CHAPTER-II

REVIEW OF RELATED STUDIES

2.1. INTRODUCTION

The review of related studies is an important component of the research process. The review of related studies involves the systematic identification, location and analysis of documents containing information related to the research problem. The review tells the researchers what has been done and what needs to be done (Gay, 1990). According to Donald Ary (1972) knowledge of related research enables the investigator to define the frontiers of his field.

An understanding of theory in the field enables the researcher to plan his questions in prescriptive. Through studying related research one learns which procedures and instruments have proved and which sees less promising. A thorough search of studies avoids unintentional duplication of previous studies. The study of related literature places the researcher in a better position to interpret the significance of his own findings. For the present study the review has been done keeping the above functions in view.

2.2. STUDIES RELATED TO EDUCATIONAL TELEVISION

Dewan S.S (1966) conducted a study on programmed learning through television. Students from grade X from three Delhi schools were selected for this purpose. In each school, all students
in grade X were listed and then randomly assigned to the three treatment groups, under treatment 1, which may be called conventional groups. Under treatment 2, which may be called conventional television lesson, the teacher lectured or demonstrated an experiment and then went on describing the concepts involved there in like the usual lecture method 2, which may be called experimental treatment A, the topic was divided into sub units and after the completion of every sub unit the teacher asked a question. The television screen showed only a question mark during this period. After this small pause, the teacher again appeared in the screen and gave the correct answer to the students who checked their answer with the teacher answer. In the treatment 3, which may be called experimental treatment B, an auto- elucidation test was added furthers. The experimental group was clearly superior to the conventional TV lesson group and the scores obtained on the delayed post-test could not be attributed to learning through the TV.

Shah (1972) conducted a study on the scope, utility and limitations of educational television in India. Following are some of the finding of the study:

(i) School TV unit does not seem to work in co-ordination with the TV branch of directorate of education.

(ii) The planning is not done well in advance. The consultative
panel does not serve any purpose.

(iii) The producers of school TV programmes do not possess adequate qualifications and training for the job.

(iv) School telecasts are suited to the syllabus and age and grade level of the students.

(v) The facilities to utilize the ETV programmes in the schools are inadequate. No special TV rooms are there in the schools. The services for maintenance of TV sets are not sufficient.

(vi) The school teachers and students have positive attitude towards the programmes.

Singh, J.P., (1972) discussed pressures within education that are causing the development of various types of networks and also identifies studies in which networking needs for educational sectors and services are defined. It examines the current status of educational networking for educational radio and television, instructional television fixed services, inter- and intra-State educational communication networks, computer networks, cable television for education, and continuing and proposed educational experiments using NASA’s Applications Technology Satellites. The possible satellite-based educational telecommunication services and three alternatives for implementing educational satellite systems. The paper concludes with some remarks concerning
public policy aspects of future educational satellite system development.

Roy B., (1974) conducted a study of the cognitive effects of the ETV programmes broad-cast by the Delhi TV centre, Department of educational psychology and foundations of education, NIE, New Delhi. The study found that nearly half of the students were not having the over all cognitive effects out of the TV lessons.

Mohanty and Giri, (1976) found that dubbed ETV programmes were not appreciated. Programmers were effective when students participated actively. There were problems like language difficult, fast speed, unsuitable format and unsuitability to the primary school teachers as the topics were not in the syllabus.

Mohanty, (1976) found difficulties in the execution of ETV programmes, the major findings are as follows:

1. There were deviations of ETV programmes from the date schedules as a result of which there was difficult in organizing pre and post telecast discussion in the class room.
2. There was lack of synchronization and overlapping of Hindi and Oriya tracts in SAC (ISRO) produced science programmes.
3. Programmes made on familiar topics and from the immediate environment seemed to be more interesting and appealing to
children.

4. Programmes giving to many details were formed to be uninteresting and ineffective.

5. Language difficulty inadequate pause and quick speed were felt as barriers in understanding some programmes.

6. Some programmes giving recitation of comparatives long poems were found to be taxing and strenuous for the small children on the other hand, group singing was found to be more effective.

7. Programmes dubbed from documentaries meant for adults did not seem to have appreciation from young audience.

**Mohanty, Gliri and Mohanty, (1976)** studied the science programmes produced by the centre for educational technology. NCERT, New Delhi and telecast during the in service training course for students in science reported the following findings of pedagogical nature

a. Dubbing of ETV programmes into regional language was not appreciated as there was overlapped of languages of lack of synchronization.

b. In some programmes the telecast was required to cover so many topics e.g., centre of Gravity, Heat and Temperature which was too much for one lesson.

c. It was difficult on the part of primary school students to follow some programmes as their topics were not in the syllabus.
d. Most of the programmes need to be of problem solving nature.

e. Students’ participation in most of the ETV programmes was not up to the mark.

f. Most of the experiments were not conducted in demonstration and discussion method.

Saulat Rahman, (1977) found that there was close connection between liking and comprehension was found to be partial among both children and students. Fragmentary information replying on spoken word was not found to be perceived. Dialogue was not found to be successful method of conveying information particularly in a dubbed version of programme. High comprehension was structured communication. A visual by itself was found not adequate for purposes of communication unless it was carefully used. A good script based on the careful structuring of ideas was found essential for good television programmes.

Bella Mody, (1978) studied the effort of ETV programmes on society and it, was found that socio-economic status was inversely related to TV viewing and programmes were irrelevant to areas of interest. There was significant gain in knowledge of preventive health political events and language development programmes. There was no gain in general agriculture knowledge programmes and programmes were not related to their syllabus.
Phutela, R.L. (1980) conducted a study on the utilization and comprehensibility of school Television programmes in Delhi and found that many students did not find ETV programmes, useful. The quality of the programme was not high. The number of programmes per class was not adequate. About 38% schools in the sample processing TV sets were utilizing STV programmes. The results of four out of the five comprehension tests should reveal difference in the learning of the subject matter, indicating that these lessons were well understood.

Sampoornam, (1980) conducted a study in Madras to find the effect of TV, on the class room achievement. Though no discernible difference was noted between non-viewers and viewers groups, longer duration of viewing was found to have more effect than those viewing for a short time. The different age group showed different score patterns.

Kandde, (1982) conducted a study on impact of instructional television on the behavior of rural elementary students and found that creative behavior of rural elementary school children developed through exposure to TV. TV have no impact on children exploration aspect of curiosity, motivation in learning, reinforcement in language but impact on inquisitive aspect of curiosity.

Seth, (1983) conducted a study on the effectiveness of
educational television on the educational development of primary school children. The study reveals that

(i) The language development of children to ETV was higher than those not exposed to ETV.

(ii) The language development of children exposed to ETV along with intervention programme was higher than those exposed to ETV without intervention programmes and to those not exposed to ETV programmes.

(iii) The ETV groups were found higher on acquisition of information related to ETV programmes than non-ETV group.

(iv) The ETV group with intervention programmes was found higher on acquisition of information related to ETV programmes than those exposed to ETV without intervention and to those not exposed to ETV.

Richmond, J. Murray (1984) explored the use of satellites as a means to provide information and communications services to geographically isolated populations since 1962. Between 1972 and 1984, five series of satellites known as Anik A, B, C, and D and Hermes were launched. Each satellite provided expanded communications services, and each led to research and experiments in educational applications, some of which included joint ventures with other countries. For example, more than 20
Canadian organizations carried out technical and social experiments with the Hermes satellite, including direct-to-home television and radio broadcasting, tele-education, telemedicine, community interaction, administrative services, and native communications services. Research indicates that communications satellites far surpass their initial purpose of reaching remote populations. Current and future developments include two-way satellite technology, integration of satellites and computer assisted and managed instruction in distance education, and local and regional computer networking via satellite. Among the most important issues regarding the use of satellites for educational purposes are: (1) determining ownership and copyright of satellite programs; (2) integrating satellite educational services with existing terrestrial distribution systems; (3) determining cost-effectiveness of satellite delivered educational service; (4) evaluating student satisfaction and performance for educational services delivered by satellite; (5) establishing educational satellite consortia on a regional basis; and (6) deciding whether a satellite educational service should have one-way or two-way capabilities.

Ellis, Lee, Mathis and Dan (1985) conducted a study on college students learning from televised versus conventional classroom lectures. In a controlled experiment, students in two sections of introductory sociology were exposed either to
conventional classroom lecturer or to identical lectures broadcast live in an adjacent room on a television monitor. Class attendance and learning under the two modes were statistically equivalent. The findings confirm those of past studies.

**Akinyemi Kunle (1986)** conducted a study on the utilization of educational television in Nigeria: The use of television in Nigerian education at all levels, including elementary and secondary, higher, informal, and non formal education, is then discussed in depth. Particular issues addressed are the extent to which educational television open circuit educational television broadcasts of state and network stations' is being utilized to enhance learning and instruction in pre-primary through secondary schools and in student training colleges: video application in Nigerian education: and barriers to the use of educational television in Nigeria. Tabular analysis of typical television broadcasts are also provided, as well as discussions of the limitations of broadcast television and characteristics of video television and thesis implications for learning. In addition, a number of problems with educational television that are linked to Nigeria’s level of development and poverty are presented including:

(i) Paucity and erratic nature of electricity;

(ii) High cost of television sets;

(iii) Limited ownership of videos;
(iv) Limited equipment repair services; and
(v) Lack of technical training programs. The report concludes by recommending that Nigeria not to pursue additional applications of television, e.g., interactive video, until the country is economically ready for it.

Owens R. D. (1987) investigated the extent to which three personological variables (age, level of education, and attitude towards television) affect the amount learned from a documentary by adults over 50 years of age. A content analysis technique was used to classify the narration of a documentary into main ideas and subordinate ideas, and a domain-referenced test was developed to measure the retention of main ideas, subordinate ideas and total ideas. The results indicated that education was the most reliable and important predictor of retention: as education increased, so did retention. Age was the second most important predictor, showing a consistent trend toward a mild negative relationship with retention. Attitude towards television was the least important predictor of retention but had a consistent trend towards a positive relationship with retention.

Jordahl, Gregory (1989) provided an overview of several current satellites-based instructional systems and assesses their potential role in rural education. Highlights include the Oklahoma Arts and Sciences Teleconferencing Service (ASTS); the Texas
Interactive Instructional Network (TI-IN); Washington's Satellite Telecommunications Educational Programming (STEP); Missouri's Education Satellite Network (ESN); and Kentucky Educational Television (KET).

Arularm, I., (1990) took up evaluation of the UGC programmes popularly known as country wide classroom ETV programmes cater urban audiences. The needs of rural students still remain unfulfilled. The study also revealed that programmes in humanities were poor in offering knowledge enrichment.

Chaudhary, A. (1990) conducted a study on students 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 ease studies tool for teaching and were fairly satisfied their job. Student’s teaching classes IV to V showed a more positive attitude towards STV than students teaching classes I-IV.

Kapadia, A.M. (1992) found that Television motivated self learning and educational interests of the Students. Realising the impact of Television on Students, ISRO has taken effort in connecting the communication satellites with remote areas and for using the Television broadcasting for mass education.

Goel, D.R. and Sarang, Dibakar (1995) compared the effectiveness of IGNOU ETV programmes in direct, talkback and
interactive modes. (i) To find out the effectiveness of IGNOU ETV programmes on direct, interactive and talkback modes in terms of achievement of viewers, and (ii) to study the comparative effectiveness of IGNOU ETVs through direct and simulated talkback modes, direct and interactive modes and interactive and simulated talkback modes. Methodology: The sample comprised 150 B.Ed students of 1991-92 batch of I.O.E.D.A.V.V. Indore. A purpose sample of 7 IGNOU ETVs served the content of the Teleteach into the present study. Self – constructed achievement tests comprised the tools of the study. The collected data were treated with mean, ANCOVA and Correlated, t values. Findings are (1) there was significant gain in six out of the seven IGNOU ETV programmes through direct and talkback modes. But there was no significant gain through the programme figure of speech. (2) There was significant gain through all the 7 IGNOU ETV programmes in the interactive mode. (3) Direct mode in none of the seven IGNOU ETV programmes the interactive mode was found more effective than the talkback mode. Talkback mode was not found more effective than the direct mode in any of the programme. (5) In all the programmes, the direct and talkback modes were found equally effective in terms of achievement of viewers. (6) No significant difference was found between direct and talkback
modes whereas the interactive was found more effective than the other two telemodes.

**Mallick, P.K. (1995)** addressed the problem of effectiveness of educational television programmes of CIET in Oriya medium primary school children supported by interaction facility among students. (i) Study the effectiveness of different modes of ETV for Oriya medium primary school children, i.e., direct mode and talkback mode in terms of; (a) achievement of learners on ETV lesson, (b) achievement of learners in related school subjects viz. general science, social studies and Oriya language, and (c) learners’ attitude towards ETV, (ii) to study the effect of technology acquaintance on achievement of students exposed to ETV, and (iii) to study the quality of ETV and its presentation in terms of reaction of learners and teachers. The total sample comprised 90 students of equal number from Class III and Class V. The sample also covered teachers. Tools used included, achievement test, Attitude Scale, Technology Acquaintance Questionnaire, and Reaction Scale. The collected data were treated using percentage, mean, SD, t-test and ANCOVA. Major Findings: (1) Talkback treatment mode was comparatively more effective than direct mode in terms of achievement of learners on ETV lessons, as well as achievement of learners on school subject (2) Direct mode presentation of ETV was effective in terms of achievement of learners on school subject and
learners attitude towards ETV. (3) There was significant positive effect of technology acquaintance of students at lower primary and upper primary stages on their achievement in ETV lessons. (4) Most of the programmes were perceived by viewer students and teachers appropriate at average level with regard to different aspects of ETV, viz. presentation, reaction of presenter, presenter’s personality audio-visual aids used and overall effects of ETV programmes.

Sahoo, Namita and Goel, D.R. (1995) studied the UGC countrywide classroom with and without talk-back with specific reference to higher education ETV programmes in terms of their contents, presentation and effectiveness. 10 programmes on social science were recorded for the study. The purposive sampling technique was employed for selecting the student sample of 40 students of graduation level course of social science group belonging to school of education, Devi Ahilya Vishwavidyalaya, indore admitted during 1990-91 academic session. It revealed: (i) as regards contents and presentation of CVCR programmes: (a) the sound and visual were clear in most of the programmes, the colour choice was appropriate. There was optimum coordination between the sound and the visuals. The visuals representation was well sequenced, (b) the number of teaching points when seen against the time of the programme were adequate, (c) the speed of presentation was quite suitable, (d) the individual teaching points
were discussed adequately, (e) language was of student level, the level of the programme in relation to the grade was suitable, (f) a large number of programmes were at understanding level, (g) in some of the programmes there was indoor shooting whereas in the other in was indoor as well as outdoor, (h) the background music and audio-visual ratio in most of the programmes could be improved; (ii) in eight program out of ten, there was significant gain whereas in the two programmes there was no significant gain because the programmes were just solo talk, there were absolutely no visuals and the speed of delivery was relatively fast; (iii) in eight programmes out of ten there was no significant difference between the mean score of Hindi and English medium students; (iv) there was no significant different between the mean achievement of native and imported programmes; (v) the gain the three programmes out of ten was significant through the CWCR with talkback, whereas there was no significant difference in the achievement in the rest of the seven programmes with and without talkback; and (vi) the reviewers were found to have positive reactions towards CWCR programmes except towards adequacy of teaching point, appropriateness of language and pronunciation and skillful conduction of demonstration.

Bowe, Furst (1997) assessed the postgraduate student reactions to a course taught by videoconference as opposed to a
traditionally delivered course. Two sections were taught, one to 28 students on campus in a conventional setting, and a second to 12 students in four different cities via videoconference. Each section followed the same syllabus, and used the same assignments and projects. Students completed evaluation forms covering five main areas: instructor preparation, presentation methods, class time utilization, instructor student communication and evaluation methods. Data showed that students receiving the course via videoconference were as satisfied with the teaching as those present with the instructor, and indeed they felt extremely positive about this delivery method. The results indicated that one key to success in distance learning is the instructor, who must be thoroughly trained in the technology, demonstrate polished presentation skills, create opportunities for interaction, develop appropriate materials and use media effectively. Consequently it may take significantly longer to prepare for sessions taught by videoconference.

**Education Teach cell Meghalaya (1998)** conducted a survey of the ETV programmes in the state. The organization interviewed 289 head masters 538 teachers 774 parents and 1,240 students. The survey revealed that students wanted longer duration ETV programmes and with the frequency of one programme a day. Power supply and problems relating to maintenance and repair
were blocks to popularizing ETV programmes.

**Thorpe, R., (1998)** explored the successful adoption of new technologies. Children with special educational needs from three Welsh secondary schools were linked by videoconference sessions. Conferencing took place every week, with each group being able to access the link once a fortnight. The main aim was to improve students' social skills through facilitating contact with others in similar situations. Data was collected through interviews with staff and students, observations, student logs and questionnaires. Main findings were that Social and communication skills were developed, as most strongly evidenced in speech development; The technology proved a good motivator, specifically for getting six unenthusiastic writers to use a keyboard, but all found using the system exciting and teachers reported that it helped in inspiring all students to work; As a result it is suggested that videoconferencing.

**Coverdale-Jones, T. (1999)** found that “The Communicative Effects of Videoconferencing as a Language Learning Environment: A Reduced Social and Linguistic Medium ”. The UK and German universities linked up in a study examining the features of interaction during a videoconference. The basis for this was a role play exercise. Students filled out pre and post videoconference questionnaires, and also gave feedback during discussions. Tutor comments were collected. A lack of empathy between students in
the two locations was observed, and a strong 'them and us' attitude grew up. The UK students became extremely competitive, and even aggressive towards their German counterparts. Most students reported that it was a useful learning experience, but the researchers felt that the communicative effects of the medium worked against conventional language class teaching and natural group discussion.

Alfred P. Rovai Robert (2003) analysed the sense of classroom community in a television-based higher education distance education course and in the same course taught by the same instructor in a traditional face-to-face learning environment, in order to determine if differences existed and if so to identify the nature of these differences.

Jordan, Amy, B. et al., (2003) analysed the ‘Developmental implications of commercial broadcasters’ educational offerings’ explore the ways in which the Children’s Television Act of 1990 and the subsequent processing guideline have affected the amount and the availability of television that might aid in children’s social and intellectual development. The study considers the types of programs broadcasters now offer children to satisfy their public interest obligations, the educational strength of programs labeled as educational offerings reflect the interest and needs of children from different development stages and ethnic backgrounds than
boys; (2) as regards the mean value of negative effect of television programmes on children of all classes, class VIII girls had more negative effect than boys. On creative behaviour class VIII, X and XII girls had more negative effect than boys. On educational and moral behavior class VIII and XII boys had more negative effects than girls. On social behaviour, girls had more negative effect than boys; (3) class XII boys had significant difference between positive and negative effect on emotional behaviour. On the basis of mean value of positive and negative effect on emotional behaviour of class XII boys, television programmes had a more negative effect; (4) as regards the impact of television programmes on creative behaviour, in all classes, girls had a more positive effect of television programmes than boys but on the basis of mean value the negative effect was more on all students; (5) as regards the impact of television programmes on educational behaviour, there was no significant difference between the positive and negative programmes on moral behaviour, the negative effect was more than the positive effect; and (7) as regards social behaviour, only class X girls had significant difference between positive and negative effect while on the basis of mean value, television programs had positive effect on students social behavior.

Moss, Robin (2003) published a paper on ‘A short history of the window on the world’ focuses on the history of educational
television (ETV) for instructing and educating children, from a UK perspective. It draws on a large body in a society in which both education and television are regarded as important parts of social life, and where an alliance between teachers, producers, children and parents is forged. The study also offers stories of ETV in various parts of the world, including Europe, Japan and the Third world and suggests that to have successful ETV in a country, the main participants should recognize the particular value of broadcasts to stimulate the imagination, use broadcasts effectively with adequate support material and acknowledge the effects of such broadcasting with particular groups of students and be able to nourish those effects long after viewing. Participants for this study consisted of 120 adult learners who were enrolled in either of two sections of a semester-long undergraduate educational technology course offered by an urban state university. One section was taught traditionally and the other section was taught to a small studio audience and at a distance to 24 remote classroom sites using synchronous one-way television and two-way audio technologies. Study results revealed a significantly lower sense of classroom community among learners in the distance education course, to include the studio audience.

Siraj, Syed Abdul (2008) investigated relationship between TV broadcast time, day and duration and student achievement.
Data was collected from 197 from urban and rural, male and female students of the Allama Iqbal Open University, enrolled in the spring 2006 Semester in the selected courses. No strong relationship was found between Learning from TV and academic achievement in the AIOU situation. Use of television in the AIOU Situation will be more effective if transmission day, time and duration are adjusted according to the students' demand and when students' assignments are based on both textbook and TV programs.

Baydar, Nazli et al., (2008) examined the cognitive effects of an educational early childhood television program in Turkey that was designed to enhance basic cognitive skills and socio-emotional development of 5-year-old children. The program targeted children with low socioeconomic status who had limited access to formal preschool education. The program was screened for a period of 13 weeks and was evaluated with an experimental design, with the addition of a natural observation group. Findings indicated that the program functioned as an early educational intervention for those children who had moderate exposure to it. Furthermore, compensatory effects were found, such that those children who had low levels of skills prior to the viewing of the program benefited more than their skilled peers. The policy implications are important
for enhancing school readiness among children in socio-economically deprived contexts.

**Linebarger, Deborah L. and Piotrowski, Jessica Taylor (2009)** examined the effects of viewing different TV program types on 311 at-risk preschoolers' story knowledge and narrative skills. Children were assigned to one of 4 viewing conditions (i.e. watching up to 40 episodes of a particular program type): no viewing; expository; embedded narrative; or traditional narrative. Story knowledge scores were higher for those viewing either narrative type. In contrast, viewing specific narrative types differentially affected the component skills of narrative competence. Story retelling and identification of explicit story events were higher after repeat viewing of embedded narratives while generating implicit story content was higher after repeat viewing of traditional narratives.

**Akhter, Nasreen (2010)** conducted to evaluate the effectiveness of educational television programs in distance learning system. Using the procedure of survey method, this study finds out the worth of educational television programs. Its results are based on the responses of the learners of distance teaching system. The views of students were collected by using a questionnaire prepared by researcher because no standardized tool for the purpose of study was available. Questionnaire was
developed by reviewing related literature on topic of study that was improved in light of the views of experts. Content validity and face validity of questionnaire was further determined by expert opinion. Results of the study indicated, ETV programs were very useful for students & majority of students get benefit of it. Therefore, there were some problems as well. In the light of the results of this study it was also found that majority of students don’t get the broadcasts schedule of ETV programs because of which they miss the ETV programs & approximately half of the students who view the program cannot note down the important features of program because of slow writing speed and non availability of recording facilities.

Shear, Ashley (2010) discussed the implementation of educational science television programs in the third grade classroom. The use of educational television is supported by Gardner's Theory of Multiple Intelligences (1979), and Piaget's Theory of Cognitive Development (1972). Several classroom teachers participated in an interview on the use of educational television in the elementary science classroom. Results indicated that in order for an educational television program to be a successful tool for a teacher, activities must be planned around the program. If students are only told to watch, then they will not get the most out of the program. By asking questions, taking notes,
and discussing a program, students stay engaged and learn more. Educational television programs succeed as teaching tools when they are engaging, relevant to the unit, and age appropriate for the students.

Barr, Rachel et al., (2010) examined the amount, content and context of television exposure across the infancy period in the USA. Parents of 308 infants aged 6-18 months completed questionnaires detailing parental attitudes regarding their children's television use and 24-hour television diaries to provide an accurate measurement of household television usage. Television exposure during infancy varied as a function of infant age, sibling status, socio-economic status and parental attitudes toward television. Regression analyses indicated that parental attitudes were not associated with the amount of television exposure, but were associated with the content of television exposure. These findings indicate that television exposure changes rapidly across infancy and is associated with parental attitudes.

Brigitte Vittrup and George W. Holden (2011) tested the potential of educational television and parent–child discussions about race to change White children’s attitudes toward Blacks. Ninety-three White children ages 5–7 and their parents participated. Families were randomly assigned into three experimental groups and one control group. Those in the
experimental groups were asked either to show their children five educational videos, with or without additional discussions, or to have race-related discussions with their children without the videos. Improvements were seen in children's out-group attitudes in both the video and discussion groups, whereas in-group attitudes decreased for those who watched videos and had discussions with their parents. Results revealed lack of parental compliance. Even when instructed to do so, only 10% of parents reported having in-depth race-related discussions with their children. Children's racial attitudes were not significantly correlated with those of their parents, but children's perceptions of their parents' attitudes were positively correlated with their own. Reasons for parents’ reticence about race discussions, their outcome implications, and directions for future research and intervention are discussed.

2.3. STUDIES RELATED TO KNOWLEDGE AND ATTITUDE TOWARDS EDUSAT

Bates, A. W. (1987) analysed the possible roles that the European Economic Community (EEC), as a pan-European quasi-governmental institution, might play in the management and organization of a European educational satellite system. It is concluded that there is a need for a consortium to bring educational television providers together, with the EEC providing
baseline funding and a framework in which to encourage the
development of an educational satellite channel.

Castleberry, Judy (1989) summarised in his paper the
recent developments, and explains four networks in the federally
funded Star School Program: TI-IN, the Midland Consortium, the
Technical Education Research Center (TERC), and the Satellite
Educational Resources Consortium (SERC). Satellite networks are
the most cost-effective way to offer advanced classes and staff
development programs.

Wang, Shousan (1995) discussed the basic concepts and
elements of satellite and telecommunications satellites. Identifies
the advantages of using the unique characteristics of
telecommunications satellites in education. Lists cautions of using
telecommunications satellite systems to deliver educational
programs.

Eales, R.T.J., et al., (1999) described the efforts to introduce
desktop videoconferencing into four schools at Virginia in the US,
was working with four science teachers. The focus was the support
of distributed collaborative learning between science classrooms,
but initially technical difficulties dominated the project. Once these
were overcome, a number of educational issues came to the front.
While most students are interested in videoconferencing, some are
only passively interested. Many of the most active and competent
videoconference users were those students who were often hampered in school activities by poor literacy skills. Not all students are comfortable with video conferencing and some may feel very self-conscious. The educational value is highly dependent on the suitability of the collaborators and the basis for the collaboration. The researchers also felt that the technical and organizational issues surrounding videoconferencing may hinder widespread acceptance by teachers.

**Portz, Stephen M. (1999)** focused on ways of using satellite imagery obtained from the Internet, to enhance classroom learning. Discusses satellite deployment; classroom applications, including infrared imagery, high-resolution photography, and global positioning satellites; and use of satellite data for hands-on activities, including cartography, city and community planning, weather pattern analysis, and identification of landmarks and features.

**Tyler, C. (1999)** conducted a study "Beyond the Content - Videoconferencing" on the University of Ulster. All the students were together at one site, the lecturer at another. The group size never exceeded 12, and the first two classes were held by the lecturer in person, to develop group rapport. The most positive outcome was the social cohesiveness of the group, the physical absence of the tutor helping students to express their own views
with less inhibition. Student evaluations also showed high levels of satisfaction with elements of pre-planning, such as the advance dispatch of presentations by post. At De Montford University students are present at both sites (one with the lecturer), and taught simultaneously. 20 sessions were analyzed. The largest session comprised 15 at one site and 14 at the other. There was substantial dissatisfaction amongst students with aspects of interaction - difficulty in communicating, poor sound quality, hostility towards the remote group and shyness were all reported. While videoconferencing may be a way to extend access to learning, it seems most suitable for activities where little interaction is required.

**Al-Sharhan, Jamal (2000)** made discussion of developments in satellite communications and educational applications focuses on the possibilities of adapting satellite technology for instruction in developing countries. Topics include satellite use in Australia and the United States; and recommendations for the adoption of satellite technology in Saudi Arabia.

**Cifuentes and Murphy (2000)** explored the effectiveness of distance learning and multimedia technologies in facilitating an expanded learning community between two teachers and their students in geographically separated schools. The teachers developed curricular activities and identity-forming multicultural
activities for their 5th-8th grade students. They participated in collaborative activities and shared multimedia files via interactive videoconference. The researchers discovered that the participating teachers developed empowering multicultural relationships while their students developed multicultural understanding and positive self-concept. This was demonstrated by, amongst other things, raised levels of academic aspirations and heightened poise during public speaking.

**Littman, Marlyn Kemper (2000)** examined the satellite-based networks and describes educational initiatives that facilitate access to new student populations in distance locations, sustain transborder collaboration and research, and promote curricular enhancement and enrichment.

**Sharpe, L. (2000)** described how multipoint desktop videoconferencing is used in initial teacher training programmes in Singapore. Weekly conferences are held between university supervisors and student teachers from five different schools. This has been done with three successive cohorts of 59 student teachers who were seen to benefit in a number of ways: Sharing of ideas, problems and solutions, Availability of immediate feedback, Peer support reduces stress levels for some teacher trainees, Communication barriers between student teachers and supervisors have been broken down, with students being more willing to engage
in frank discussion than they were during face to face meetings. In a further experiment, two students videotaped each other teaching. The videos were put on a web site for all students to view prior to a conference at which they were able to share their peers' experiences. Students responded positively to this.

Gage, J. et al., (2002) explained that use of videoconferencing to contribute to the enrichment of mathematics in schools, and to give students an idea of how practicing mathematicians use mathematics in their working lives. It also provides students with a real audience for presentations, and gives them an experience of collaborative working. Students complete a preliminary task, and during the first videoconference they take part in activities and discussions, listening to the ideas of other schools. In a second session they work on projects involving areas of mathematics which are unfamiliar to them, requiring full engagement in mathematical activity. It was found that teachers valued: The opportunity for students to work independently; Collaboration between students as they work on problems beyond the normal curriculum; Presentations of work given by students to a real audience. In turn, the students valued: The variety brought to mathematics teaching; the chance to communicate with others by giving presentations; Being able to discuss problems in mathematics. In a study found that, Most of the students are aware
of the EDUSAT videoconferencing and a majority of them using it. They responded that EDUSAT interactive sessions are very useful for getting deeper knowledge on the subject and more score in the examinations. It provided more chances more interacting with experts.

**Knipe and Lee (2002)** explained that videoconferencing is widely used in higher education for the delivery of lectures between sites, but there is concern that the quality of teaching and learning may be poorer than that experienced in a traditional classroom. This 10 week study investigated the classroom activities and cognitive outcomes amongst a group of 66 Masters Students, of whom 45 were local site students and 21 remote site students. It was found that the local students were receiving more information and explanations from the lecturers, reading and reviewing material more, working in groups and making presentations more than the remote students. Local students also reported a higher occurrence of learning in 10 of the 15 cognitive outcome categories. There is discussion of possible reasons behind these differences, including the significance of physical access to the lecturer, and feelings of isolation emanating from a lack of eye contact with the lecturer. The quality of teaching and learning is not the same in a course delivered by videoconferencing, but the medium itself is not entirely responsible: inexperience, bad preparation and planning,
and inefficient training on the part of the facilitator can also have an influence.

Lim, Doo H., (2002) compared the perceived degree of learning and application of learning made by college students who took a course in either traditional classroom, Web-based, or satellite-based delivery format and identified reasons for high or low learning and application. Investigated which instructional strategies and instructional design factors affected students' higher learning and application.

Sakamoto, Takashi (2002) reviewed the trends in the use of ICT (information and communication technology) in Japanese higher education institutions. Highlights include recent trends in national policy; educational policy; use of communications satellites; broadcasting; Internet use; videoconferencing; issues concerning virtual universities; and use of multimedia.

Ruth Beyth-Marom, et al., (2005) determined the factors that affect students’ preferences regarding tutorial modes. A learning-habit inclinations questionnaire (LHIQ) was constructed and administered to 288 students. Factor analysis revealed four factors: “time management,” “ease of access” to learning materials, “positive aspects of interaction,” and “negative aspects of interaction.” Seven satellite-based synchronous tutorials were delivered to 92 students in a Research Methods course. The
following semester, 73 other students taking the same course received the same seven tutorials with the same tutor but in a mixed mode of delivery: three similar satellite-based synchronous tutorials and four satellite-based asynchronous videocassettes containing the recorded tutorials of the previous semester. Attitudes toward different components of the learning environments were measured and the LHIQ was administered. Results revealed that preferences of tutorial mode were determined by students’ learning-habit inclinations: Those who prefer the satellite-based synchronous tutorials have stronger views toward the positive aspects of interactions and score lower on the need for autonomy and access to learning materials than those who prefer the satellite-based asynchronous tutorials. Methodological (lessons on field research), theoretical (significance of learning styles in effective teaching and learning), and practical (flexibility in teaching practices) implications are discussed. (Keywords: Learning styles, synchronous vs. asynchronous learning, learning autonomy, individual differences, distance learning.)

Binod C. Agrawal (2006) gave a threefold studies a) discuss and highlight the role of television for the universalisation of primary education in India after independence, (b) to describe EDUSAT satellite meant for education in India and indicates how EDUSAT will help strengthen universalisation of primary
education, and (c) to analyse and discuss the salient educational media researches that were carried out in the past to learn how EDUSAT can be utilized for the universalisation and quality improvement of primary education.

Phalachandra Bhandigadi (2006) observed the educational sectors offering an interactive satellite EDUSAT (Educational Satellite) based distance education system for the country. It is to provide connectivity to schools, colleges, and other similar institutions. Initially it is proposed to use the facilities in four different states for reaching different target groups. In Karnataka State the EDUSAT is being used to supplement classroom teaching in all the elementary schools (850 Schools) of one district. The schools are provided with receiving solar backed system to receive signals (programmes) in all the 850 schools. On each day two programmes of 30 minutes were broadcast for the benefit of students of Grade III to VIII. The contents covered almost all subject areas of all the grades. In the academic year 2005-06 almost 200 video programmes were broadcast. The teachers were given training with respect to the use of television as medium of instruction and also to conduct Pre and post broadcast activities. As part of evaluation of Edusat Project in Karnataka a comprehensive research study has been initiated to find out the impact on the attendance, and academic achievement of students.
by following experimental and control design. The content achievement (one test of about 20 items for each grade) and visual achievement (one test of 10 items for each grade) tests have been administered on students of different grades to ascertain the learning gains. The feedback from teachers have been obtained. This paper will highlight the implementation of the EDUSAT project and analysis the impact on students attendance, learning gains and attitude and opinion of teachers based on the data collected from about 2000 students and 200 teachers.

Dogret et al., (2006) discussed about the Indian learning traditions and the role played by teachers in imparting education. They discuss the efforts played by government in enhancing education, Non-Governmental Organizations (NGOs) contribution in spreading literacy, various learning traditions from past to present such as "Gurukula, Kautilya", participative learning. Further, they highlighted the educational technologies used like EDUNET, E-campus and EDUSAT in various schools giving the example of Delhi Public School (DPS) and open learning trends of India. Furthermore, they discussed the role of a teacher in Indian tradition and in modern education with the examples of Guru Gobind Singh Indraprastha University and Indian Institute of Technology Kharagpur. The paper concludes with the remarks of the authors in which they suggest to reframe the educational
policy, emphasize on enhancing professional education in government institutions and universities and development of industry-academia partnership.

**Goldstein, Tara (2007)** made a study on "world teachers" for cosmopolitan classrooms and schools through an examination of an ethnographic play entitled "Satellite Kids". The author begins with the idea that teachers need to develop or build up "intercultural capital", that is, knowledge and dispositions that will help them in intercultural exchanges of teaching and learning. The author then explores what such knowledge and dispositions might entail through an analysis of "Satellite Kids". The play's focus on issues of power, identity, and intercultural conflict within a Canadian cosmopolitan school makes an interesting case study for exploring what intercultural knowledge and dispositions might look and sound like, and how the educational project of building intercultural capital is different from the project of multicultural education that has been dominant in Western teacher education throughout 1970s, 1980s, and 1990s.

**Hansson, Henrik and Mihailidis, Paul, et al., (2007)** analyzed about digitally marginalised communities are in focus in the EU-funded Rural Wings project 2006-2008. The aim is to identify and analyse the user learning needs in non-connected communities and to meet these needs by providing satellite Internet
broadband connections, education and tools. This article reports the findings of the user needs investigation of 31 communities in 10 countries in the initial phase of the project designed and coordinated by Stockholm University, Sweden. It also includes the actual analysis of each test site based on over 31 sites spanning 10 European nations. In addition, generalizations, comparisons and differences have been composed, to provide a framework for European trends in rural ICT access.

Peddecord, K. Michael and Holsclaw, Patricia., et al (2007) studied have rigorously evaluated the effectiveness of health-related continuing education using satellite distribution. This study assessed participants' professional characteristics and their changes in knowledge, attitudes, and actions taken after viewing a public health preparedness training course on mass vaccination broadcast nationally by satellite. This evaluation assessed (1) participants' professional characteristics, (2) knowledge gain, (3) self-reported actions taken following the broadcast, (4) program satisfaction, and (5) suggested improvements for future satellite broadcast programs. The study's methodology of using a Web-based survey for follow-up is a relatively economical tool for assessing longer-term continuing education program objectives.
Marina Ruggieri et al., (2008) presented a pilot educational project called EDUSAT (Educational Satellite) founded by the Italian Space Agency (ASI); it has three main objectives, which are: (1) Involve educators and students in the project of a pedagogical payload that will be carried on a satellite; in this task ASI will exploit the competences of Aerospace Engineering School at the University of Rome La Sapienza. (2) Assembly of a Mock-Up satellite to transfer basic space concepts to the students; this task is committed at IMT, an Italian space company. (3) Preparation of Video-Lessons of theory and laboratory to provide contents with e-learning methods; this task is committed at IMT and University of Rome Tor Vergata.

Bhattacharya, B. (2008) conducted a study on the Engineering Education in India-The Role of ICT. Engineering education in India has witnessed a major change over the past few years. Substantial increase in the demand for high-quality education has led to the adoption of Information and Communication Technologies for extending the outreach of education. This paper presents a review of some of these technology-enhanced initiatives already taken up by the government of India, as well as by some of the leading institutions in the country. Important developments include the National Programme on Technology Enhanced Learning (NPTEL), the use of
an educational satellite called the EDUSAT and various other approaches such as the use of “virtual classrooms” and “virtual laboratories.” The paper goes on to discuss some of the problem areas in the present mode of dissemination and deployment; some possible future trends and modalities are also outlined. These include blending collaborative learning with interactive technology-enhanced learning initiatives and finding ways of providing support for learners’ queries.

Manoj Kumar Dash (2009) described about the implementation of EduSat in general and Rajiv Gandhi Project for EduSat Supported Elementary Education (RGPEEE) in particular present a great challenge in the light of optimum utilization of communication technology for improving classroom practices (teaching learning process) at elementary level. The first phase of this project focused on Sidhi district of Madhya Pradesh, India as a pilot project to supplement classroom teaching learning process and improving professional competencies of teachers. The present paper reports the effectiveness of implementation of EDUSAT on improving academic achievement (average achievement in curricular subjects namely; Hindi, English, EVS and Mathematics) of children of primary grade (standard III and V). Results of the study indicate no significant difference in achievement of students of schools having receive only terminals (ROTs) and no ROTs. It
also suggests mechanisms to make EduSat more effective in teaching-learning process.

**Vikram Desai, et al., (2009)** provided education access to the children in the age group 6–14 years is a constitutional obligation and challenge for the union as well state governments, as the development of elementary education is a key factor for a nation's development. Due to the non-availability of required number of trained and expert teachers’ knowledge-divide exists between students population of urban and rural/remote areas. To bridge this gap Distance Learning or Tele-education is the best option. A dedicated satellite for the purpose (EDUSAT) was launched on 20th September 2004 to serve the nation in all the education activities. It was decided to provide a Tele-education network in and around the Sidhi district of Madhya Pradesh, with uplink and studio facility (Hub) at Jabalpur (MP) and around 700 receive only terminals (ROTs) in various schools. Since the medium of teaching used in this network is Hindi, it was later decided to extend the coverage to connect around 50 primary schools with ROTs in six surrounding states viz. Jharkhand, Bihar, Chhatisgarh, Uttar Pradesh, Rajasthan and Uttarakhal. The network is configured as a DTH network using state-of-art digital technology, in Ku-band with 3.8 m antenna and 16 W power amplifier at Hub. The ROTs are designed to operate on solar power
for 2.5 h continuously, taking into consideration the non-availability of primary power in the rural areas. The teachers of the schools are trained for the proper operations of the ROTs. The teachers of these rural schools also contribute to the content generation, with local relevance, in coordination with Indira Gandhi National Open University (IGNOU). At present the network with around 1000 ROTs is being utilized for 2 h per day. The RGPEEE network is in the process of being augmented with 32 satellite interactive terminals (SITs), to be used for teachers training. The project is being managed by two tier management system. In order to oversee the project implementation and monitoring an Apex Core Group, consisting of Apex Committee and Standing Committee, has been constituted. The Apex Committee takes care of policy decisions whereas, the Standing Committee takes care of day to day affair.

**Bhupendra Singh Bhatia (2009)** attempted to briefly review the evolution of satellite based education system in the country and the achievements of EDUSAT. It examines the experiences with the present space and ground configurations and discusses the possible changes for improvement and continuity of services. The need for establishing structures for meeting the operational and managerial requirements is also discussed.
**Mamta Garg and Manoj Kumar Jindal (2009)** explained that E-learning is referred to the use of networked information and communications technology in designing, delivering, selecting and extending learning. It is the convergence of learning and the Internet. The universalisation of education has become the top priority, 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 multi-lingual population separated by vast geographical distances. Satellites can establish the connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions that lack the necessary infrastructure. EDUSAT is satellite designed by ISRO and it is exclusively devoted to the field of education. Many states are implementing EDUSAT project and imparting education through satellite technology as an essential part of education system. In this paper we will focus on role of EDUSAT satellite in e-learning.

**Sohanvir Chaudhary and Suresh Garg (2010)** revealed that one of the serious problems associated with Indian school education has been high dropout rate. The reasons are many and varied but the major constraints are: non-availability of adequate number of competent and trained teachers in most of the schools
and separate room for each class. To overcome such problems and increase equitable access to all, it was considered prudent to use capabilities of satellite based teaching-learning. This network was also to be used for capacity building of in-service teachers. So an indigenously built, dedicated satellite for education-Educational Satellite (EDUSAT)- was launched on September 20, 2004. EDUSAT supports one National Hub and five Regional Hubs. This paper discusses the case study of Rajiv Gandhi Project for EDUSAT-Supported Elementary Education (RGPEEE) project for imparting value added education and professional development of in-service teachers. The project was implemented by Indira Gandhi National Open University (IGNOU). More than 862 schools in four Hindi speaking states chosen on the basis of physical contiguity were networked through 850 ROTs and 12 SITs. In the first phase (pilot), the project focused mainly on Sidhi district, inhabited mainly (90 percent) by tribal population and one of the most educationally less-developed districts of Madhya Pradesh. Through ten orientation programmes, 868 teachers and functionaries associated with the Project were oriented at different levels to familiarize them in imparting instruction through EDUSAT and their role and responsibility in facilitating child learning. They were also trained in developing content for Tele-teaching; development of knowledge repositories as effective and sustainable sources of
Feedback studies undertaken to judge the effectiveness of EDUSAT reveal that it is being well received and making steady progress towards improvement in attendance and academic achievement of children and creation of better learning-environment in schools.

**Balaji R.D., et al., (2010)** Education pierces into the contemporary world due to the influence of the emerging technologies in the digital world. Education field is also bombarded by the modern technologies and the demands of the digital society. It is affected by cloud computing, green computing and Internet. Still the success of this depends upon the minimization of the knowledge loss, while transferring ideas from teacher to student. Teaching & Learning is always an art. But when we take the traditional teaching and learning, knowledge loss is very high. As per our research, we have found that the knowledge loss is more than 60% for any subject on an average. Traditional Teaching & Learning is having advantage of more interaction, changing pace and technique based on audients. But it failed to address the knowledge loss due to mixed crowd, personal motivation and less possibility of the personal attention. Even though modern technology is introduced along with the traditional method of teaching in Higher College of Technology (HCT), knowledge loss is very high still. Mnemonics is an old tool; still suitable for digital era
students with the influence of recent technologies. Hence this paper discusses how to implement this mnemonics with the help of modern technologies like E-Learning and M-Learning. In this paper we have tried to discuss about E-learning and M-learning usage for implementing Mnemonics, and also discussed how far this concept can be used to make the Information and Communication Technology (ICT) more efficient and effective in term of making the students learning experience as a fun and without huge knowledge loss during the teaching and learning process including practical subjects. This paper also explains the initial research conducted with the students of database specialization of HCT and findings of that research about the knowledge loss.

Sarat Kumar Rout (2010) presented about how India has used its satellite for the educational purpose. It widens the teaching scale and contents of radio, television and in universities. It improves the development of training for secondary and primary teachers and of vocational education. It pushes forward the educational reform and economic and educational development for the country. India is making efforts on transforming the educational satellite net to digital, interactive and Ku wave system with the development of information technology. The article also focuses on getting feedback about use of the Information technology resources. It concludes that interactive teaching and
transformed educational satellite net will play an important role in the country’s distance education.

**Filippo Graziani, et al., (2010)** dealt with the design of the EDUSAT microsatellite: a small educational satellite developed by the Group of Astrodynamics of University of Roma “Sapienza” (GAUSS), on the basis of its previous experience. The UNISAT program (UNIversity SATellite) started at School of Aerospace Engineering of Roma in the early nineties. The EDUSAT Project is funded and coordinated by Italian Space Agency with the aim to promote space education among high school students and to support the qualification and scientific careers of young people (university students, PhD students and young researchers). Another target of this program is to develop a small space mission for low cost scientific experiments and technological tests in orbit. The launch of EDUSAT Micro Satellite is scheduled in 2010: a cluster launch in Low Earth Orbit, performed by Russian-Ukrainian DNEPR Launch Vehicle. This chapter synthesizes project motivations, program organization and describes system architecture and satellite main subsystems design.

**Abdous, M’hammed and Yoshimura, Miki(2010),** examined the final grade and satisfaction level differences among students taking specific courses using three different methods: face-to-face in class, via satellite broadcasting at remote sites, and via live
video-streaming at home or at work. In each case, the same course was taught by the same instructor in all three delivery methods, and an attempt was made to survey students taking the course via the three different delivery methods. MANOVA results indicated no grade or satisfaction level differences among the three populations. Self-reported computer literacy skills revealed a slight fit between the chosen delivery mode and the reported computer literacy skills. These results provide additional evidence to support both the "no significant difference" phenomenon and the use of distance education as a viable, convenient and flexible alternative delivery mode capable of extending learning opportunities to non-traditional students.

**Abdous, M'hammed and Cherng-Jyh (2010),** conducted a study on assess the predictive relationships among delivery mode (DM), self-perceived learner-to-teacher interaction, self-rated computer skill, prior distance learning experience, and learners' satisfaction and outcomes. Participants were enrolled in courses which used three different DMs: face-to-face, satellite broadcasting, and live video-streaming (LVS). In each case, the course was offered simultaneously by the same teacher via all three formats. The results indicated no predictive utility of delivery mode for self-perceived learner-to-teacher interaction. On the other hand, the results supported the validity of self-perceived learner-to-teacher
interaction as a predictor for student satisfaction and learning outcomes (measured by course final grades). To a lesser extent, self-rated computer skills and the number of distance learning courses taken played a weak role in learning outcomes and students' satisfaction. Overall, findings from the study support prior research that has reported the importance of learner-to-teacher interaction in learning outcomes and satisfaction of distance education students.

Miller-Idriss, et al., (2011) analysed the landscape of transnational higher education in the Middle East, focusing in particular on the recent expansion of satellite, branch, and offshore educational institutions and programs that foreign institutions have set up in the region. Of the estimated 100 branch campuses currently operating worldwide, over one-third are in the Arab region and the majority have opened within the last decade; two dozen additional transnational programs and universities exist in the region as well. Very little research has been conducted on these new institutions, however, raising many questions for scholars in education. This paper traces reasons for the rapid growth of the transnational higher education model in the Arab states.

Kalpana Kannan and K. Narayanan (2011) described that Information and communication technologies (ICT) have become a major factor in shaping the new global economy and thereby
producing rapid process of changes in the society. Many developed and developing countries are using ICT enabled education as a tool for quality education and to fill the gap between traditional methods and new methods of teaching and learning. Research shows that ICT enabled education has a positive impact on teachers and learners. This paper is based on analysis of the data drawn from a questionnaire survey of the people who participated in the teacher training programme through distance mode, conducted by IIT Bombay. In this initiative IIT Bombay has used satellite (EDUSAT) technology and Internet technology to train a large number of college teachers spread across the country through the distance mode. Specifically, around six hundred and forty college teachers in the area of computer programming were trained through distance mode under the National mission on education through ICT. The analysis of the responses given by the participants of the course suggests that ICT enabled training provides greater exposure and better knowledge to teachers in engineering colleges located in less developed regions of India.

Daulat Singh, et al., (2012) related EDUSAT network of Madhya Pradesh Bhoj (Open) University, which includes Hub dedicated for higher and distance education, Studio and 40 Satellite Interactive Terminals with EDUSAT-network provided by Indian Space Research Organization (ISRO). These SITs have been
installed in urban, rural and tribal areas. Detail study of equipments of hub, studio and receiving terminals was taken up. Target group was chosen and most easy and suitable way of virtual class was identified. Various factors affecting quality of audio/video were drawn from the study and content/presentation of video lectures were analysed. Recorded video lectures and live lectures were telecasted for 177 working days and observations related to BER (Bit Error Rate) correlating problems encountered during operation of terminals, audio-visual quality of lectures, skill and response of operators were made. We aimed at identifying the scope of enhancement in audio-video quality of the material telecasted through EDUSAT. The study is based on the network which has been created mainly for the students of rural and tribal areas. On the basis of observations and BER data collected from hub, the present study makes findings and suggests those possibilities which can enhance the audio-video quality of the telecast without any major change in satellite’s band width and hub, and with minimum increase in cost and expenditure.

**Ajay Kumar Gupta (2012)** explained that Education is a universally recognized key tool for the prosperity and overall socio-economic development of the country. Quality Elementary education is undoubtedly the quintessential passport to new opportunities and greater avenues as social, economic or higher
education. The policy makers of the country are aware the potential benefits of applications of Information and Communication Technologies (ICT) in education and therefore an Educational Satellite (EDUSAT) was launched by ISRO, which was world’s first Indian satellite built exclusively to meet educational objectives only. The aim of this initiative was to provide equal opportunities of quality education and its associated services at every corner of the country. For optimum utilization of the EDUSAT, numerous educational projects at elementary, higher, technical level were started. The Rajiv Gandhi Project for EDUSAT Supported Elementary Education (RGPEEE) was one among them, its detailed configuration and functioning is given in Desai et al., Manoj et al, Sampat et al, Bhandigadi have conducted various studies to find out the impact of the project over the target group of people. These studies were based on the data collected using the questionnaires and feedbacks from the identified remote ends of the network. This paper presents a study about the various methodologies available to support the impact studies of the Satellite Enabled Educational Receive Only Terminals (ROTs) along with their pros and cons. We also suggest the integration of technology enabled authentic audience measurement system as a recent approach for the purpose of impact study of Satellite Enable Educational Receive Only Terminals (ROTs).
Sampat Ray Agrawal et al., (2012) described that India has a history of low levels of schooling and literacy. Though the Indian constitution had set its goal for providing free and compulsory education to all children under the age of 14 by 1960, even after 50 years it remains elusive. There are many primary schools in rural India functioning without basic facilities like drinking water, toilets, writing desks, electricity, etc. and even many do not have roofs. A large number of schools have insufficient number of teachers. There are many schools with just one teacher. There are a large number of schools where untrained teachers have been employed. The Government of India has implemented many educational programmes for strengthening infrastructure and thereby improving quality in the delivery of elementary education. There are set goals for improving access to and participation levels of children in elementary education. Harnessing technology, particularly in the domain of education has been recognised to benefit both the student and the teacher. Launching of the education satellite, ‘EDUSAT’ has been one of the milestones in India’s quest for espousing technology for education. This study investigates the introduction of satellite technology in some rural primary schools in a relatively under developed district in Central India. The Rajiv Gandhi Project for EduSat Supported Elementary Education (RGPEEE) has indeed changed the attitude of the teachers of the
schools wherein the project has been set in operation. This project is an offshoot of a similar tele-education project launched in Karnataka in 2004-05. The RGPEEE has worked as an agent for change of mind-set and developed many a Good Practices among the teachers. The teachers have got motivated towards use of Information and Communication Technologies (ICT) in elementary education not only to assimilate technology based learning with traditional chalk-and-talk-learning for giving better education to the learners but also to a leap forward to update, upgrade and acquaint themselves to the newer technologies for meaningful assistive learning that takes place among their students.

**Mool Raj and Arun K. Gupta (2012)** understand the effectiveness of a new teaching methodology i.e. an ‘Electronic Classroom’ adopted by the teachers in a school for teaching General Science. In this study, a Students Questionnaire on Effectiveness of Electronic Classroom (SQEEC) was developed and validated on a selected sample of students from a secondary school where this technology has been introduced and implemented for teaching and learning. The paper provides the background information related to the setup of an electronic classroom and its importance in the teaching of General Science. SQEEC was found to be a reliable and valid tool for assessing the effectiveness of the electronic classroom. Results of the study show that the electronic
classroom as a methodology was found to be effective for teaching General Science in terms of improved achievement levels of the students and on the basis of their grade and age levels. However, no significant differences were found to exist between different groups of students on the basis of their gender.

Onasanya Samuel Adenubi et al., (2012) aimed at determining the influence of watching various programmes by the Senior Secondary School Students via Satellite Channels as means of learning some hidden curriculum. Two hundred and fifty six senior secondary school students were involved in the study to determine the students’ interests and frequency of watching various programmes via satellite channels. The results and discussion of the study suggests that both male and female frequently watch satellite programmes due to the interests they developed for them. The findings revealed that the students had interests for watching audio visuals for fun and entertainment rather than watching such to upgrade their knowledge bank academically. Considering the findings, it was recommended that the students’ interests for fun and entertainments could be re-directed toward educative channels as medium of teaching and learning. Also, incorporating such medium into classroom instruction could ease teachers’ bulk of work, thus bringing relevant examples to enhance better comprehension closer to the
learners. This could be achieved by organizing seminars, workshops and trainings for teachers and students on how to harmonize the use of audio-visuals via satellite channels for effective teaching and learning.

**Manoj Roy et al., (2012)** dealt for providing education to all; the Indian Parliament took a decision in 2001 whereby access to education was made mandatory for every child between the age of six and fourteen by the year 2015. With the core objective of meeting the challenges of quality in education and reaching out to the unreached satellite technology was reaped in. World’s first exclusive satellite, solely dedicated for the purpose of education dissemination was conceived. ‘EduSat’, the geostationary satellite system was launched in 2004. The entire country is reached by the satellite which has multiple beaming transponders. The five Spot Ku Band footprints cover the northern, north eastern, eastern, southern and western regions of the country. The national beams in Ku Band and Extended C Band cover the Indian mainland. The Hubs (Uplink and Studio Facility), Receive only Terminals (RoT) and Satellite Interactive Terminals (SIT) are set up at designated locations (Bandyopadhyay, 2007). In 2005, the Rajiv Gandhi Project for EduSat Supported Elementary Education (RGPEEE) came into operation. The study conducted by us reveals that RGPEEE has in an immense way changed the perceptions of the
beneficiaries, the primary school students and teachers on ICT enabled education. We have confined our area of study to a remote district of the Indian state of Madhya Pradesh. This paper underlines the strength of the project. It talks about the assimilation of the programme content by the target group in a virtual environment. The project is significant because it has been put into operation in one of the most inaccessible geographical regions of a relatively less developed state of a developing country. We have identified the good practices of RGPEEE which can be replicated when similar projects are launched elsewhere. We also realised the urgent need for sensitisation of a semi-literate population on the use of electronic media for education. It recommends that among other factors, a fundamental cause of failure in achieving some of the objectives of the project has been not adopting strategies to suit the acculturised behaviours of the local population.

Kiran B. Patel (2012) revealed that there is a growing demand for an interactive satellite based education system in the country. With the touch of EDUSAT which is exclusively dedicated to education, fresh perspective is available for educational reforms, in which new technologies contribute to equalize the access to learning opportunities and to improve the quality of education for all. Presently, the innovations in the field of ICT are taking place.
very rapidly but changes in pedagogical practices and mind set of teachers is at a much slower pace. With the launch of EDUSAT, world’s largest education system can be created through Networks so that institutions can be linked synchronously in real time as well as asynchronously (email) at any time. The education system will now use more powerful but less expensive multi-media for enhancing learning by customizing in to suit the needs of individual learner. So far in our country, the Multimedia and E-Content have been largely used by entertainment. Once Internet facility is provided to all the education institutions, the educators would be able to hold on-line conference in real time can chat and take part in discussion forum, news groups etc.

Gautam Akiwate et al., (2012) discussed that co-operation and collaboration are fast becoming the key words in the world of space technology, especially in these times of financial austerity. It has been shown time and again how satellites can play a vital role in the focused and fast development of a nation. The real-time input of the resources at hand and the ability to plan using this data has proven to be a major asset in the case of developing nations. In view of these merits it becomes even more imperative for developing nations to undertake the development of satellites. The prohibitive cost of building large satellites merits the case for small satellites. However, lack of finances is just one of the problems that
plague developing nations. Developing nations face an acute shortage of adequate research and test facilities in which to design and develop such projects. In addition, there is a lack of technical know-how and a proportional shortage of skilled labour. A combination of these causes proves detrimental to development. Thus, a need is felt for possible ideas to mitigate these problems. This paper, working on the experience and insights gained from the on-going student satellite project CCOMSAT (COEP Communication Satellite) in Pune, India tries to put forth a possible solution in the form of Open Source Student-Driven Satellites. Aiming at enhancing education, providing insight into space projects and systems development, the approach of open source satellites also promotes values of co-operation, collaboration and sharing. In this context, we will try to analyse how developing nations can benefit from the resulting technical know-how of the students and how these projects can lead to the improvement of the research facilities in these countries. In addition to this, based on observations during the CCOMSAT project, we shall also try to understand the role of local academia and industry, and the positive changes that such projects can bring in them, which, in the context of developing nations is very important. We then try to look into possible implementations of this idea with the end goal of students collaborating to create a low cost, generic, modular framework
which can serve as a platform for small satellite applications. Finally, the advantages and benefits of these projects are explored from the viewpoint of other nations.

Agrawal Sampat Ray et al., (2012) revealed that Elementary education is undoubtedly the quintessential passport to new opportunities and greater avenues, be they social, economic or higher education. The potential benefits of application of Information and Communication Technologies (ICT) in education are well understood by policy makers and the rulers. Even though infrastructure development for e-learning and access of e-resources at higher education level are being built up robustly, a cautious approach is taken in applying ICT for school education services. To effectively develop a school education grid of an underdeveloped region in central India, ICT has been combined with traditional modes of teaching under the Rajiv Gandhi Project for EDUSAT Supported Elementary Education (RGPEEE). In this study, we analyse the way ICT intervention is contributing significantly towards sensitising students, teachers and parents/guardians who form the essential apparatus of RGPEEE. The project provides opportunities for training and orienting school teachers towards using ICT for education. There are varieties of audio/visual/technological tools that can be employed in multiple manners to help teachers teach and effective teaching-learning
transactions take place in the classrooms. Most common, simple and time tested are the audio and video aids, with which one can present illustrations, photographs, experiments, documentaries, short films, etc. Towards the end of the study, established that technology not only breaks the monotony to grab young learners’ attention but also foster inquisitiveness, arouse interest, enhance capacity of comprehension and stimulate retention. The findings lead to the compilation of a set of Good Practices for sensitising the stakeholders.

Giger, Kaspar; Knogl, J. Sebastian (2012) observed that the Satellite navigation is widely used for personal navigation and more and more in precise and safety-critical applications. Thus, the subject is suited for attracting the interest of young people in science and engineering. The practical applications allow catching the students’ attention for the theoretical background. Educational material on the subject is sparse, especially with respect to the practical side. This paper described a combined approach based on experiments and theory. It was tested during a two-day course for college students visiting the TUM (Technische Universitat Munchen) called "Girls do research--The Autumn University at TUM". The positive feedback the supervisors received led to the conclusion that the approach is supportive for raising the students' interest in science and engineering.
Manoj Roy et al., (2012) analysed the RGPEEE project has in an immense way changed the perceptions of the beneficiaries, the primary school students and teachers on ICT enabled education. Area of study is a remote district of the Indian state of Madhya Pradesh. This paper underlines the strength of the project. It talks about the assimilation of the programme content by the target group in a virtual environment. The project is significant because it has been put into operation in one of the most inaccessible geographical regions of a relatively less developed state of a developing country. Identified the good practices of RGPEEE which can be replicated when similar projects are launched elsewhere. We also realised the urgent need for sensitisation of a semi-literate population on the use of electronic media for education. It recommends that among other factors, a fundamental cause of failure in achieving some of the objectives of the project has been not adopting strategies to suit the acculturised behaviours of the local population.

Jagdev Singh Kaleka and Srishtee Chaudhary (2012) explained that over the last few years, Distance Education has come into its own as the mainstay in the field of education. The integration of satellite technology and education has yielded rich rewards socially, culturally and economically. Leveraging on its impeccable expertise in the space segment, Indian Space Research
Organization has ventured into becoming a full-fledged facilitator in providing the satellite for education in India under its ambitious EDUSAT project. EDUSAT is the first exclusive satellite for serving the educational sector. It is specially configured to meet the growing demand for an interactive satellite-based distance education system for the country through audio-visual medium, employing Direct-to-Home (DTH) quality broadcast. The satellite has multiple regional beams covering different parts of India—5 Ku band transponders with spot beams covering different regions, a Ku-band and transponder with its footprint covering the Indian mainland region and 6C-band transponders with their footprints covering the entire country. ISRO in a way is exposing the universities to new opportunities that distance learning technologies could offer for institutions of higher education. These opportunities include facilitating improvements in the teaching-learning process, expanding the geographic reach of an institution’s programmes and facilitating more effective service of the student community.

Pratima Pallai (2013) explained that the universalization of education has become the top priority for developing country like India. The lack of adequate rural infrastructure and non-availability of good teachers in sufficient numbers is adversely affecting the teaching learning process and hence the goal of
quality education is far from reality. The teacher educators need to be trained professionally to face the situations in the classroom. Effective response to such a complicated challenge to educate millions with quality could be possible by satellite based ICT enabled education. ICT enabled educational delivery modes is possible only with right kind of satellite support. Thus the effort to change the national scenario in the area of education has already been initiated by (ISRO) by launching EDUSAT. The teacher training through distance mode is now an established system in India, especially after launching of dedicated satellite for education “EDUSAT”. National and state level agencies have been organizing various training programs for teachers through EDUSAT. It has solved the problem of shortage of trained teachers, lack of quality teaching especially in the rural areas, teacher absenteeism, and uniform quality education. One must realize that to face such a complicated challenge the known traditional methods and conventional response will be far too inadequate. Thus the present article discusses the use of educational satellite (EDUSAT) for teacher orientation/ training in teacher education. This paper highlights about the EDUSAT, its uses, network configuration etc. This paper is an attempt to describe the major programs conducted by CIET, NCERT through EDUSAT for orientation of teachers.
Usharani Narayana and Nesara Kadanakuppe (2013) evaluated the impact of e-learning on engineering students in the State of Karnataka, the silicon valley of India to understand the intervention of communication technology in education. The study selected a sample of 613 engineering students based on the enrollment registers across 8 engineering colleges that are part of the network of colleges hooked on to satellite based e-learning programs in professional education. On the whole the study establishes that communication technology has given a new model of learning in making the professional education more meaningful and relevant. The integration of technology with conventional method of teaching has given a new instructional model based on the elements of e-learning. The model envisages access, greater degree of participation, student-centric approach, individualized learning and teaching practices. E-learning is a new dependable initiative in teaching-learning process in professional education, says the study.

Monika (2013) undertaken to compare the attitude towards EDUSAT among undergraduate students. For this purpose, descriptive survey type of research was used. Data was collected from randomly selected 320 undergraduate’s students of urban and rural areas of District Jind of Haryana State. EDUSAT scale was administered on the selected sample. Significance difference was
found in attitude towards EDUSAT between urban and rural students but there was no significant difference between male and female students.

Arulchelvan S. and Balavivekanandhan A. (2013) explained that “EDUSAT is launched to meet the demand for a satellite based interactive education and supplement to the face-to-face classrooms. The EDUSAT network is capable of transferring various types of data to the remote classrooms. In association with the Indian Space Research Organization, a large number of Indian Universities have established Satellite Interactive Terminals (SIT). The Anna University and Amrita University have established their networks in the southern part of the country. Now, many educational institutions are coming up with the same. This study has analyzed the teaching-learning process of the e-learning networks and its effectiveness among the engineering students. The research reveals that level of awareness and usage of the SIT is satisfactory, but the frequency of usage is very less. Experts feel comfortable with this new teaching platform. Among the students it is getting overwhelming response. SIT videoconferencing has proved more effective and plays a significant role. Proper intimation about the programmes, more interactivity, specialized subjects and adjustment on telecast timings, adding videos, live demonstrations and graphics are needed to make it more useful”.

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Rajat Pradhan (2013) described that E-learning is a concept of imparting higher education to people through electronic medium as well as networked information and communication systems. But the extension of quality education to rural and suburban areas need an effort to develop tools and methods for reaching the mass. Satellite communication can play a pivotal role in this strive. In this paper we will discuss the role of EDUSAT, a satellite developed by ISRO to serve educational sector, network requirements to make satellite communication useful for the distribution of the lectures via satellites, along with a blend of satellite enabled classroom sessions.

Pratima Pallai (2013) explained that the universalization of education has become the top priority for developing country like India. The lack of adequate rural infrastructure and non-availability of good teachers in sufficient numbers is adversely affecting the teaching learning process and hence the goal of quality education is far from reality. The teacher educators need to be trained professionally to face the situations in the classroom. Effective response to such a complicated challenge to educate millions with quality could be possible by satellite based ICT enabled education. ICT enabled educational delivery modes is possible only with right kind of satellite support. Thus the effort to change the national scenario in the area of education has already
been initiated by (ISRO) by launching EDUSAT. The teacher training through distance mode is now an established system in India, especially after launching of dedicated satellite for education “EDUSAT”. National and state level agencies have been organizing various training programs for teachers through EDUSAT. It has solved the problem of shortage of trained teachers, lack of quality teaching especially in the rural areas, teacher absenteeism, and uniform quality education. One must realize that to face such a complicated challenge the known traditional methods and conventional response will be far too inadequate. Thus the present article discusses the use of educational satellite (EDUSAT) for teacher orientation/ training in teacher education. This paper highlights about the EDUSAT, its uses, network configuration etc. This paper is an attempt to describe the major programs conducted by CIET, NCERT through EDUSAT for orientation of teachers. Regarding the advantages, (34%) students stated that they got immediate response/reply from the experts, 32% of the students said it provides more interaction, 21% of the students said the videoconferencing gives class room atmosphere and 13% of the students said some other advantages. With regard to the benefits 25% of the students said this is a supplement to their regular teaching mode. 26% of the students said that the program is very useful as they do not have adequate teachers at their institutions.
17% of the students said it is a chance to get more interaction with the experts. 19% of the students said it gives more understanding of the subject. The Objectives of the study are, To compare the attitude towards EDUSAT of Undergraduate Male and Female students, To compare the attitude towards EDUSAT of Undergraduate Urban and Rural students. The formulated Hypotheses are, There is no significant difference between the attitude of male and female undergraduates students towards the use of EDUSAT system, There is no significant difference between the attitude of rural and urban undergraduates students towards the use of EDUSAT system. The study reveals that most of the students (63.5%) are aware of the EDUSAT videoconferencing. It is the top most medium used by the students. 60% of the students said that they are using the EDUSAT Videoconferencing for the educational purpose. Followed by Internet, it is the second preferred medium by the students (52%). EDUSAT videoconference grabs more attention (48.5%) than any other media. Most of the students (82.5%) said that the videoconference is very useful and gives knowledge as part of the regular subject. About 69.5% of the students said it is providing additional knowledge on the subject. 47% of the students said the videoconferencing provides opportunity to interact with the external experts.
2.4. CONCLUSION

This review has pregnated the researcher with vast knowledge and in depth understanding of the various concepts related to the study. It enlightened the researcher to have a firm foundation and paved the way for his study. It enabled the researcher to select the necessary research tools for this study. The researcher (i) Summarize major contributions of significant studies and articles to the body of knowledge under review, maintaining the focus established in the introduction. (ii) Evaluate the current "state of the art" for the body of knowledge reviewed, pointing out major methodological flaws or gaps in research, inconsistencies in theory and findings, and areas or issues pertinent to future study. (iii) Conclude by providing some insight into the relationship between the central topic of the literature review and a larger area of study.

In this Chapter in total 91 related literature has been reviewed and recorded. Among those, 38 studies related to Attitude towards Educational Television (ETV) and 53 studies related to Knowledge and attitude towards EDUSAT. On reviewing the related studies the investigator came to an idea of choosing the background variables like Gender, Year, Parental Education, Parental Occupation, Community and Religion as these variables have not found in most of the studies reviewed. Further, the findings of the reviewed studies shown path for the conduct of this research work. The findings of the present study has been discussed with the related studies and given in Chapter IV.