CHAPTER II

REVIEW OF RELATED STUDIES

2.0 Introduction

Research in education as in other fields is a search for knowledge. It is not a search that yields infallible truths, but it is rather a search that provides knowledge for the solution of the problems in the field of education. Research takes the advantage of the knowledge, which has accumulated in the past as a result of constant human endeavour. A careful review of the research journals, dissertation abstracts and other sources of information on the problem are very essential for any research. A review of related literature helps an investigator to define his/her position. It is an indispensable step for a researcher as it gives him/her a deeper insight and understanding of his/her problem. By examining what is already done about the problems, the researcher becomes familiar with various trends and phases in research in his/her area. Keeping in mind the above points, this chapter is devoted to the review of researches related to the present study.
2.1 Studies Related to Educational Technology

History of the use of technology in education takes us to the stage when the subject matter became available in the form of printing material and text-books. It was soon supplemented by the use of teaching aids like black-board, specimen, pictures, charts, models, maps and figures, etc. In this way, the earlier concept of Educational technology was limited to the use of simple audio-visual aid meant for direct teaching-learning. Later on, with the industrial development and technical advancement, sophisticated scientific instruments, mass media and educational materials are being used. It brought the use of sophisticated hardware and software like radio, television, tape recorder, films, transparency, computers, internet, multi-media, hypertexts etc., in the field of education. Thus, the present review of studies falls in different areas like use of teaching aids, use of audio and video materials, TV and Radio broadcast, teleconferencing and video-conferencing, computers, use and computer aided instruction, programmed instruction, use of Internet, online and e-learning etc.

In this chapter, an attempt has been made to review the researches related directly or indirectly to the topic of present study and presented including conducted at school and higher
education level. The details of the studies reviewed are presented here under the following headings: (i) Studies conducted Abroad, and (ii) Studies conducted in India.

### 2.2 Studies Conducted Abroad

Alghazo (2006) conducted a study in the United Arab Emirates (UAE) and examined the level the Internet use by the elementary and secondary teachers throughout the country. The results from his study revealed that the teachers used the Internet only at the lowest level and had a long way to reach the highest level.

The results from a doctoral research conducted by Castillo (2005) also showed that teachers' levels of ICT use tended to be low in software, graphic applications, multimedia and some authoring applications.

Both Sax et al. (2004) and Freeman (2004) studied the computer usage among US students and found that no gender difference in their computer use.

Looker and Thiessen (2003) looked at the overall ICT use among Canadian students and it was found that no significant difference in use between male and female students. Apart from those international studies, a local study that investigated the
preparedness of lecturers for the introduction of e-learning at the International Islamic University Malaysia (IIUM) also found a somewhat lesser influence of gender (Agboola, 2006).

Studies conducted by Oyelaran-Oyeyinka and Adeya (2004) on the Internet use by the academics at 10 universities in Nigeria and Kenya; a study conducted at 5 South African Universities among academic staff on their computer use by Brown, (2006), an annual report made by UCLA on use of the Internet among men and women in 2001, another investigation on gender stereotype of Russians towards the Internet (Mitina et al., 2005) and a research conducted in Spain among Primary and Secondary teachers on training needs for ICT integration in teaching also found no gender difference in their computer use.

Some of the studies found a significant gender difference in use of computer, the Internet and other ICT tools and applications. Derbyshire (2003) reported from his research finding that more male students had access to computers than the females did. Usluel, (2007) another ICT related research in Turkey which targeted on student teachers (pre-service teachers) in Turkish universities reported a significant difference in favor of male student teachers in using information technologies to access
information, whereas the difference was in favor of female student teachers in all other sub-scales.

In a study conducted in the UK among retired older adults, the use Internet was reported more by male respondents (Karavidas et al., 2005). Moreover, a local study conducted among the academic staff of Universiti Putra Malaysia (UPM) according to gender also found the existence of a gap between female and male academicians in certain cases (Luan et. al., 2005). They reported no gender differences were observed for applications related to spreadsheet, database, multimedia and virtual class applications but females reported higher competencies than males in using the Internet such as using search engines, downloading files and using e-mails for communications. Even though it was not statistically significant, a higher proportion of males than females reported access to ICTs (Selwyn, 2003) and an exploration made by Markauskaite (2005) among Australian trainee teachers’ ICT capabilities also supported likewise.

As it was mentioned earlier, a small number of studies were found aiming at the effect age on the use of ICTs in education. Study on the effective integration of ICT among lecturers, Murphy & Greenwood (1998) reported that younger lecturers showed
significant higher level of confidence than their seniors in using computer for teaching. The results from an empirical study of Greensteina and Mckee’s (2004) also proved that educators’ age was significantly and negatively correlated with Internet search, retrieval and cooperative client/server environment.

Wilson and Boone (1998) also found out from their research that the age of respondents increased, Internet use decreased. According to the data from the Commission of UK Communities also stated that older adults lag behind younger adults in terms of computer usage.

Dawson and Rakes (2003) investigated that the level of technology integration into a school was influenced by the age of the principal, but not of his or her years of administrative experience or sex. In their report, middle age group respondents outperformed more than their juniors and seniors in infusing technology into school curriculum.

In Young’s (2002) research on the first major benchmarking study of e-learning organizations in the United Kingdom. Initial investments in e-learning are costly, hence the performance, quality, usage, effectiveness and efficiency as a learning solution is of interest to many. However, the current research base informing evaluation of e-learning from a wide
range of stakeholders or comprehensive return on investment remains limited. Despite the paucity in this field of research benchmarking exercises are used by organizations to define a level of performance, and identifying or establishing good practice to improve on that performance (Butson 2003).

Much research offers promise for using synchronous conferencing in distance education. For example, after investigating various types of video conferencing cases, Alexander et al (1999) stated, “There was little difference between video conference lectures and traditional lectures and students would not mind having more video conference lectures”.

Jennings and Bronack (2001) used desktop video conferencing as a means of synchronous communication between instructional designers and intern teachers. Jennings and the study revealed that the goal to stimulate participants. Consideration of multiple points of view and contemplation of appropriate courses of action was met. The participants valued the authentic environments that fostered collaboration. Another positive result was that video conferencing in distance learning classes for the nursing program increased students interaction and engaged the students in the instruction (MacIntosh, 2001). Meanwhile, regarding participants attitude toward video
conferencing, those participants who anticipated the technology in a positive manner were more likely to evaluate it positively and perform well during the conferencing (Townsend et al., 2001).

Similarly, Patillo.S (2007) reported that the participants found synchronous audio conferencing to increase the communications between instructor and students. On the other hand, negative results have also been reported. Using video conferencing technology, Freeman (1998) found learning activities and interaction were not improved in multi-campus large classes. In this case, time was lost through technical difficulties, and the distractions at the remote site inhibited student engagement in the instruction.

Knipe and Lee (2002) in addition, compared the learning experiences of remote site students to local site students in graduate level classes. The qualitative study showed that remote students did not experience the same quality of teaching and learning as local site students. The local site students had more opportunities to learn how to deal with other viewpoints, how to be critical themselves, and how to make decisions by joining different groups.

International Telecommunication Union (ITU), (2004) in Norway made the largest and most comprehensive initiative
supporting the educational use of ICT called PILOT has been evaluated by ITU and the University of Oslo. The project ran from 1999 to 2003 and involved 120 schools spread across the country with nine municipalities involved. The overall project goal was to motivate schools to develop the educational and organizational potential of learning with ICT. The study did not primarily focus on the effect of ICT on student performance but on evaluative measurements and quality improvements. It gives insights into the changes teachers, school leaders and students ascribe to ICT in schools. The different municipalities involved also focused on a specific area of ICT use, such as learning networks or digital portfolios. The ICT Monitor "8 years of ICT in schools", analyses developments in the field of ICT in schools on the basis of yearly ICT monitors in the Netherlands since 2000/2001.

The most comprehensive and accessible national ICT survey within the central and Eastern European context is the “Tiger in Focus Study” from Estonia: a longitudinal survey on ICT in Estonian schools 2000-2004. The study looks and the progress that has been made with ICT in Estonian schools. It focuses on the use of ICT as a tool for learning within a specific subject domain, assesses students’ and teachers’ ICT skills and self perceived competences. The study uses a set of impact indicators.
The E-learning Nordic study conducted by Ramboll Management, (2006) is the first inter Nordic study specifically concentrating on the impact of ICT on education in Finland, Sweden, Norway and Denmark. More than 8000 people in 224 primary and secondary schools participated in the survey. The survey methodology centred on asking key participants about the impact of ICT based on their experience. The results therefore show the “perceived impact” of ICT. The impact of ICT was studied in three key areas of education: (i) Pupil performance, (ii) Teaching and learning processes, (iii) Knowledge sharing, communication and home-school cooperation.

Comber, (2002) and EUN, (2004) the inspectorate set up a large scale ICT monitoring programme to describe and analyze schools that use ICT applications effectively and as a means of developing ICT evaluation standards, namely the ICT school portraits. During the ERNIST project 20 innovative schools have been portrayed by six European inspectorates, showing how ICT affects pupils, teachers, the school organisation and the cooperation with others. The range of portraits are not representative for their countries, the intrinsic value of the case study is to have an in depth look at the change processes taking place in schools and add to the existing quantitative and survey data. However, a clear set of characteristics and issues emerged
from the portraits, shared by all the schools. The study was carried out in the framework of the European Commission’s monitoring and benchmarking process and results will feed into the Information society 2010 programme. It is a follow up of the earlier benchmarking exercise for Europe 2002 and involved two surveys: a head teacher survey of more than 10,000 head teachers to obtain information on the schools and a survey of more than 20,000 classroom teachers to focus on their use of ICT for educational purposes. The survey was carried out in spring 2006 in all 25 EU Member States, Norway, and Iceland. It includes information on ICT equipment and internet in schools, their use in class, comparisons of the situation in 2001 and 2006, attitudes on ICT use by teachers, results on access, competence and motivation for using ICT in school and the ICT readiness of teachers. Concise Country Briefs for each of the 27 countries are provided. ICT has a strong motivational effect and positive effects on behavior, communication and process skills.

In Taiwan the traditional goal of education and the prevailing social value of obtaining a high grade continue to dominate the core practices of schooling (Young, 1999a, 1999b, 2000a, 2000b, 2001, & 2006). Observations of school practices indicate that the national policies on implementing IT in education, such as the inclusion of supplementary digitized
learning resources, have indeed had some impact on teachers and motivated them to change. In general, however, there is not much widespread use of technology practices in most schools’ regular curricula. Overwhelmingly, core instructional practice is still examination-oriented, and the use of ICT in teaching practice in schools remains marginal. Most of the time, the positive effects of applying IT arise from specially funded experiments during certain periods of time. Those teachers who were early adaptors of technology were more likely to adapt to the change by taking on projects such as providing additional alternative options for students (Young, 2006).

The study of Challenge 2000 Multimedia Project by SRI (2000), the research findings indicate that student participation in learning activities changed through their involvement with PBL. Teachers reported that their students became more self-regulated learners, engaging more actively in classroom learning, taking responsibility for their learning, and becoming more skilled collaborators with their peers (SRI, 2000). In other words, the students’ PBL activities displayed increased motivation, increased responsibility for their own learning, better peer collaboration, improved content mastery, better understanding of target audience, greater self-confidence and self-esteem, more peer
teaching, better technology skills, more time on task, and more skill in analyzing and problem solving (SRI, 2000, Ullah, 2003).

2.2.1 Discussion

According to the literature search on both International and local research related to ICT use in education, it was remarkably noticed that very few of them (Agboola, 2006; Brown, 2005; Luan et.al, 2005, Murphy and Greenwood, 1998 and Adeya, 2004) focused on tertiary education level. It was found that most of the researches were focused on the secondary education level and their target populations were pre-service teachers, college teachers and students. University teachers or lecturers from tertiary education were not examined yet in the area of ICT usage especially their use of multimedia materials in lecture preparations.

After the thorough search made upon all the relevant studies on educational technology and the use of ICT in education, particularly at the higher education, it was found that a handful of studies aimed at the level of educational technology use in education for teaching. Quite a number of studies focused on difference in use of computer and the Internet by gender on different populations (students, primary and secondary teachers, lecturers often known as university teachers) in some studies
aimed at men and women in general. Only very few of them targeted to study the availability and accessibility and utilization of educational technology facilities, especially in the higher educational level. Studies conducted by selecting sample from the postgraduate students of university level were meager. A consequence of this leads to the researcher to make an in-depth study comparing India and Iran taking a sample at the higher education level.

2.3 Studies Conducted in India

Agarwal (1998) studied the educational impact of TV programmes on social and moral development of women in Greater Guwahati region. She found that TV exposure helped in awareness building and made them conscious about their rights and status. The study also revealed that sex, violence and offensive language made a negative impact on the viewer. This work strengthens the point that educational technology should combat the negative impact of media.

Khemchandani (1998) undertook a study on the use of technological devices by academic counselors of IGNOU study centers and found that 30% of the counselors did not use any of the devices (OHP or VCR or Audio cassette). Nearly 90% of the counselors never used videotext or CCTV. In general academic
counselors were not satisfied with educational technology because of the low turnout of students.

Agarwal and Mohanty (1998) undertook a meta study to see the effectiveness of multimedia (MM), programmed learning method (PLM) and traditional method (TM), and found that students' performance taught by MM and PLM were significantly higher than those taught by TM. Further, it was found that PLM and MM were more effective for secondary level than primary level, and found that PLM and MM were better suited to teach science subjects than arts subjects.

Enigo (1997) undertook a study relating to effectiveness of instructor controlled interactive video and conventional non-interactive video. He found that instructor controlled interactive video was more effective than lecture method as well as conventional non-interactive video. Irrespective of the difficulty level of the content area contained in ICIV, it was found to be more effective.

Singh and Kaur (1997) studied the impact of television programme on socio-psychological behaviour of urban primary school children. They found that the duration of television viewing did not influence viewers on quality like alertness, boldness,
cheerfulness, braveness, tidiness, self-confidence, friendship and leadership.

Kaswakar, (1996) undertook a study on construction and effectiveness of multimedia package to develop population awareness. She found that it was significantly effective in comparison to actual method and developed awareness to a significant degree. Multi-media package was more effective in changing the attitude of teacher trainees.

Umed Singh (1995) developed study material relating to video instructional package for teaching environmental awareness. It was field-tested and used in three schools in Gujarat, U.P. and Rajasthan, and was formed to be very effective and interesting. The study also reported that students enjoyed working though video package.

Kothari and Chowdhari (1995) studied the impact of television programmes on behaviour of students of different age levels. And they found that girls had more positive effect on their emotional and creative behaviour than boys. As regard the impact of television programmes on moral behaviour. Negative effect was more than the positive one.

Singh (1994) studied the effectiveness of UGC countrywide classroom programme on models of teaching with interactive
mode and without talkback. He found that the group with interactive mode and one without talkback differed significantly. The achievement of the interactive group was significantly higher than the achievement of the group without talkback.

Parhar (1994) took up a study of effect of media on student learning. It was found that out of 20 schools surveyed only 4 were using school TV programmes fully. Video and audio cassettes players were not used. No teacher was found to be trained in the use of school TV programmes.

Purushothaman and Stella (1994) studied the effectiveness of teacher control interactive yielded better academic achievement as compared to the traditional method. The teachers present with video lessons made the most desired impact. The research study concluded that the teachers’ component should not be eliminated.

Sahoo and Goel (1995) studied the countrywide classroom with and without talkback and the IGNOU programme, and found that in the programmes they used, there was significant gain on programmes which were in talkback format. The viewers had positive attitude towards UGC programmes.

Sharma (1995) studied children’s reaction on mass media communication. She found that children had difficulty in
understanding formal English and Hindi, but liked Television as it kept them attentive. Language styles were beyond the linguistic competence of young children. The disclaimers used were in passive voice, elliptical and semantically complex.

Chandra and Pandya (1996) studied the effect of video films for imparting legal education and found that students of science stream achieved higher than students from the art stream. Similarly, those students who had studied in English medium schools did better than those who had studied in vernacular schools.

Ilangovan (1998) undertook a study on developing listening comprehension in English. He compared effectiveness of Conventional teaching method (CTM) with Media-based non-interactive group teaching (MNGT) and AV presentation as support system (AVPSS). It was found that MNGT was more effective in comparison to CTM AVPSS was more effective in enhancing retention of listening comprehension.

Kulkarni and Kamat (1997) took up a study on experimental use of suitable education technology in the teaching of Marathi as first language. They found that the ability to read with correct punctuation could develop to a small extent only.
However, the ability to write legibly and correctly improved. There was no difference in achievement of bright students.

Surwase and Chincholkar (1997) studied the use of educational technology in teaching of Geography to Class B students. They found that generally audio-visual aids were not available in schools. They also found that Geography teachers were not trained in using audio-visual aids. During the study, researchers found that teachers agreed to the point that difficult concepts can be taught easily by using teaching aids.

Sahoo and Mallick (1995) in their study found out attitude of lower primary and upper primary school children's on ETV programmes. They found no difference, however acquisition with ETV made them favorably disposed towards ETV sex-wise students also differed.

Sahoo (1995) appraised impact of UGC TV programmes and found that programmes had positive effect on student learning. However, no gender difference was found in the learning of students.

Kapoor and Verma (1997) studied aggression among adolescents in relation to TV viewing. It was found that adolescents high on aggression scale viewed TV for more hours and with concentration. They also didn't like to be disturbed while
watching TV, The study however did not reveal whether TV viewing increase aggressive tendencies.

Neera (1998) undertook a study to compare effectiveness of video teaching learning material (VTLM), video aided instruction (VAI) and conventional teaching. He found students most favorably disposed towards BTLM. Retention with VTLM and VAI was more effective than CT students retained more who were exposed to VTLM than students who were exposed to VAI. Students expose to VTLM and VAI significantly different in their achievements.

Marthanda (1998) conducted a study on effectiveness of instructional media in modifying cognitive and effective behaviour in prevention of AIDS found that the package was effective as compared with lecture method, although it didn’t change attitude. Audio tapes in Tamil were found more effective in retention as well as in changing attitude as compared to audio tapes, slide and posters prepared in English. The study indirectly brought into focus the communicative power of mother tongue or regional language as compared to English, which is the foreign language. The study has implications for language teaching.

Desai (1994) studied the effectiveness of graphics and projected aids in teaching food and nutrition. He found that both
were effective, though graphic aids were more effective than projected aids. Students with higher IQ and socio-economic status secured more on achievement and retention than those with lesser IQ and SES. When opinion of the students was sought they observed that graphics and projected aids helped in learning.

Bhangoo and Sidhu (1997) studied the impact of selected audio-visual aids on food hygiene knowledge of secondary school students. They found that students taught with audio-visual materials performed better than the controlled group.

Datta, S (1998) study was on instructional technology. He tried to modify teacher behaviour using verbal interaction analysis feedback. It was found that most of the teachers followed direct lecture method and only asked recall questions. They seldom asked students to do something. Some asked students to read from the text. After providing feedback on their behaviour the researcher found that their behaviour improved significantly. He also found improvement in student achievement after interaction analysis was discussed with teachers.

Kumar (1998) took up a study to look into problems and prospects of educational media. He found that teachers by and large have professional orientation but lacked training in
educational media. Most of the teachers had positive attitude towards educational media but a few felt that they had poor media operating capability. Media utilization was found to be poor. 79% used chalkboard, charts and posters. It was a meta analysis of an agriculture university. The study clearly shows that we must not relegate intermediate technologies.

Rangaraj (1997) studied the effectiveness of computer-assisted instruction in teaching physics. He found that CAI as Support System (CAISS) was much better than CAI as individualized instruction. Retention also was higher when taught through CAISS.

Patnayak and Monahan (1993) looked into the effectiveness of advance organizers in teaching history and found that students taught with advance organizers performed better than those taught through conventional approach.

Singh (1995) compared the effectiveness of discussion method and traditional method at the B.Ed. level. He reported that the group taught through discussion method performed better than the one target through traditional method. The study touched the soft side of E.T. and was an attempt to probe deeper into technology of education. Active participation helped in both assimilation and retention aspects of learning.
Singh (1994) compared inductive thinking model (ITM) with traditional method (TM) of teaching economics to Class XI students, and found that ITM was more effective than TM. Achievement of the experimental group was significantly higher than the control group (i.e. traditional method).

Raina (1995) made an extensive survey of instructional methods used by history teachers. He found that out of the sample surveyed only 7% used archaeological findings. Documents, and coins, only 20% teachers occasionally used radio, and 23% used remedial and enrichment method.

Gaikwad, K.D. (1993) investigated the effect of mastery over theory and planning skills upon teachers’ performance of concept attainment model at his Ph.D. level. It was found that mastery over theory alone could not create considerable variation in positive of negative performance. The group that was initiated into planning skills performed better in terms of student achievement. Thus it should that mastery as well as planning skills both jointly made the significant impact on teacher performance.

Malik (1993) has conducted a study on technology transfer model at Chaudhary Charan Singh Haryana Agricultural University. He found tat a majority of heads of department
(83.3%) did not have training in extension education. Field functionaries acknowledged inputs of technology transfer from Haryana Agricultural University. This study showed that educational technology has a great scope in extending technology transfer, which may link up with higher agricultural yield.

Panda (1994) studied the effect of advance organizers and found that the group in which advance organizers were introduced performed better than those taught through conventional method.

Studies of Hathi (1994) and Kannan (1998) were based on survey work relating to study of AV aids in the secondary schools of the Gujarat state and educational technology inputs to B.Ed programmes in Tamil Nadu respectively. Hathi (1994) observed that government schools used AV aid much less than non-government private schools. The spread of AV aids was found to be limited to models, charts, maps, posters, globe and microscope. Science teachers used AV aids much more than language teachers.

Joshi and Mahapatra (1995) undertook a study relating to effectiveness of computer software. They found that students taught through software package significantly did better than those taught through conventional method.
Mahajan (1994) studied the effectiveness of computer instruction for teaching singular and plural at grade-2, and found CAI to be more effective than the traditional method.

Shah and Agarwal (1994) conducted a study towards computer education as well as Computer Assisted Instruction (CAI). They found attitude positive in all the groups, though female teachers showed more positive attitude towards CAI.

Biswal (1995) studied the development of computer-based time–space–personnel management system (TSPMS). He found that the Manual system was quite poor in comparison to computer generated TSPMS. It helped to create different formats, and in generating co-curricular timetable. It helped in even distribution of working load on teachers.

Agarwal (1995) undertook a comparative study of conceptual understanding by programmed learning and CAI and that both were very effective; however PI was found better than CAI for students with lesser IQ. CAI was found to be better than PI for students of higher IQ and for students of higher socio-economic strata.

Educational Technology Cell, Meghalaya (1988) undertook a project to survey teaching aids in English medium schools of Meghalaya. The first phase of the educational technology project,
of the Government of India, educational technology cells were set up in a phased manner all over the country. Their mandate was to promote use of education technology and media programmes to improve the quality of education in their respective States. The educational technology cell, Meghalaya, was set up in the late seventies. This survey seems to have fulfilled the objective to record and document the availability of teaching aids in the State and their use by teachers. The survey revealed that only 26% of schools had proper teaching aids and 60% of teachers were either matric or less qualified.

Singh, Satvir (1990) surveyed the availability and use of teaching aids in middle and secondary schools of Jammu & Kashmir, Kerala, Orissa and Uttar Pradesh. The survey concludes that Kerala is the state, which makes the maximum use of the teaching aids. It is also the state where adequate number of teachers are trained in the use of teaching aids. Audio-cassette was also used in teaching of music. Schools in Orissa made the use of films relevant to classroom teaching.

Mehar, V. (1988) conducted a study to investigate the effectiveness of the intergraded system of instruction in different school climates. She designed an integration system and compared its effectiveness with the traditional system in two
institutions, which had a different school culture e.g., authoritarian and democratic. Her findings were: The integrated system of instruction yielded better results. High IQ students attained more in the authoritarian than in the democratize school climate, while low IQ students performed equally well in both climate schools. On factors like retention and initiative, she found that retention is exhibited more in the democratic than in the authoritarian school climate and that the democratic school climate helped low IQ students develop more initiative than high IQ students.

Passi, B.K. and Pal, H.R. (1982) undertook a study to prepare a multi-media institutional module for developing the skill of observing classroom behaviour; self-instructional materials (SIM) were developed through trials of 'draft-review-modification' cycles. Reviews were gained through expert judgment and student reaction. It was found that the experimental group using SIM obtained significantly higher mean scores on the criterion test. Students' reactions towards SIM were also positive.

Biswal, B. (1992) contributed a paper outlining the research priorities of educational telecasts. He has rightly visualized the need for training of educational administration, programme producers, teachers and researchers. He also suggested the need
to conduct collaborative researches, which would have teams of teachers, researchers and producers.

Jaiswal, K. (1992) took up a study on the effectiveness of TV programmes in science education. The study was conducted on B.Ed. in Computer Education students. Lecture with demonstration and illustration talk formats were found quite effective. About 70% of the programmes focused on the lower cognitive skills of knowledge and understanding. About 3/4 of students were satisfied with the quality of the programmes in terms of language used, technical quality, additional information and synchronization and compatibility of sound with visuals.

Abrol, Usha, et al. (1991) conducted a study on TV viewing among children of Delhi schools. The study was based on a sample of 750 students drawn from 44 primary and secondary government schools. The findings reveal that the majority of the mothers were restrictive to their children’s TV viewing, and no significant difference was found in the amount of TV viewing by male and female children. Viewing was independent of IQ of viewers and it was heavy on Saturdays and Sundays.

Antonysamy, L. (1989) conducted a study related to teaching environmental concepts to school dropouts through
video and charts. It was found that learning through viewing of the video films was more effective than learning through charts.

Anuradha, K. (1991) conducted a study related to children’s television viewing behavior and its impact on personal and educational development. The study also showed that children like watching advertisements and programmes on sports.

Arularam, I. (1990) took up evaluation of the UGC programmes popularly known as Country–wide Classroom Education TV programmes. The study revealed that most of the programmes cater to urban audiences. The needs of the rural students still remain unfulfilled. The study also revealed that programmes in humanities were poor in offering knowledge enrichment.

Behera, S.C. (1990) investigated the impact of ETV on competencies of teachers of elementary schools. The study demonstrated that teachers exposed to ETV programmes achieved significantly more on their knowledge, understanding and application in the specified content areas. In actual classroom interaction, ETV teachers significantly differed from Non ETV teachers on Teacher Response Ratio, Teacher Question Ratio, and Pupil Initiation Ratio. Teachers also pointed out power failures,
mechanical disorders and unsuitable time slot as some of the vulnerable problems.

Chaudhary, S. (1990) conducted a study on teachers’ attitude towards school TV (STV) and its relation with job satisfaction. He found that job satisfaction was associated with the authority responsible. For work allocation, intensive case studies revealed that the majority of teachers did not operate STV regularly and the majority of TV sets were out of order. Teachers perceived STV as a good tool for teaching and were fairly satisfied with their job. Teachers teaching Classes IV and B showed a more positive attitude towards STV than teachers teaching Classes I-IV.

Giri, A.P. (1990) investigated the problems and prospects of school radio broadcast programmes. He found that utilization of radio broadcasts was more in urban schools than rural ones. Further, in the rural sector only 1/4th of the schools had the provision of a separate period in the timetable.

Dharunkar, V.L. (1992) looked into the research potentials and priorities of the educational broadcasts. He suggests that comparative studies be taken up to assess the effectiveness of educational broadcasts in South Asian countries. Another point
that needs attention is the need to fuse together folk and electronic media.

Educational Technology Cell, Meghalaya (1989) took up feedback studies on educational broadcasts and found that the broadcast timing was the wrong one, and preference was more for the afternoon. Teachers were of the view that radio programmes were helpful in their teaching and wanted more programmes in service and languages.

Mishra, S. (1989) took up a study on critical analysis of primary school radio programmes and found that radio programmes in "song" and "story" format were liked by the children most. However, children did not like "quiz" and "talk" programmes. The researcher has also observed that child artists are not invited to narrate stories. He also observed that children did not like long programmes.

Sumitra, L.G. (1991) has presented a case study of the audio-cassette project of Hoshangabad (M.P.) for teaching Hindi. It would be interesting to note that the project first originated as a Radio Pilot Project in the early eighties and was launched by the CIET in two districts of Rajasthan. When the project completed its life, it was re-launched in one of the districts of M.P. where also, like Rajasthan, Hindi is the first language. In the re-launching
stage in primary schools and Hoshangabad district, the Radio Project Programme, which was in the broadcast mode, was changed into the cassette mode.

Mohanty, M.K. (1990) conducted a study on critical appraisal of primary school radio programmes and their effectiveness for pupil growth. The study revealed that the comprehension of radio programmes by students was moderate and not satisfactory: programmes that had feature/drama/story formats were comparatively better comprehended; rural children as compared to urban children gained significantly less.

Singh, R.D. et al. (1991) took up the study to see the effectiveness of Computer Assisted Instruction (CAI) in teaching mathematics. He found that students who used the computer scored significantly higher than those taught through the conventional method.

Dasgupta, D.S (1988) revealed that the Personalized System of Instruction (PSI) group performed significantly better on end tests than the conventional group. On retention and attitude tests, there was no significant difference.

Jeyamani, P. (1991) developed a Computer Assisted Instruction (CAI) package in physics for Class XI students. The experimental group received, CAI and after the experiment it was
found that the experimental group performed better on the post-test. The differences were insignificant in terms of sex on medium of instruction.

Rose, A.S.V. (1992) prepared the software for CAI. This was used along with the without a trainee support system for teaching under-achievers. The results were positive. However CAI used in conjunction with the trainee support system proved to be more beneficial to the under-achievers.

Singh, S.B.S (1988) work related to the effect of objective based RCEM system and PSI on cognitive attainment of children in physics and finds that PSI and the objective-based system both are superior to traditional teaching, and among the two methods themselves the researcher finds no significant differences. It is also found that when it comes to "application" both objective-based and PSI had no significant difference on the performance of low achievers.

Verma, B.C. (1991) conducted a study, on the "Effects of Personalized System of Instruction (PSI) and Mastery Learning (ML)", on achievement of average students and students techniques were better than conventional teaching. He also found that Promoted students ML approach performed significantly better on the summative test as compared to pass students
(average achievers) taught through the conventional method. It implies that low achievers, if taught through PSI techniques, can perform better. It is a pointer to the problem of low achievement, which can be effectively tackled.

Usha, P. (1990) conducted a study on preparing and evaluating self-instructional film-strips on Nutrition and found that on the recall test (knowledge) those students got higher score who studied alone with the help of self-instructional film strips, i.e., treatment No. 2. On other objectives, understanding, application, and skill-the gain score was found to be significant for all the three treatments. There is one study on development of Self-instructional Module in the field of research methodology.

2.4 Discussion and Conclusions

A bulk of studies reviewed in the earlier pages reveals that a lot of researches are focusing the field of educational technology as a major area for research. However, many of the studies are focusing on knowing the effectiveness of the newer technologies/aids and their application in the field of education. Limited studies were focusing on the utilization of the technology by the postgraduate students in the University departments. This reveals that there were no reported studies on the availability, and accessibility of educational technology facilities for the higher
learning in the University departments and their utilization. This is true in the case of both the counties namely India and Iran. Thus the present piece of research is a humble attempt to fill the existing research gap.

The design, the plan and the method adopted for execution of the study are presented in the following chapter.