CHAPTER 1

INTRODUCTION
# CHAPTER - I
## INTRODUCTION

<table>
<thead>
<tr>
<th>Chapter No.</th>
<th>Title</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>Educational Technology</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Role of Technology in Education</td>
<td>2</td>
</tr>
<tr>
<td>1.4</td>
<td>Challenges of Electronic Learning</td>
<td>4</td>
</tr>
<tr>
<td>1.5</td>
<td>The Internet and the world wide web</td>
<td>8</td>
</tr>
<tr>
<td>1.6</td>
<td>Computers in Schools</td>
<td>9</td>
</tr>
<tr>
<td>1.7</td>
<td>Types of Computers</td>
<td>11</td>
</tr>
<tr>
<td>1.8</td>
<td>Some Commonly used computer terms</td>
<td>13</td>
</tr>
<tr>
<td>1.9</td>
<td>Components of Computer - Based instructional material</td>
<td>15</td>
</tr>
<tr>
<td>1.10</td>
<td>Use of Computers in Learning</td>
<td>17</td>
</tr>
<tr>
<td>1.11</td>
<td>Need and Significance</td>
<td>23</td>
</tr>
<tr>
<td>1.12</td>
<td>Scope of the Study</td>
<td>24</td>
</tr>
<tr>
<td>1.13</td>
<td>Statement of the Problem</td>
<td>25</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

1.1 INTRODUCTION

Education is often regarded as the acquired experience of any sort-intellectual, emotional or sensorimotor. Education is a product of experience. It is the process by which and through which the experience of the race, i.e., knowledge, skills and attitudes are transmitted to the members of the community. According to the Encyclopedia (1988), "Education is a process by which people acquire Knowledge, Skills, Habits and values or attitudes. Education helps people adjust to change. This benefit has become increasingly important because social changes today take place with increasing speed and affect the lives of more and more people. Education can help a person understand these changes and provide the skills for adjusting to them."

The Secondary Education Commission (1964-66) states, "The very aim of education has to be viewed differently, it is no longer taken as concerned primarily with imparting of knowledge or preparation of a finished product, but with the awakening of curiosity, the development of proper interests, attitudes and values and the building up of such essential skills as independent study and the capacity to think and judge for oneself without which it is not possible to become a responsible member of a democratic society." Education proceeds from birth to death and the school is not the only agency that imparts education. Though the school experts has greater influence
in educating the child, other social agencies like house, religion, press, radio, library, cinema, television, etc., supplement its work. Life involves a constant and continuous modification of experience. Ideal change, attitudes and skills undergo an alteration. Education is the process of helping the child to adjust to this changing world.

1.2 EDUCATIONAL TECHNOLOGY

There has been a great explosion of knowledge during the last few decades. In a traditional society, the stock of knowledge was limited and grew slowly. The technology of education is being developed with the aim not only of making education more widely available but also of improving the quality of education.

Educational Technology is a systematic way of designing, implementing and evaluating the total process of learning and teaching in terms of specific objectives to bring about more effective instruction.

1.3 ROLE OF TECHNOLOGY IN EDUCATION

The National Policy on Education (1986) assigned an important role to educational technology for improving the quality of education. The purpose for which educational technology is to be employed included the spread of useful information, the training and retraining of teachers to improve quality, sharpening awareness of art and culture, inculcating durable values etc., both in the formal and non-formal sectors.
Educational technology should help us to improve the overall efficiency of the learning and the teaching processes. The efficiency of education could be gauged from the increase in the quality of learning, efficiency of teachers, and independence of learners, reduction in the cost of learning, time taken to achieve desirable goals etc.

Technology in education has seen many successes. But except for the blackboard perhaps, no technology was exclusively developed keeping education in mind. It is the ingenuity of teachers who saw great potential in various technologies and adopted them to their advantage. Be it the simple postal technology or the more popular broadcast modes, the teachers soon appreciated their utility in improving their own performance and thereby bringing about a richer learning experience for their pupils.

Experience shows that technology is meant to help us excel in whatever we do, improve our efficiency, even make our life easier perhaps. In the words of Anatole France, "The whole art of teaching is only the art of awakening the natural curiosity of young minds for the purpose of satisfying it afterwards." Going a little further, we aim at enabling all children acquire the necessary level of competence in gathering, processing and managing information. Any technology therefore, should be measured in terms of how much it contributes to this venture. Also, each technology brings with it, its own unique set of conditions under which it can contribute best. While the post depends on the efficiency of the postman, the newspaper may not provide information, which directly fits into our requirement. The radio and television are not only made up of complex hardware, but are also affected by the vagaries of the electric
supply. Like the newspaper their programmes may, at best, be somehow connected to the lesson we are handling. Naturally, embracing technology in education has not been spontaneous. But can we disregard it? As pointed out in the first part of The Teacher in a Web, each of the technologies discussed brings with it some unique benefits, which may make it quite valuable.

None of the technologies we have seen have even attempted to help a teacher out in one of the most time-consuming activities she/he has to indulge in evaluation. Keeping track of teaching, finding out how much our pupils have progressed and finding ways and means to take them that little distance forward, is many a time quite a task. Would it not be great if technology could also remove some of our miseries in this area too? So, while we want the ideal technology, we called it Dream, to become the handyman for all our resource needs, we also want it to take on some of the mundane chores we perform.

1.4 CHALLENGES OF ELECTRONIC LEARNING

The Buzzwords for the 21st century are "Globalisation" and "Telematics" (computers connected to networks.) They denote the emergence of new global cultural forms, media, technologies of communication and most significantly, the telematic revolution.

Both globalisation and computer communication technology have caused and resulted in the growth of each other - they have emerged as two sides of the same coin and have impacted on each other in complex and multiple ways. New trends in education have also come about, and new challenges have been
thrown up to reckon. At the same time there is an indisputable need to maintain continuity, change and growth, all at once.

The ensuing discussion is devoted to analysing the impact of globalisation and the telematic revolution on the educational world and discussing the relevance of the changes in the context of time and space, and the concerns that have emerged in consequence. The core purpose of education has been to ensure that our citizens have the skills they need to actively participate in a democratic society. As we complete the 20th century and prepare for the 21st, it is important to realise that the world is far different from the one, which existed alongside an emergent industrial economy, powered by muscle, water and steam.

a. Evaluation and Adaptation

In the past where access was limited, information was treated as a scarce resource, and educators had the task of imparting this information for the benefit of learners. We used to live in a world where ‘content’ was king. That world no longer exists. Content is abundant, and is therefore a poor basis for an educational system. What is scarce today is context and Meaning. It used to be the mark of an educated person to have a vast reservoir of facts on which to rely. Today this skill is of much less value. The life information seems to be shrinking. While some of the things we learn last forever (literacy, numeracy), other topics change so rapidly that much of what we are taught in school is rendered obsolete by the time we enter the workforce.
The emergence of a continuous learning model contrasts sharply with the traditional notion that school (learning) is followed by work, which is then followed by retirement. The rapid changes of our era have ensured that work and learning will be closely aligned with each other throughout our lives.

The educational system of today needs to impart to all learners three new foundational skills: to make learning a relevant and life-long process - a process of continuous growth change and evolution and adaptation. These are: How to determine if what is found is relevant to the task at hand? And how to determine if the relevant information is accurate?

The schools of the 20th century were clustered around the idea that time would be constant and learning would be variable. Students were presented with subject matter over a fixed period of 180 days and then their ability to master the content in that period of time was tested. It was accepted that some can master certain content quickly and others need more time. Simply replacing one fixed time model of education with another is futile. It is now believed that time is not important: gaining mastery or excellence in a skill is. Schools of the past were essentially filtering institution, separating those who learnt quickly from those who did not.

b. Traditional and Modern Tools

Traditional tools (e.g., books, pens and paper) will co-exist with the high-tech tools of the telematic era. The teacher's role in this distributed setting will be quite different from that of content presenter and test giver. A more
productive role will be that of co-learner—an expert guide who helps students navigate the subjects being explored.

c. Telematic Revolution

Learning has always taken place in these four spaces, yet 20th century schools often failed to provide the right balance and learning suffered as a result. Through the telematic revolution, multimedia and telecommunication applications can be made to both the direct teaching method that emphasizes individualized work and to the constructivist method that focuses on group learning. These four learning spaces provide a framework for the community at large that can envision educational opportunities. Flexibility is the key concept for the effective definition of the roles. Modern technologies are space collasper's, time shifters and creative tools that extend our reach. Technology deployed in education can help remove inequities between the schools of developed and developing nations, between inner cites and suburbs, between urban and rural areas. Technology can become the force that equalises the educational opportunities of all children regardless of location and social and economic circumstances.

The Internet eliminates geography as a limiting factor. A child in a remote hamlet can have the same access to the same reference materials as one located in the cosmopolitan city. Time is transcended by telematic tools. Technology will have an increasingly positive impact on the student's creativity. Access to multiple expressive modalities is important. As Howard
Gardener's theory of multiple intelligence has shown, each of us has multiple pathways to learning, only a few are valued in the schools.

1.5 THE INTERNET AND THE WORLD WIDE WEB

The Internet is a very huge network of computers connected to one another enabling sharing of resources among them. How does it actually work? A large number of very fast and large storage capacity computers connected to one another form the internet backbone. These computers can receive and transmit requests from hundreds of computers at a time. Such computers, called 'servers', are connected through large capacity telephone cables, microwave or satellite linkages. A large number of computers are then connected to these servers through, say, regular telephone connections.

So when we say that our computer is connected to the internet, it is understood that we are saying that our computer is connected to a telephone; we have dialled a number belonging to the server and our computer is now able to receive and transmit messages to the server. The server in turn transmits our messages to other computers through different servers.

There are millions of pieces of information in various media stored on these servers and made available for sharing across this network of computers. All these pieces of information distributed over several thousand servers together constitute a huge library called the World Wide Web or WWW for short.
1.6 COMPUTERS IN SCHOOLS

Today, computers command vehicles in space, operate certain kinds of processing plants. The computers have been installed to operate and control machines in industries. The police department uses computers to detect crimes. The business people use them for accounting, invoicing, stock control, pay-bill preparation etc. The Transport Corporations employ Computers for on-line booking tickets all over the country. Computers diagnose diseases. Moreover, they are used to print books and newspapers on a large scale within a short period. It is very difficult to find out a field where computer is not at all used. Likewise, in education too, computers have been utilised for teaching, learning, evaluation, office-management and other different purposes.

a. Multivarious Activities of Computer in Schools

Computers are doing multivarious activities. They have been utilised in school managerial as well as teaching-learning activities. Many Private, Aided schools and Government Schools possess computers. Most of them are using mainly for managerial activities but not for teaching-learning activities which require additional facilities.

b. Managerial Activities

Computers are being utilised in the school office for financial management, such as accounting of "incoming sources" like collection of special fee, building fee, tuition fee, bus fee and uniform fee and "out-going sources" like salary particulars to the teaching and non-teaching staff, expenditure of
school purchase and maintenance, cost of building construction and maintenance etc. Circular to all the parents can be prepared with the help of computer within a short time. Progress-report can be maintained by the computer with which marks will be reported with graphics so that the parents will understand the trend of the performance of their children. It is a fact that successful functioning of a school depends on efficient functioning of non-teaching staff too. As the volume of work is done very quickly, computer saves the time of non-teaching staff. In-short, with minimum staff, more work can be done quickly, efficiently as well as elegantly. Computer helps teachers, students, office-staff, administrators in the schools to do their duties efficiently in less time.

c. **Teaching - Learning Activities**

Teaching or learning the content material through the help of computer is known as Computer Assisted Instruction (CAI) or Computer Assisted Learning (CAL). The two terminologies of CAI and CAL do not have much difference. From the teacher point of view, the process is known as CAI and it is CAL from the students point of view.

The computer has been the effective medium for teaching process. It has been utilised to a greater extent in advanced countries like U.K., U.S.S.R., Germany, Japan, Denmark.
While reviewing the studies of Kulik et al., (1990) and Jolicocour and Begen (1988), it was found that CAI was an effective medium for improving academic skills significantly. Bitter (1987) reported that students lengthen their span of attention, become more active and self-directed. Similarly Sethuraman (1989) reported that CAI could achieve an immediate retention rate up to 90 percent as compared to about 30 percent possible by the lecture method.

1.7 TYPES OF COMPUTERS

The first computer came on the scene in 1946. It was a very basic machine with very limited possibilities. The next generation, appearing in 1956, were smaller in size, more powerful and could perform up to 0.1 million operations per second. Ten years later, in 1966, came the next generation using a silicon chip. It was more energy efficient and used higher programming languages. With the fourth generation (1975), the real potential of the machine was unleashed and since then, there has been no looking back. Progressively, the computers have become more competent, powerful and cheap allowing other media formats audio, video etc. to be mixed with it.

Although most teachers would be working with a version of PC, it is useful to know that computers are of different types. They can be classified into-

- **Mainframe Computer**: It is a centralised equipment to which other computers can be linked. It can
A computer with a capacity for operating up to 100 million instructions per second.

A medium sized computer can carry 1 to 10 million instructions per second.

A small sized computer and capable of carrying out half a million instructions per second. The microcomputer has a self-contained integrated circuit on a single chip. It usually works with a floppy disc as additional memory.

These are 'stand alone units.' Their ability is indicated according to the type of chip they are equipped with. It is possible to have PCs AT 286, AT 386, AT 486 or Pentium. Portable versions of PCs - notebooks or laptops are very popular because of the several special features they offer.
1.8 SOME COMMONLY USED COMPUTER TERMS

Inc computer application, many of the terms are used loosely with overlapping meanings. Here are a few terms every teacher should be familiar with

**Authoring System** - An interactive system designed to simplify the programming process. With this system the teachers can author CAI packages. The author is guided to proceed step by step filling out pre-designed screens with the content to be taught.

**Clip Art** - A library of ready shapes, sketches or cartoons available in the form of software. The user can import these images directly on the material being generated.

**CD-ROM** - A compact disc with read-only memory. This implies that the CD can be used only for reading and the information (digitally encoded) can not be altered or erased.

**CD-WORN** - A variation of CD-ROM which allows the user to write once-read many times facility.

**Computer Aided / Assisted Instruction (CAI)** - An instructional system where teaching is carried out through computers. Learning materials are specially designed to incorporate all elements of instruction and evaluation. A corresponding system in CAL - Computer Aided /Assisted Learning is more learner oriented.
Computer Based Training (CBT) - A system for imparting training through computers. The system is found to be very effective in learning skill oriented tasks.

Computer Managed Instruction (CMI) - A system where the computer acquires the managerial or supervisory role of prescribing work schedules, carrying out assessment etc. A corresponding system is Computer Managed Learning (CML) which is more learner oriented.

Default - A term referring to preset values for a computer application when no alternative values are specified by the user e.g. the default font for MS Word programme is 10 points, New Times Roman.

Local Area Network (LAN) - A network which connects two or more computers located in one location such as an office, a university etc. A corresponding system is Wide Area Network (WAN) which is a network linking several LANs in a city, country or continents.

Multimedia - A system which permits a composite presentation of text, graphics, pictures, voice, music, video images, animation etc. on a computer.

Simulation - A programme designed to simulate actual processes or laboratory experiments. Simulation, in different forms, is becoming a very important area in instruction specially in technical and medical instruction.
**Virtual Reality** - A computer generated three dimensional environment where the user can operate, explore and feel the event as an active participant. The concept is yet to find wide use in instruction because of the very high cost involvement.

1.9 **COMPONENTS OF COMPUTER-BASED INSTRUCTIONAL MATERIAL**

Given the facilities, most teachers would want to develop their own material. Studies show that such a material is far more valuable than using a ready version of it. It becomes even more effective when students are also involved in the creation of such materials.

Whatever the nature of the material being generated, six major components are involved:

- Assessment of the learner
- Defining Goals
- Identification of specific learning tasks
- Structuring Instruction
- Planning learner interactivity
- Environmental implementation

These different components do not operate independently but interact with each other. The teacher, therefore, has to plan the final products as a whole which is much more than the sum of all these components.
1. **Assessing the Learner**

The starting point for all programmes is to understand the learner. The products developed and the level of instruction should match the characteristics of this population. Although this seems obvious, research shows that lack of attention to this component is the major cause of failure in instruction both at the corporate level and at the formal school setting. Academic, cultural and experience background of the learner must also be taken into account.

2. **Defining Goals**

It is essential to identify whether the material is targeted towards acquiring knowledge, perfecting a skill, solving a problem or modifying an attitude.

3. **Identifying Tasks**

It is essential to identify the specific learning tasks to be accomplished. For example, applying punctuation rules to a paragraph is not the same thing as learning to write one. If the task is tiresome as in the case of many 'training' tasks, additional motivational attributes - visuals, animation or puzzles may have to be added.
4. **Structuring Instruction**

CAI/CAL lessons are usually studied alone. It is therefore important to make instruction explicit, complete and precise. The human presence available in a normal classroom is missing and certain components should be built-in which make the learner feel supervised/attended to.

5. **Computer Application**

It is important to ensure that the learner has sufficient competency to use computers. Attention must be paid to factors impacting human machine interaction. One important concern is that the computer processes information at a rate which may be too fast for the learner.

In a classroom situation, the instruction can be repeated as and when need arises but here the need has to be anticipated. Competencies at the linguistic level have also to be taken into account.

1.10 **USE OF COMPUTERS IN LEARNING**

The rapidly changing nature of computer technology continues to expand the range of resources available for any subject-specific learning. Education must reflect the influence of technology. Education on the net is easy, comfortable, trendy and interactive. The learner can go ahead and acquire knowledge and skills through computers and adapt the concept of learning by doing. It encourages both independent and collaborative learning, while
extending and supporting the learning process. Appropriate computer technology places users in control of their own learning.

a. **Effectiveness of Technology**

Teaching through multimedia offers an interactive environment for all subjects and skills. Young children respond quickly and naturally to appropriate technologies. Use of technology enhances the effectiveness of a learning experience. Globalization has made its impact on the content, methods and quality of education. Hence the need is to focus not on how to generate knowledge banks, but how to manage knowledge. The curriculum managers will have to design the course contents with specific competencies, which must be objectively measurable and achievable. By all means, modular courses must be brought into practice. This must not be without freedom for learners to select the necessary modules suiting their aptitude, interests and availability of time.

b. **Computers for Primary Children**

The primary level course modules and training packages are aptly used from Classes I to V. These courses help students to understand the basics of computing, and lay a strong emphasis on development of skills. These include mousing, simple keying, navigating screens, computer art skills, internet basics and operating multimedia environments.
Teaching of content through the computer will be very interesting for primary children. For instance, in a language class, learners are taught to learn the alphabet, first; words, phonics, handwriting, making words, use of dictionary, crossword puzzles, word puzzles, word-picture matching and rhymes are picked with gimmicks of colour, sound and animation.

Story telling is an important aspect at the primary level. Computers can tell stories in a very lively manner. Stories like "Thirsty Crow", "Hungry Fox", 'A Lion and Four Cows" are wonderfully animated not only for reading but for watching as well as creating.

Primary children can be taught mathematics very easily through the computer. They can be taught to recognize and learn numbers, counting and sorting, shapes, fundamental operations like adding and subtracting and many other things.

The use of softwares like 'Paint Brush', can take the imagination of children beyond ordinary measures. No more broken crayons and no more wasted papers. No more messed-up pictures. Just neat and clean, lively and breath-taking creations in electronic spread sheets.

c. Computers for Upper Primary Children

Upper primary children are aged between 11 and 13 years. As maturity increases, activities to develop skills in key-boarding, general applications (word-processing, database and spread sheets), multimedia authoring, computer environments, programming and Internet may be included. The main
focus may be on how computers can be used as a resource to accomplish different kinds of tasks. Further, computers can be used for understanding Mathematical processes, and framework, geographical differences on even historic events, situated within meaningful contexts often derived from real world data or situations.

Animated softwares based on science will be more interesting and effective. Imagine a science teacher explaining the respiratory system or just a part like the larynx to the class. Just in case, the class does not understand, how many times can the teacher repeat her/his explanation? Instead, the teacher can get the class to watch an animation sequence where the learners can see all the activities happening in the respiratory system and the role of the various parts. This would help in a deeper understanding of the subject and better recall abilities.

d. Computers for Secondary Students

The concept of self learning through computers has been in process in most of the Private and a few Government Secondary Schools. CAL softwares for the text of all standards are available readymade. Students and teachers are showing interest to integrate computers in the teaching - learning process in secondary schools. Different modes of CAL have been used depending upon the nature of the content and subject.
The Union Ministry of Communications and Information Technology has embarked on two ambitious pilot projects to facilitate the spread of computer-aided education in schools and at the University level.

Explaining the features of 'Vidya Vahini', aimed at covering 60,000 schools, and of ‘Gyan Vahini’, targeting 250 universities, the Secretary, Ministry of Communications and Information Technology, Rajeeva Ratna Shah, observed that the programmes would go a long way to enhance the quality of the educational content, besides popularising computer aided education.

e. Library Operations through Computers

Books on shelves in the library will be reduced day by day, replaced by computer terminals connected with Internet course materials based on academics which would be digitized and posted on the sites of the terminal schools and the enrolled students would be given access. Students would e-mail their doubts to the teachers concerned and have clarification on-line. If they wanted any kind of information, they could be down-loaded very easily. The greatest advantage would be ‘peer group interaction’, in which students would be able to chat with one another, with or without being monitored by a teacher.

Publication in the form of books by conventional publishers received a jolt when a new challenger, from San Jose, California in the U.S. offered authors the option of finding readers and selling to them directly, bypassing conventional channels. The author only had to transform his work into electronic format and e-mail it to a new internet based bookshop,
"www.fatbrain.com". The author had to set the price for one's non-book. The author had to give some prescribed payment per month as token of holding charge. Every time a copy was sold (the buyer paid electronically and downloaded the book), the electronic company remitted to the author, half the selling price of the book. This is called e-book or electronic book which is a great threat to the printed book industry. Dick Brass, Vice-President, Microsoft, says, "By 2020, 50 per cent of everything we read will be in electronic form, paperless publishing".

e. Home Network

All the text material would be available not only in the library network but also in the home network which is very fast becoming familiar all over the world. Children can access their learning material from the home network. The most common way to access the net today is thrush a via modem linked by the telephone line to an Internet Service Provider (ISP). In Mumbai and Bangalore the Internet providers were already offering Internet access, not through the Cable TV connection. In recent months, there is another contender for a chunk of the home networking market - Powerline Networking. This uses the surplus capacity on another network that is already installed in most houses and is even more common than the telephone line: the wiring that carries electricity all over the house. Book shelf's interactive books on a touch screen which updates and recharges every day in line with students' interest; food analyzer which weighs the food and provides information on calories and carbohydrates - the home of tomorrow will be more than a roof over the head. It will be the ultimate in convenience, comfort, efficiency, enrichment and fun.
Primary education plays an important and significant role in the development of concepts which must be correctly and joyfully imparted. Information technologies help primary school children to learn the concepts correctly and effectively with full freedom. This increases their independence and self confidence. The computer has been taught as a course in many of the schools but is not being used as a tool in classroom instruction. More and more, educationists need to concentrate on how to use the electronic media, particularly for instruction at the primary stage.

1.11 NEED AND SIGNIFICANCE OF THE STUDY

The National Policy on Education 1986 (NPE) has recommended to introduce Modern Technologies like Computer and Television Technologies in Education. According to the programme of Action of NPE, Computer Literacy Programmes were started to cover all higher secondary schools by 1991, secondary schools by 1995 and elementary schools in the long term. The National Council of Educational Research and Training (NCERT), Delhi, a Govt. funded autonomous institution charged with overseeing changes in school education in the country, introduced at the beginning of 1984 a project known as Computer Literacy And Studies in School (CLASS) Programme. Its main objective was to train students and teachers in Computer Education in selected Schools. Computer facilities were provided to 1200 educational institutions under this project.
In the state of Tamil Nadu the Government distributed 38 Multimedia Computers with multimedia softwares to the Government Schools in the year 1998. Further the Government has introduced computer course in 666 government schools for the students studying +1 and +2 intended to extend down to 6th std and also the public after the school hours. Moreover the government has introduced special key board configuration designed in monolingual (Tamil) and bi-lingual (Tamil and English) so that medium of computer language cannot be a barrier in utilizing the benefits of computer.

Thus computers are very nearer to the students/institutions by this greater availability and less cost of price. According to Figher (1983), when a Computer Assisted Instruction is integrated into a regular curriculum as a supplement, it is particularly successful. Bitter (1987) reported that CAI was an effective medium for improving academic skills at significantly less time than conventional class room methods.

1.12 SCOPE OF THE STUDY

An important feature of education has been its use of physical and intellectual tools. Computers represent a truly generic tool, limited in application only by the imagination of the user. The rapid changing nature of Computer Technology continues to expand the range of resources available for any subject, specific learning. Globalisation has its serious impact as the content, methods and quality of education.
The aim of this research is to help the students to learn Zoology through Computer Assisted learning individually. The study encourages both independent and collaborative learning. This study highlights the potentiality of modern technology and utilisation of the same in the teaching learning process.

1.13 STATEMENT OF THE PROBLEM

Computer has become a familiar sight in Indian Schools. But the problem is in most of the schools computers are taught as a subject to be studied, rather than a tool to be used in the classroom teaching-learning process. Most of the heads of institutions, teachers and students are aware of the potentiality of the computers but only a less fraction of the population use them in class-room activities. Though the government and private agencies are preparing and selling ready-made computer disc floppies on text materials in different modes of CAI, the utilisation of the same is very meagre. Hence the present investigation intends to apply Computer Assisted Learning software in teaching Zoology in the classroom through experimental study. So the problem for the present study is stated below.

"EFFECT OF COMPUTER ASSISTED LEARNING IN ZOOLOGY AMONG HIGHER SECONDARY STUDENTS".

The ensuing chapter deals with the review of related literature