resources and counseling for these programmes are offered over the Internet. It provides a complete Web-based learning experience and great success for learners (Mishra and Jain 2002).
2.10 COMPACT DISC (CD) AND VIDEO CONFERENCING (VC) FOR EDUCATION

Students are familiar with CDs and several of them are using compact discs for a variety of purposes like entertainment, gathering information and study. Media centers may make efforts to cater to the needs of those who wish to enrich themselves with knowledge and those who wish to coach themselves. For example, students practice for GRE using CDs. Media centers can produce some interactive CDs in specific areas after assessing the need, stated Ranganathan (2002).

Video Conferencing has aspired to provide ‘in-the-same-room’ quality of picture and interaction between remote sites. Full motion video, CD, quality audio and full two way audio and video transmitted, over fiber optic channels have indeed reached this plateau. Cost and installation lag prohibit wide-scale application of this vision for VC to all but selected geographic sectors. New compression technology and the effectiveness of compensated video for specific applications are helping to establish links with independent, geographically separated learners. VC offers great potential for education as it facilitates learning through interaction and dialog instead of working in isolation. It can make educational experience have greater impact, since students of one place can interact with others around the world.

Students are able to see and hear each other simultaneously, exchange ideas with others and know different learning approaches. Studying is sometimes tedious, but VC can spark their interest and arouse curiosity. It can motivate students to learn more about a particular subject through virtual field trips, through which they learn more from a primary source than from a textbook. A good study programme would provide students opportunity to interact with experts from all over the world. While it is not affordable for
most educational institutes to bring in international experts routinely, it can offer specialized lectures and interactive sessions with experts sitting abroad through VC. To provide quality education, a significant investment must go into hiring and retaining a highly experienced and educated faculty.

Through VC, institutes can relay lectures from their main centres to distant learning centres. Students in remote centres can get the advantage of experienced faculty, while the need to hire faculty for these centres can be reduced, thereby significantly reducing costs. Distance education is gradually emerging as a viable method of overcoming the geographic barriers in developing human resources. VC offers cost effective option for institutes to provide education through distance learning. The money saved on infrastructure and faculty for several remote teaching centres can be used to reach out to a huge segment of students through VC.

Research into the effectiveness of Tele Conferencing in education has shown that learners prefer the regular classroom setting. However, they felt that Tele Conferencing was an excellent alternative when it provides a means for getting the courses they need.

Lundin (1989) identified six levels of interaction when telecom systems are used for distance delivery: ‘reaction’ as a form of interaction with prepared audio (radio) and video (TV) broadcast. This is a voluntary, passive, ineffective and unproductive kind of interaction; ‘parallel participation’ in which the programme shows activities and ask listeners or viewers to carry out the same; ‘limited interaction’ that lets participants explore a fixed database; ‘responses’ requested as a form of interaction built into the programme software. For example, a 30 minute audio or videotape can be produced in such a way as to keep a student involved for up to a week to study by requesting certain activities to be carried out, then returning to the
tape, and so on; ‘simulated’ interaction in which the programme acts as a catalyst for local, real, live interaction among participants; ‘live’ transactional interaction at a distance in real time by which participants can contribute to the creation of unique content or database that becomes the product of the programme or event. This interaction can be both synchronous (e.g. audio and video Tele Conferencing) or asynchronous (e.g. computer conferencing). Salomon (1989) studied media and motivation to learn, arguing that greater motivation results in more attention to the task. Students tend to like media which are easier to learn with, although they result in poorer learning. This might be related to the perception that media is for entertainment and when it is brought into the classroom, it is for entertainment and concentration is not necessary. The beliefs about the attributes of different media exhibit large individual and cultural differences and these may change over a short period of time, stated Clark and Sugrue (1990).

McNeil and Nelson (1991) noted that achievement effects were larger when interactive video was used to supplement instruction where the programme controlled sequence, review and practice had higher achievement scores than instruction where the learner controlled these elements. Perhaps the extent to which interactive video incorporates valid instructional practices determines effectiveness. Several studies reviewed by Weizel, Radtke and Stern (1996) suggest positive effects from using embedded questions, feedback and branching to reviews. Further, combinations of lesson organization, sequencing, individual diagnosis of progress and remedial branching seem to have greater effects on achievement than the use of these elements individually. All major learning theories suggest that some form of meaningful interaction should taking place among learners, instructions and the environment. Majority of users of the term interactivity rarely provide operational definitions of the term, resulting in some saying that pressing the space bar an interaction, while others require deep cognitive processing to
occur before it is called interaction. Interactive technologies of communication are at the heart of the communication revolution occurring in India. The computer and its applications in satellite and cable TV, telecom and internet are driving social changes. The technologies, once distinctive, are converging to deliver data, voice, and video in ways not possible before. Technological determinism is an approach that considers technology as the main cause of social change.

2.11 KEY ISSUES CONCERNING EDUCATIONAL MEDIA IN RECENT TIMES

There is a large technology and related knowledge gap between rural and urban populations. Rural audiences are disadvantaged as they are isolated from high-speed, broadband networks than those in metropolitan areas. As a consequence, Hindman (2000) found that there was a growing gap between urban and rural residents’ ability to go online to view the news. Rural areas differ from urban areas in the sense that they are typically comprised of lower income families with lower educational levels than found in urban areas Strover (2001). The financial stress in the agricultural world has slowed the adoption of computers and information technology as stated by Amponash (1995). The substantial investment needed for internet has kept the innovation from reaching the ‘household necessity’ stage of diffusion Atkin et al (1998). Diffusion is said to be a function of someone’s willingness to try new products, or ‘innovations’. By looking at internet as a technological innovation, diffusion theory can throw light on how people are accepting new technologies.

In the field of education TV has assumed immense importance, not only in terms of its reach but also in terms of improving the quality of education at all levels and promises to play a major role in educational
endeavors, towards upgrading and enrichment. If used wisely and imaginatively, TV can bring to students educational experiences far beyond what is possible within the confines of conventional classrooms. A study by Katz and Aspen (1997) examined the issues surrounding the use internet. During this survey only 8% considered themselves internet users. The survey examined some of the common demographics of internet users. It found that 55% of users were male, 66% long-term users, suggesting a trend to more female usage. It found a bias towards youth in terms of internet use with long term users being younger than the average age in general. Education played a large role in determining usage, with 76% of long-term users being college educated. Users were considerably and consistently better educated than the general population. The study found that the top two reasons for using internet were communication and finding information. The top obstacles in usage were difficulty, ease of use, and cost.

Ives and Jarvenpaa (1996) believe that internet will transform business education, although not necessarily its traditional supplier, the business school. Such a statement points to the need for substantive research on this emerging educational paradigm. The topic of effective learning is one that is naturally at the core of the whole process of higher education. Various definitions of effective learning have been posited including: ‘Learning in educational institutions should be about changing the ways in which learners understand experience or conceptualize the world around them. Learning as a qualitative change in a person’s view of reality’ Ramsden (1992)

Proponents of one view assert that the media can have no effect on the outcomes, no more than a delivery van will improve the nutritional value of the food it delivers. Proponents of ‘media effectiveness’ view has a concern. They foresee, in the near future, the convergence of communication technologies and digital computing power. This convergence offers great
hope for educational effectiveness. Kozma (1991) a major supporter of the ‘media effectiveness’ view, holds that theories of media effectiveness must ‘reflect both the capabilities of media and the complexities of the social situations within which they are used.’ He asserts that media theories must identify the causal mechanisms through which cognitive and social processes work in order to establish more securely the connections between media and learning outcomes.

Yadava (1999) opines that information is knowledge and knowledge is power and that the knowledge gets disseminated through communication. Thus he says communication is an empowering process and all along human beings has been using knowledge not only to empower themselves but also by denying it to others who are disempowered. New communication technologies are capable of the displacing self-centered gatekeepers and of creating pathways for information to flow freely and transparently. The technologies are opening access to a flood of information from local and global sources. Converting this information into solutions to high priority development problems is the big challenge. ‘The potential of ICTs must be harnessed to achieve major social and economic benefits’ as stated by Narasaiah (1999). Identifying and prioritizing the problems that trouble the society is an important task. Unless the decision makers take up this task immediately the system is bound to lag behind those which are evolving themselves into knowledge societies.

The gap between the technologies ‘haves’ and the ‘have-nots,’ is growing each year. All people across a nation deserve to have access to phone services, a computer, printer, internet and e-mail. Costs of public education are provided by the user and the government. As public education is considered of national interest, the registration fees of students are not self-supporting. This is not the case for private education. In these
circumstances, being self-supporting is essential. Costs of training have to be covered by users’ fees. Issues of costs and effectiveness and thus efficiency will, therefore, be of much crucial interest when considering tele-learning.

ICT tools promote the adoption of modern pedagogy and creative classroom techniques. Using low-cost forms of ICT enables educational institutions to bring educational content, modern pedagogy and information to their students. It will eliminate inequality among rural-urban school teachers and students. Use of ICT is mainly to improve rural education, focusing on empowering teachers to adopt pupil-centered approaches and to enhance educational administration. Teachers in poor rural schools have cited isolation from information, teaching materials and support mechanisms, such as communication with peers and official guidance, as key hardships in their academic work. For this purpose there is a need to make new ICT policies towards developing and implementing a comprehensive programme for building capacity of educational institutions in implementing the use of ICT for education, according to Arulchelvan and Viswanathan (2005).

The digital divide is real, especially for the poor and members of a minority or other ethnic group. There is the continued need for dialog to accompany the rich technology projects, research, and evaluation that continue today. Everyone must recognize the importance of sharing information and developing people networks that can partner in the future to discuss solutions and evaluation models that can be used. People in urban and rural communities must know why the digital divide ought to be discussed. The digital divide remains a major problem on both the social and economic fronts, requiring decisive and collaborative action on the part of government, education, and business sectors’ (Simama 2001). In India, where the rate of adoption of personal computers by households in 2000 was about 1%, and where only a few of all office-workers have computers, access is more
difficult. This barrier to access could be overcome by providing public access to computers in cyber cafes, telecenters, and internet community centers similar to what the Grameen Bank’s ‘Phone ladies’ do for phone access in Bangladesh, says Singhal and Rogers (2001).

There are two major approaches to using media and technology in education: students can learn ‘from’ media and technology, and they can learn ‘with’ media and technology as indicated by Jonassen and Reeves (1996). This is referred to in terms such as instructional TV, computerized instruction, or integrated learning systems (Fullerton and Horn 1996). Learning ‘with’ technology, less widespread than the ‘from’ approach, is referred to in terms such as cognitive tools and learning environments (Wilson 1996). In the opinion of Dougiamas (1998), students should utilize technology as a mode of learning, than as a tool within the existing system. Technology is capable of changing the educational signpost at the gateway to the future. It can create learning environments that are authentic, challenging, interactive, and immersive.

Researchers, computer scientists, educators and instructional designers in the field of education, technology and business, are discussing future models of content materials. How it will be produced, compatibility with existing and future computers and the necessary internet access are some of the points under discussion. These technology academics should try to create a direct link between education and employment, and ensure that students are able to meet the demands of e-commerce.

2.12 SUMMARY

While specific media do not necessarily out perform other media, each medium has specific characteristics that allow us to incorporate it into a
rich, diverse instructional landscape. There is no single right way to approach instructional problems, and instructional environments should be built to engage learners in a variety of exciting, provoking and instructionally sound ways. Consideration of various media allows one to construct an instructional matrix from the features and advantages of components. Media are characterized by their capability for interactivity; that is, they can be used actively to engage the learner while learning.