CHAPTER II

REVIEW OF RELATED LITERATURE

2.0 OVERVIEW

This chapter presents the review of Studies related to the theme of the Investigator chosen for his study. It comprises of six sections. The first section is an overview of the entire chapter. The Second section points out the importance and the need for the review of the related studies. The Third section explains the Thirteen selected Indian studies briefly which are related to this investigation. The Fourth section gives a comprehensive account of a number of Thirteen selected studies conducted abroad related to the theme of the investigator. The Fifth section summarizes the outcomes and recommendations of the studies cited in this chapter. The sixth section is solely for documenting the references cited in this chapter.

2.1 NEED FOR THE REVIEW OF RELATED LITERATURE

According to Monly, (1964) “The survey of literature is a crucial aspect of the planning of the study and the time spent in such a survey is invariably a wise investment”. A review of previous investigations relevant to the present investigation is necessary to gain better perspective of the problem. It provides a greater understanding of the problem and ensures the evidence of unnecessary duplication.
The knowledge of Related Literature brings the researcher up-to-date on the work which others have done and thus to state the objectives clearly and concisely. By reviewing Related Literature, the Researcher can select those areas in which positive findings are very likely to result and his endeavors would be likely to add the knowledge in a meaningful way. The review of Related Literature gives the researcher an understanding of the research methodology. It helps the Researcher to know about the Tools and Instruments, which proved to be useful and promising in the previous studies. It also provides insight into Statistical Methods through which Validity of results to be established. One of the main purposes of Related Literature is to know about the recommendation of previous researches for further research, which they have listed in the studies.

Herein the Investigator finds another opportunity to justify his own endeavor in the treatment selected by him to his problem. The Review of Related studies regencies the investigators ideas regarding the problems of his own and helps him in the whole process of research.

2.2 CLASSIFICATION OF THE STUDIES

The Investigator has gone through a few of the researches related to the present problem. Hence an attempt was made by the investigator to put forth the reviews related to the present investigation. The investigator identified totally Twenty Six studies conducted in India and Abroad. Out of this, Thirteen studies were conducted in India and the remaining Thirteen
studies were done in abroad. The details of the above studies were given below.

The investigator has suitably located the Related Studies and they are presented as follows:

2.2.1 Studies Conducted in India

The investigator has identified 13 studies conducted on Educational Technology and was presented below in the chronological order:


The major Objectives of the study were,

i. To compare the mean achievement scores of the students of Standard V, VI and VII studying through Audio Visual Aids method, Programmed Learning Method and Traditional method.

ii. To study the effect of treatment, Sex and their interaction on achievement.

Eight Schools of Greater Mumbai were selected in all as sample and Twenty four different classes were considered and the total number of students was 1381. The question papers set by the investigator based on the topic were used as tools for data collection.
Central tendencies, percentile and percentile ranks, SD, ANCOVA and t test were used for data analysis. The findings of the study were,

a. Audio Visual aids method was found to be significantly more effective than the Programmed Learning Method and the Traditional method in terms of achievement at Standard V, VI and VII.

b. Programmed Instruction Method was found to be significantly more effective than the Traditional Method in terms of achievement at Standard V, VI and VII.

c. Programmed Learning Method and Audio Visual Method are more successful when the classes are small, at the same time they are more effective for average students.

d. Both the Male and Female students were equally benefited through the Audio Visual method as well as Programmed Learning Method. No Significant effect of interaction between treatment and sex was found on the achievement of students.

Yashobanta, S. (2000) made a study on the Effectiveness of the School Broadcast Programmes of All India Radio (AIR) and Educational Television (ETV) Programmes of Doordarshan with reference to school achievement of the learners

The Objectives of the study were,
i. To study the reactions of Primary School Teachers and students on ETV Programmes.

ii. To study the achievement and the reactions of Primary School Students on School Broadcast Programmes.

iii. To study the Perception of Primary School Teachers and the students on School Broadcast Programmes.

Twenty Educational Television Programmes and ten Educational Radio Programmes were selected and six tasks were constructed for the study. The achievement tests were constructed for the study. The data were analyzed both quantitatively and qualitatively.

The findings of the study were,

a. Both the Educational Television and School Broadcast programmes have been found to have positive effect on school achievement of pupils.

b. There have been found mixed reactions of students and teachers regarding contents and presentation of the Educational Television and School Broadcast Programmes.

c. It is really a matter of concern that none of the schools were found utilizing the Educational Television and School Broadcast Programmes in an institutionalized manner.

The objectives of the study were,

i. To compare the achievements of the students of urban and rural areas of Jabalpur Division by the Traditional Method of Teaching with that of studying through Branching Frames of Programmed Learning in Chemistry Subject.

ii. To diagnose the weakness of the students of Urban and Rural areas with the help of Programmed Learning Material.

Experimental and Control Group Design was used for the purpose of this study. 280 students were selected from different Government Higher Secondary Schools of Urban and Rural areas of Jabalpur Division. A branching programme was developed on Atomic Structure and Chemical Bonding and Pre-test and Post test were constructed by the investigator. ANOVA and t-test were used for data analysis.

The Findings of the study were,

a. The achievement of the Experimental group was found significantly greater than the achievement of the Control group.
b. The achievement of the Urban Girls through PLM was found significantly higher than that of the Urban Boys.

c. No significant difference was found in the achievement of Boys and Girls of Rural areas in the post test on Atomic structure and Chemical bonding.

d. 135 Boys out of 180 and 64 Girls out of 99 wanted to continue the study with the PLM on both the topics.

e. The weakness of individual students were diagnosed and removed when branched frames on both the topics were administered.


The Objectives of the study were:

i. To develop a Multimedia package for teaching the subject of Nutrition (Protein) to the Undergraduate students of Home Science.

ii. To find out the Effectiveness of the Multimedia package and to compare the Achievement of the students learning through the Multimedia approach and the Traditional way of teaching.
iii. To find out the Effectiveness of the Lecture Method and Practical Method used in the teaching of Home Science.

iv. To study the effect of Caste, Location and Income on the acquisition of Knowledge through Traditional teaching methods and Multimedia approach.

v. To study the effect of achievement in the Standard XII examination on the acquisition of Knowledge through Traditional teaching methods and Multimedia approach and to study the opinions of students about learning through Multimedia approach.

vi. To study the Effect of Intelligence on the acquisition of Knowledge through Traditional teaching methods and Multimedia approach.

It was an experimental study, which has employed Experimental and Control group design. The sample of the study constituted of 98 students of B.A. (First year) Home Science (2001-2002) of Smt. J.P. Shroff Arts College, Valsad.

The multimedia package constituted of Transparencies, Pie graph, Charts, Diagrams, Pictures, Videotape, Audiotape, and Slide set has been well developed by the investigator. All the tests Pre-test, Post-test, Retention test and Opinionates have been well constructed by the investigator. The intelligence test by Dr. K.G. Desai has been suitably selected and the
experiment has been conducted systematically. t-test and F-test were appropriately employed for data analysis.

The major Findings of the Study were:

The Mean Achievement of the Experimental group was found significantly higher than that of the Control group. From post-test to retention test almost equal reduction in performance was found in both the groups. The study has arrived at significant findings when Caste, Location, Income, Standard XII examination marks and IQ of the students were considered as co-variables. The students were found to have favorable opinions towards the Multimedia Approach.


The study was undertaken keeping the following objectives into consideration:

i. To analyze the information available on the Web related to Secondary and Senior Secondary School Science subjects for ascertaining availability of the relevant material;

ii. To ascertain the status of Internet usages for teaching Science in Secondary and Senior Secondary Schools of South and West Zones of Delhi;
iii. To assess the competency level of the Secondary and Senior Secondary School Teachers in the use of WBT for teaching;

iv. To ascertain the extent and frequency of use of WBT by the Secondary and Senior Secondary School teachers for pedagogical purposes;

v. To find out the problems in using WBT for Secondary and Senior Secondary class teaching; To suggest ways and means of effective use of WBT in classroom setting.

Since this was an exploratory study, descriptive and documentary methods of research were used for this study. The design mainly used the survey technique. Appropriate tools in the form of questionnaires were designed to collect the data from the science teachers and principals and tested before administering on the sample. The data was subjected to descriptive analysis using appropriate statistical techniques. On the whole, questionnaires were distributed to 375 science teachers and 75 principals in 75 schools. After a great amount of efforts, persuasion and giving fresh questionnaires time and again, personal visits and phone calls, the researcher could get only 211 questionnaires from the teachers and 50 from principals.

The findings have revealed that WBT is being used in private schools for many pedagogical activities though its full potential is yet to be exploited. While infrastructure is already available and teachers are using the same, it is high time to experiment the use of WBT at different class levels.

The Objectives of the study were,

i. To develop Computer Assisted Instruction and to know the effectiveness in the Subject of Thai language for the students of Pratom-3 and 6.

ii. To know the effectiveness of Computer Assisted Instruction in the subject of English language developed by ONPEC for Pratom-3 and 6 with the CAI developed by the investigator.

iii. To compare the effectiveness of Computer Assisted Instruction developed by ONPEC in English language with the CAI developed by the investigator in the Thai language for Pratom-3 and 6.

iv. To get opinion of the teachers and students on CAI and ONPEC developed by the investigator for the subject of Thai and English language.

It is a developmental-cum-experimental study. Pre-test, Post-test design with replication groups was used for conducting the experiment. Two experimental groups along with eight replication groups, each consisting of 30 students were well drawn. The sampling technique employed for the study
is quite appealing. On the whole 150 students of Pratom- 3 and 150 students of Pratom-6 belonging to Buriram Province participated in the study.

CAI programmes on 5 units for learning each language were used for conducting the experiment. Different tools for the study, namely, criterion tests and Opinionnaires have been used. The data have been suitably analyzed through mean, SD and t-tests.

The Findings of the Study were:

a. The study has resulted in the development of CAI programmes on selected five units of Thai and English language both for Pratom-3 and Pratom-6.

b. The CAI Packages developed by the investigator on Thai language and ONPEC on English language have been found equally effective at both the levels in Buriram Kindergarten and

c. The CAI Packages developed by the investigator on Thai language and by the ONPEC on English language received favorable opinions both by the Teachers and Students.

The objectives of the study were to develop an Information Technology enabled instructional package for teaching English Grammar, to implement it and to determine its effectiveness in terms of achievement of the students and opinions of students and English Teachers. The investigator started with a null hypothesis that there will be no significant difference in the mean achievement scores of students in pre-test and post-test.

A single group pre-test and post-test design was employed for the study. 20 students were randomly selected from Standard VIII of the New Era Senior Secondary School, Baroda. Pre-test, Post-test and Opinionnaire were used for the study. The data was analyzed through ‘t’ test, percentage scores and correlation.

There was a significant gain in terms of students’ achievement through Information Technology enabled instructional package. It helped the students to learn kinds of sentences namely, interrogative, assertive: affirmative, negative, imperative: orders or commands, and exclamatory. The students and teachers were found to have favourable opinion towards the developed instructional package.

**Darshana, C. (2005)** did a study entitled ‘Techno-pedagogic analysis of children ETV programmes and their effectiveness in terms of achievement with and without discussion and perception of students and teachers’.

The objectives of the study were:
i. To analyze the CETV programmes Techno Pedagogically, to study the effectiveness of the CETV programmes in terms of achievement of students

ii. To compare the achievement of students in CETV with and without discussion

iii. To study the effectiveness of CETV programmes in terms of reaction of teachers and

iv. To study the views of the students on the CETV programmes.

A Pre-test, Treatment and Post-test in both the Experimental and Control group design were employed for the study. 60 students of Standard V of Shree Krishna Hindi medium school constituted the sample for the study. Also all the 5 teachers teaching Standard V were selected. 5 programmes were selected purposely out of the 15 recorded. Techno-pedagogic analysis tool, achievement test on each selected CETV programme, reaction scale, and un-structured interview were employed. Content analysis, presentation analysis, independent ’t’ test and percentage analysis were used for the study.

The programmes were largely found effective Techno-Pedagogically in terms of media Audio-Visual Compatibility, Contiguity between text and animation between audio and visuals, media language proficiency, use of technological aids, correspondence among communication elements, and view composition. All the six programmes were at knowledge level, 5 at understanding level, whereas 4 were at application level. Most of the programmes focused on receiving and responding. Three focused on
valuing also. One of the 6 programmes focused on imitation, manipulation and articulation level. There was significant difference between the mean gain scores of control and experimental group in all the 6 programmes.

In five out of six programmes, the mean achievement of the group with discussion was found significantly higher than that of without discussion. Children and teachers were found to have positive views regarding the programmes.


The study was conducted to develop CAI in Sanskrit for Standard VIII students and to study its effectiveness in terms of mean achievement of students in Sanskrit and to study the reactions of the standard VIII students regarding the effectiveness of the developed CAI package. 86 students of Standard VIII of Shree Ambe Vidyalaya, Waghoria Road, Baroda constituted the sample for the study. A single group pre-test and post test design was employed for the study. Achievement test and reaction scales were constructed by the investigator. Flash MX, Corel Draw 11.0 and Front Page were used for the development of software. 't' value, frequencies and percentage responses were used for data analysis. The developed CAI in Sanskrit was found effective in teaching Sanskrit to standard VIII students. The reactions of the students towards the developed CAI in Sanskrit were found positive.

The objectives of the study were:

i. To study the ICT awareness of secondary and higher secondary teachers.

ii. To study the usage and need of ICT to the secondary and higher secondary teachers and

iii. To study the variables related with the ICT awareness, usage and need of secondary and higher secondary teachers.

A scale was constructed to collect the data regarding ICT awareness, use and need of a teacher with respect to different components of ICT like, Computer, Internet, OHP, LCD Projector, Radio, and TV.

The sample selected for the study were 12 secondary and 10 higher secondary schools using stratified random sampling technique. Further 60 secondary and 50 higher secondary teachers were selected at the rate of 5 teachers from each selected school. A total of 90 teachers out of 110 responded. Data were analyzed using Frequency, Percentage, Mean, Standard Deviation, Standard Error of the mean, ’t’ value and ANOVA wherever necessary.

The variables related to ICT awareness of teachers were teaching Experience, Age and Salary. The variables related with the ICT use of
teachers were total salary and computer training. The variable related with the ICT need of teachers was the Degree programme which they attended at the University level. There was a low degree of ICT awareness, usage and need of secondary and higher secondary teachers.

Jayakumar, R. (2005) did a study on the Development and Implementation of an Information Technology Based Instructional Package for English Grammar to Gujarati medium students of Standard VIII of Jam Nagar City"

The objectives of the study were:

i. To develop an IT based instructional package for teaching English Grammar to Gujarati medium students of standard VIII

ii. To study the effectiveness of the developed IT based instructional package in terms of the achievement of the students and

iii. To know their reactions on the developed instructional package.

Pre test, post test, Experimental and Control group design was employed for the study. The development of the IT based instructional package was done through Microsoft power point. 100 students were randomly selected from standard VIII of Smt. G.S. Mehta Municipal Girls High School, Jam Nagar. These students were further divided into Experimental and Control groups. Two parallel tests were constructed by the investigator to study the achievement of the students. These two tests were constructed on the content topics such as simple present tense, present
continuous tense, preposition- in, on, under and behind and possessive forms of has and have.

Also, a five point reaction scale was constructed to study the reactions of the students on the developed package. Mean, SD, uncorrelated ‘t’ value and Chi-Square were computed for data analysis. The developed IT based instructional package was found to be effective for teaching English Grammar because the results revealed a significant difference in the gain mean scores of the experimental group and control group. The students were found having positive reactions towards the developed Information Technology based instructional package.

**Rakesh, P. (2005)** conducted a study on the relative effectiveness of CAI and CAIPI in learning Trigonometry by English medium students of Standard IX of Baroda City.

The objectives of the study were to develop the CAI and study its effects in mono, diad and triad settings and its relative effectiveness in the three settings and through reactions of the students. The hypotheses of the study were formulated in the null form. The study was conducted in the three sections of Standard IX of Zenith High School, Baroda, dividing each section into two groups- experimental and control. The CAI was developed using Flash-MX, Directors and Corel Draw 11.0 along with the Internet. An achievement test was constructed for administering as pre-test and post-test.

The data were analyzed through mean, SD; uncorrelated ‘t’ and ANOVA. No significant difference was found in the mean achievement
scores of the groups in mono, diad and triad. No significant difference was found in the mean achievement scores of the experimental group in mono, diad, and triad and control groups, respectively. Significant difference was found in the mean achievement scores of the experimental group in triad and control group. The students were found to have positive reactions towards the developed CAI.


All the seven objectives of the Study have been well enunciated as follows:

i. To analyze the conventional approach of teaching Computer Education.

ii. To plan multimedia instructional system for Computer Education.

iii. To design and construct multimedia instructional system for Computer Education.

iv. To validate multimedia instructional system in terms of their effectiveness over conventional system of instruction.

v. To test the effectiveness of the constructed multimedia instructional system and to equip the pupil teachers, teacher-educators with reliable system to overcome the difficulties in their course of Computer Education Instruction.
The Research Procedure designed by the investigator for the study is logical. After ascertaining the needs in the context of the Computer Education, the Multimedia instructional System was well designed and developed. Authoring software Macromedia Director 7 seems to be quite compatible for the purpose. Alpha testing was done to further develop the system through the expertise available. The pilot testing of the prototype was done through two group pre-test post-test design (20(12+8), & 20(12+8)). Final implementation of the Multimedia Instructional System was done on a sample of 64 pupil-teachers (32(20+12), 32(20+12)), employing Solomon four group Experimental design.

The Study has arrived at quite meaningful findings as follows:

a. The present setting of teaching of computer education in B.Ed. Colleges was found unsatisfactory.

b. It was found feasible to design, develop and implement a computer based Multimedia Instruction System for the Computer Education.

c. No significant difference was found between the performance of the pupil teachers of control and experimental group on pre-test.

d. Significant difference was found between the performance of the pupil teachers of control group and experimental group on post-test.
e. Significant difference was found between the performances of the pupil teachers of control and experimental group from pre-test to post-test.

f. There was significant difference between the gains in achievement in terms of scores in pre-test and post-test of the pupil-teachers from pre to post test.

It is an interesting and appealing Study, which has very evidently demonstrated its utility.

2.2.2 Review of Researches Done Abroad

The investigator identified thirteen studies conducted in Abroad. One among them was conducted by Burton and Beatrice Spencer, (1995) which studied the Effect of Computer-Assisted Instruction and other selected variables on the academic performance of adult students in Mathematics and reading.

The purpose of this study was to examine the effectiveness of Computer Assisted Instruction (CAI) versus Traditional Instruction on the academic performance of adult students on Mathematics and Reading sections of the Test of Adult Basic Education (TABE). Additionally, this study investigated the independent influence of the variables Age, Gender, Income, Marital Status, Educational level and Employment Status on the academic performance of adult students on the total section of the TABE.
A combination of a Nonequivalent Control Group Design and a Causal Comparative Design was employed in this investigation. Two-hundred (200) adults from the Vocational Technical Adult Basic Education Center in Southeast Mississippi were selected to participate in this empirical study. The "Test of Adult Basic Education" was used to collect the data. The instrument was judged to have good content validity. Internal consistency reliability coefficients ranging from 0.88 to 0.91 and 0.87 to 0.92 were computed on both the math and reading sections of the TABE D and M or Forms 5 and 6 respectively.

Moreover, the data were treated through the application of the One-Way Analysis of Covariance, One-Way Analysis of Variance, and the Schaffer' follow-up test. The conclusions of this study were:

a. The type of instruction had an influence on the academic performance of adult students on the mathematics and reading sections of the TABE.

b. Adult students' age had no effect on their total scores on the TABE.

c. Male and Female adult students had similar scores on the total section of the TABE.

d. Ethnicity had some influence on the academic performance of adult students on the total section on the TABE.
e. The more formal education adult students had obtained, the higher their scores were on the total section of the TABE.

**Fante and Cheryl, H. (1995)** studied the Effects of computer-assisted instruction on developmental English instruction at a community college. The purpose of this study was to examine whether computer-assisted instruction integrated with lecture/discussion would improve student performance in developmental English when compared to a traditional lecture/discussion instructional method.

A total of 180 Community College students were enrolled in one of six sections of developmental English. Two full-time instructors each conducted one traditional lecture/discussion section and each facilitated one section of the computer-assisted programme using the INVEST software and one section of the computer-assisted programme using the PLATO software. The research questions addressed were as follows:

1. Is there a difference in achievement among students who are taught developmental English using either INVEST or PLATO software when compared to students who receive instruction through the traditional lecture/discussion method?

2. Is there a difference in achievement among students in Associate of Arts or Associate of Science degree programmes who are taught developmental English using either INVEST or PLATO software when compared to students who receive instruction through the traditional lecture/discussion method?
The Multiple Assessment Programmes and Services (MAPS) language arts pretest and posttest scores were used to measure writing achievement for all groups. A one-way Analysis of Covariance (ANCOVA) was used to analyze the relative effectiveness of the different instructional methods and to determine if differences existed between writing scores of Associate of Arts degree-seeking students and Associate of Science degree-seeking students by the different instructional methods.

Analysis of the data indicated that the computer-assisted groups, INVEST and PLATO, integrated with traditional lecture/discussion, were the most effective instructional method for teaching developmental English. When degree type (Associate of Arts or Associate of Science) was considered in conjunction with the instructional method, no statistically significant difference was found. Improvement was evidenced in both groups. The results of this study support the research on the effectiveness of the computer-assisted instructional method for developmental English students.

Maio, A. K. (1995) did a study on the instruction of undergraduates in print and electronic information resources (bibliographic instruction) in the University of Connecticut. In this study, Likert type survey was sent to 1000 faculty at three Connecticut institutions to learn what type of print and electronic resources they use themselves and instruct their students to use. Opinions of the way students should learn about information research and whether students' literature searches were adequately carried out. Data were subjected to chi-square, analysis of variance, and t-test procedures to determine the influence of faculty members' academic discipline, type of
institution, years of teaching experience and part-time or full-time status on responses.

Results of the study showed that a large percentage of faculties require undergraduates to use information resources and comments indicated they believe information skills important. Most faculties felt that librarians instruct students in the appropriate resources. Over half the respondents were satisfied with the academic quality of students' literature searches. Academic discipline seemed to have the greatest influence on the types of resources faculty use and instruct students to use, while years of teaching experience had little impact. The resources faculty preferred to use themselves were found to have a significant influence on the types of resources they recommend to students. Only a small percentage of them tell their students to use electronic mail and electronic journals, texts and discussion lists. Significantly, many are not using these resources themselves. Faculty in Business and professional programmes, as well as faculty in the Humanities are more active resource users and instructors than those in the Sciences and Social Sciences. These findings indicate where more emphasis on Information Literacy is needed.

Stark, R. and Others, (2000) conducted a study on the impact of information and communications technology initiatives and the outlines of the interim findings of a survey (conducted in 1998-1999) of the Scottish Executive Education Department. It was designed to assess the impact of a variety of ICT initiatives on pupils' skills and knowledge. Respondents in this study reported that ICT improved motivations, enhanced learning and
teaching, improved communication and access to information, and improved efficiency and feelings of independence. Teachers perceived ICT to be useful for streamlining current teaching procedures, gaining access to new professional opportunities and new exciting teaching opportunities.

**Chantahiem, C. (2004)** conducted a study on Availability and Utilization of Educational Media in Secondary Schools of Thailand.

The Objectives of the Study were,

i. To find out the Availability, Suitability and Utility of various Educational Media in Secondary Schools of Region-12 of Thailand.

ii. To find out the satisfaction of teachers and media in charge in the use of educational media in classroom instruction.

iii. To find out the Availability, Suitability and Utility of various software as per the needs of the Secondary Schools of Region-12 of Thailand.

iv. To find out the satisfaction of the students in the Availability and use of software in teaching of the subjects.

Survey method was employed for the study. Multistage random sampling technique was used for drawing the samples of 576 students, 620 teachers, 75 media-in-charge and 75 administrators. Checklists and Questionnaires were used for the study. The data were suitably analyzed through frequencies and percentage responses.
The major Findings of the Study were,

a. A majority of the respondents have accepted the suitability of the available media in the schools.

b. The educational media were found largely under used. Power point, CAI and CMI were never used in their schools.

c. Availability of high technology media was greater in big schools when compared to the medium and small schools.

Mellar, H. and Others, (2004) Conducted a study on the ICT and adult literacy, numeracy and ESOL at NRDC London reported which concludes with recommendations for practice and policy. The aim of this present study was to carry out detailed observational research in classrooms.

i. To collect, review and to analyze the existing practices

ii. To examine how the use of ICT had impacted on the teaching and learning of basic skills in these classrooms and

iii. To identify the factors involved in effective teaching with ICT in the areas of adult literacy, numeracy and ESOL.

The main findings of the present study were:

Using ICT: The predominant pattern of activity were for learners to use a desktop computer on their own with the tutor either presenting to the whole class or involved in discussion with groups or individuals. About half of the observed activity involved the use of office software and half the use of
educational software. The majority of ICT use was directed towards practice, but some use related to the creation of new materials or accessing information (this latter activity tended to be associated with students working in small groups).

**Integrating ICT:** Various activities involved the use of ICT to support the teaching of basic skills. At one extreme, ICT was seen as just another teaching tool and the technological demands were kept to a minimum. At the other extreme, ICT skills were seen as important elements of new literacy.

**Teaching Styles:** The majority of teaching consisted of group presentation followed by an activity supported by individual tutoring, though some sessions consisted exclusively of individual tutoring. The tutors spent about half of their time talking to the class as a whole and about half talking with small groups and individuals. The amount of time devoted by tutors to quiet observation of learners was less. However, on some occasions tutors sat back and avoided intervening as part of a conscious process of encouraging students’ independence and autonomy.

**Teaching with ICT:** Teachers adapted the use of ICT to their own style of teaching. Different patterns of ICT use were found in numeracy, literacy and ESOL. Tutors' level of ICT skills had an impact on their ability to make effective use of the technology. It was also true that specific characteristics of certain technologies affected the way in which these were used in the classroom.
**Teaching ICT Skills:** Talking about a procedure, demonstrating it and then asking the students to try it on their own was the most frequent method adopted to teach ICT skills. A minority of tutors encouraged learners to experiment and discover for themselves how the software worked.

**Learning Styles:** The visual elements of ICT presentation were useful to many learners, but we saw few attempts to accommodate students' learning styles in other ways. Individual and big group works were the dominant styles but small group work was encouraged in some literacy and ESOL classes.

**Dietrich, S.D and Guerrini, I. (2000)** did a case study on the Evaluation of Web-Based Instruction: A Case Study in Brazilian High Schools. This study describes the evolution of a distance education programme where students perform physical experiments in their school assisted by a distance tutorial system. 20 public high schools in 14 cities in the interior of Brazil participated. Using an already described evaluation method which works on-line, data was collected through the opinions from 228 students from a universe of 2200 participants. The results indicate a positive impact on students learning and success in helping a distant teacher and their students in the innovating experimental activities.

**Gostev, M and Anderson, O. (2000)** did a study on The Influence of Instructional Video Materials on Student Acquisition of Biological Concepts in the Teachers College of Columbia University, USA. Students' cognitive preferences in using scientific information were analyzed using a
paper and pencil inventory. We found strong and weak cognitive components. Strong components ("questioning-preference") predicted higher academic performance ($p = 0.03$, $df =19$) compared to the remaining "weaker" components (more knowledge-based), which were not readily discriminable from one another. Moreover, "questioning"-type students, compared to the "weaker"- component group, achieved better test scores on higher-level cognitive skills (e.g., application and analysis) ($p < 0.02$, $df =18$), but not with basic knowledge, indicating their greater capacity with increasing cognitive demands in learning. Furthermore, use of a video that served as a theme or guiding framework for instruction significantly increased achievement compared to a control group taught in a more conventional way ($p = 0.04$, $df =16$). These results suggest that use of thematic-centered video segments and due attention to strengthening higher order cognitive preferences, in other instructional settings such as computer-based learning may enhance achievement.

**Edwin, C. and Badgett, J. (2000)** did a Meta-Analysis on Progressive Comparison of the Effectiveness of Computer-Assisted Instruction on Science Achievement of Slippery Rock University, USA. This study compared science students who were exposed to traditional methodology with those who received traditional methodology supplemented with computer-assisted instruction (CAI). From the 24 conclusions, an overall mean effect size of 0.266 was calculated, indicating that, on the average, students receiving traditional instruction supplemented with CAI attained higher academic achievement than did 60.4% of those receiving only
traditional instruction. The effect sizes were categorized into four subject areas. In descending order, the mean effect sizes in general science, physics, chemistry, and biology are: 0.707, 0.280, 0.085, and 0.042, respectively. Differences in educational settings revealed that CAI is most effective among science students in urban areas; followed by those in suburban areas; and weakest among rural students. However, a -0.335 correlation between effect size and years indicates that the effect of CAI on academic achievement has declined during this period.

Yulksel, G. and Others, (2006) conducted a study on the ICT Usage of Faculty Members who offer ICT Related Courses in Pre service Teacher Education Programmes in Turkey. This study presents survey findings about ICT usage of faculty members who offer ICT related courses in Turkey’s pre service teacher education programmes. The data were collected from 111 faculty members from 18 Universities through a questionnaire.

The findings indicated that majority of participants do not offer online courses. Generally, faculty members use the Internet as a supportive tool to their courses, and particularly search engines are used by them. Computer and LCD projector and word processing and presentation software were ranked as the most frequently used hardware and software by the faculty members.

Yang, H. (2007) did a study entitled, “The Impact of ICT based Education on the Informational Literacy of Teachers and Students in Beijing
Rural Districts”. This study depicts the research on the impact of ICT to the Information Literacy of the teachers and students in 10 rural districts of Beijing. Through interviews and questionnaires to educational officers, Principals, Teachers and students of the Rural districts, gathered information and analyzed them with both qualitative and quantitative methods. The research concluded that ICT had profound influence on teachers' Professional Development and students' Information Literacy of Rural Beijing. Although the investments to ICT of the 10 districts were similar, significant differences in teachers' Information Literacy could be found among suburb and exurb districts.

Sarah, M.P. (2007) did a study entitled, “Using Information and Communication Technologies (ICTs) in Teacher Education for Increasing Global Awareness”. This study examined the use of Information and Communication Technologies (ICTs) to facilitate knowledge exchange and communication between pre/in-service teachers in teacher preparation programme in universities in three countries, the United States, England and Taiwan.

The purposes were

i. To increase teachers’ Awareness on globalization and prepare them to develop instruction in globalization in their classrooms,

ii. To determine the feasibility of ICTs for collaboration between two countries and
iii. To assess use of ICTs (blogs, wikis, Google tools and digital story telling).

The findings revealed that participants gained important perspectives on global education, learned strategies to integrate global concepts into curriculum and instruction and developed ICT skills for collaboration.

Gholamreza, A. and Maryam, B. (2007) did a study on the rate of (ICT) in – service Education effectiveness among high-school teachers. The study aims at investigating the extent to which in-service training of information and communication technology (ICT) influences high school teachers. To achieve this end, five different but complementary axes were considered; namely, improvement of the teaching/learning process, electronic government learning, the use of internet and effective handling of the computer.

The findings revealed that the efficacy of in–service training on information and communication technology was below the average at 0.05 confidence level. However, the opinions of the respondents in regard with the five afore-mentioned axes were significantly different. Accordingly, they regarded the impact of in–service training of Information and communication technology (ICT) on the teaching/learning process to be more than the other axes, but it was said to be the least influential.
2.3 ANALOGY OF THE STUDY

The investigator has identified thirteen studies conducted in India related to the topic and he could find thirteen related studies conducted abroad. Majority of the studies belonged to Experimental studies. Most of the studies were the development of Programmed Instructional Package and analyzing the effect of Programmed Instructional Packages on the Achievement of the students. Among the Indian studies three of the studies were on Computer Aided Instruction and Six were on the effect of Usage of Educational Technology over Audio Visual or Traditional method of teaching.

In almost all the above studies mostly Random Sampling Technique was followed in the collection of data and the size of the selected samples ranges from 20 to 620 samples. In majority of the studies the Achievement test developed by the investigators was used as a tool. Among the four studies Questionnaire, Opionnarrie and the Reaction Scale were utilized as a tool. Since all the reviewed studies were related to Educational Technology, Multimedia Approach, Computer Aided Instruction and Availability, Awareness and Utilization of ICT devices no standardized tool was utilized. Mean, Standard Deviation, ‘t’ test were the statistical technique followed in the majority of the studies. ANOVA and percentage were utilized in three of the above studies.

The findings of the various studies revealed that Educational Technology such as the Effect of Programmed Instructional Material,

Among the identified studies the result of a study reveals that the Achievement of the students learnt through Programmed Instructional Material does not have any impact over sex of the students. Thatte C.H. (1999). The investigator identified two related studies with regard to the Availability, Awareness and Utilization of Technology among the students which showed positive attitude in support of degree and Age of the students. Irfan, S. (2005).

The results of the descriptive analysis conducted on Web-based technology shows that in the Self-Financing Institutions the Availability and Utilization were maximum. Suresh, K. P. (2004). In another study conducted on Programmed Instructional Material, the results reveals that the effect of PIM had increased the performance among the Female students and had positive impact on the Locality. Jyoti, T. (2001).

Further in an Experimental study conducted on Information Technology based Instructional Package development the results were contradictory to the Utilization of Instructional Package among the Language teachers. Jayakumar, R. (2005).
The study conducted in abroad by Burton, Beatrice Spencer, (1995) reveals that the academic performance of the adult students in mathematics and reading is independent on the influence of the variables Age, Gender, Income, Marital Status, Educational level and Employment Status. In another study conducted by Fante and Cheryl. H, (1995) supports the effectiveness of the Computer Assisted Instructional method for developmental of the English students. The results obtained from the study conducted by Maio, A.K. (1995) the findings more emphasized on information literacy’s need among the faculty members.

The following Chapter deals with the Methodology of the present study.