

CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Information and Communication Technology is the buzzword today every where as the world has entered into an information and communication age. Whether it is a developed or developing country, north or south, east or west, ICT is omnipresent. It has helped in all walks of life in one-way or other. The twentieth century witnessed the rapidly accelerating advent of Information Technology (IT). The progress has been truly amazing. About 40 years, electronic communications and news media have become commonplace and indispensable. Computers have proliferated, becoming increasingly fast, powerful, small and cheap, so that now there is scarcely a human activity in which they are not to be found, bearing an increasing share of the burden of repetitive information processing activities.

Now, information cannot only be stored, retrieved, communicated, and broadcasted in enormous quantities and at phenomenal speeds, but it can also be rearranged, selected, marshaled, and transformed, of the human brain. While creative, judicious, moral, and aesthetic choices are still best left to people, all the tedious and mechanical mental processes can now be relegated to the accurate, fast, and tireless machines.

People thought of the future in terms of machines of ever-greater speed and capacity, centralized behemoths would hold all the world's information in issue to be imposed upon the population at their mercy.

With the emergence of powerful, cheap, mass produced computers-on-a-chip, the picture has changed radically.

Today the information society is passing through various new challenges and opportunities, such as, information professional skills, information management skills, and up-to-date subject knowledge. The emerging technologies supporting computers and tele-communication systems provide new dimensions in business, industries and education in a productive way.

It is impossible to deny the importance of ICT in educational, cultural, agricultural, scientific and technical disciplines. Needs for information are increasing day by day and today every person is intending to be information oriented.

Development in information and communication technology is going to open up new and cost-effective approaches for expanding the reach of education to children, youth as well as to those who need continuing education to meet the demands of explosion of information, fast-changing nature of occupations and life-long education. The consensus of opinion among social scientists and business planners is that information and communication technology is a growing area in the foreseeable future and can create vast opportunities in almost all areas of life.

Educational computing and its variants - information technology (IT), information and communication technology (ICT), educational multimedia and telematics in education - hereafter collectively 'ICT', is a problematic field. It emerged rapidly with little time for a robust intellectual tradition to be established. In its formative period it was

heavily influenced by computer science and partly annexed by the longer standing field of educational technology. It has been shaped substantially by a disparate but powerful coalition of public officials, corporate executives, manufacturers and educationalists operating through both rhetoric and policy (Conlon and Simpson, 2003; Cuban, 2001).

The main locus of inquiry in ICT has been the integration of computers into educational institutions at the levels of teachers and students (Dillon, 1998; Selwyn, 1999a; Reynolds et al, 2003). Very little attention has been given to its theoretical foundations (Selwyn, 1997), nor its applications in related fields of education. Distance education, for example, with no clearly articulated philosophy and no conceptual coherence, tended to seize on technology as a panacea for ill-defined problems (Marsden, 1996). Only now is a rationale emerging for ICT as an integral part of flexible and distributed learning (Heinecke et al, 2001).

With no foundational theory of its own, ICT has had applied to it theoretical perspectives developed elsewhere in education and, to a lesser extent, from instructional design, a boundary area that utilises both educational and technological theories (Reigeluth, 1999). Most practitioners of ICT would say they work in a social constructivist context which takes account of the situatedness of learning (Lave and Wenger, 1991) and its collaborative nature (Dillenbourg, 1999). Emphasis in the design of computer-based learning environments has shifted from information transmission to knowledge construction (Scardamalia and Bereiter, 1994). Despite this, the relationship between

educational processes and technological means is still heavily influenced by fundamental assumptions about the nature of information.

These assumptions, derived from information theory, are predicated on processes of deconstruction and construction in the systematic transmission and transformation of information (hereafter 'information transmission') in the course of learning. The intervention of technology in learning processes is seen as adding value to sensory range, the processes of coding, selecting, categorising and abstracting information, and to educational interventions and transactions. The view of learning that, in turn, is implied by this approach has shaped the way ICT is taught. Seldom have the assumptions been articulated; they are implicit rather than explicit and are evident, for example, in the design of much educational software.

In this paper, theoretical assumptions about information transmission in learning, the role of technology in the process and the implications for teaching are examined and critiqued. As Lankshear et al. (2000) observe, the relationship between education and knowledge needs to be re-thought in profound ways within the mode of information, by which they mean that new conditions require us to look again, and in different ways, at what counts as knowledge and truth. Action-theoretical constructivism based in sociocultural thinking now influences work in ICT. In contrast to information transmission, action-theoretical constructivism sees information as an outcome of the way in which individuals are in constant interaction with their environment. Again, this theoretical stance has implicit assumptions

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information, learning and the role of technology. In recon-ceptualising ICT, we should recognise the tensions between the two theoretical stances and the competing claims they make about information. In this 'ecology of ideas', the value of the individual stances might be judged in terms of their contribution to understanding ICT and their practical utility.

Although the paper is primarily about information and approaches to learning in the wider frame of educational theory, it incorporates some discussion about what is and ought to be taught and thus visits some issues in curriculum theory.

Keeping in view the drastic change in globe due to the revolution in information and communication Technology, **Eric Ashby (1967)** has identified four revolution in education:

1. The first revolution occurred when societies began to differentiate adult roles and task of educating the young was shifted in part, from parents to teachers and from home to school.
2. The second revolution was “the adoption of the written words as a tool for education “. Prior to that time oral instruction prevailed and it was with reluctance that “writing was permitted to co-exist with spoken word in the classroom.”
3. The third revolution came with the invention of printing and the subsequent wide availability of books.
4. The fourth revolution is development in electronic, notably those involving the radio, television, tape recorder and computer.

Behaviour scientists have joined the fourth revolution and have pointed out the importance of defining learning objectives and suggesting ways in which natural learning process can be utilized in the presentation of subject matter by employing these vast resources.

And now digitization of information particularly the educational information with the help of ICT can be called as the fifth revolution in education. It has great potential in the field of education.

ICT can provide access to information sources, enable communications, create interacting learning environment and promote change in methods of teaching. Therefore the ways of learning have been transformed by ICT and are no more restricted to medium of print, bibliographies, and abstracts. The sources of knowledge for students and teachers have also broken out of all geographical boundaries. As such it becomes very important that those associated with teaching learning process should not only be familiarized with this technology but also realize and put into action its useful aspects. In the proceeding paragraphs the meaning of ICT, its historical background, relationship of ICT with students, teachers and education, awareness of teachers etc. have been given, which can provide the conceptual framework for the present study.

1.2 MEANING OF ICT

Different scholars stated the meaning of ICT in different ways. Some of the definitions of ICT is given here which would help to explain the meaning of ICT.

According to Raghavan (2000) ICT refers to a range of technologies, which includes computers, computer work situations, display facilities, hardware, software, recording and processing systems for sound, still and moving pictures, graphics, calculations and a wide range of communication facilities.

Mahajan (2002) defined ICT as the modern science of gathering, storing, manipulating, processing and communicating desired types of information in a specific environment.

According to UNESCO, ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economical and cultural matters.

According to Chakraborty (2002) “ICT is the collective term for various technologies involved in processing and transmitting information. They include computing, tele-communication and micro-electronics.”

According to Garg (2002) “ICT stands for information and communication technology. It is a method that involves processing, storage and communication of information using computers and other electronics devices.”

According to Devmani (2002) “ICT means the advancement of sending and receiving of information from different parts of the world.”

“It is the way of communication by means of technology, which is by telephone, faxes, internet, etc.”

Finally, it can be concluded that ICT is a tool for communication and presentation which helps in bringing individuals together on a common platform for exchange of views, presentation of ideas (through, chatting or E-mail) and increases the interactivities between individuals and between individuals and technologies.

1.3 HISTORICAL BACKGROUND OF ICT

Information and Communication Technology (ICT) is a word of recent origin which usually confused with Information Technology (IT) and Communication Technology (CT). ICT can be termed as the synchronization of both IT and CT. The history of ICT would be incomplete without discussing CT as well as IT. Let us discuss about the historical background of ICT which was originated from the beginning of a communication era.

1.3.1 BEGINNING OF COMMUNICATION ERA

Communication has long history, as long as that of the human race. At the primitive age people developed simple ways and means of communication. In due course of time new and sophisticated technologies were invented and used to expand the ability to communicate effectively and efficiently across longer distance and over longer period of time.

The inventions of printing technology was a revolution in the area of communication technology. It was, however, first used for reproduction of religious works. As early as 868 A.D., the teaching of Lord Buddha was printed by the Chinese. It took centuries before the mechanical printing press came into existence.

Due to advancements in communication technology, the process of printing becomes mechanical. The first printing press in India came by chance on September 6, 1556. It was set up by a Christian Missionary and used for printing religious books. Gradually printing technology formed the shape of information technology in a span of nearly three hundred years. Book printing was considered as one of the most powerful tool of information technology.

The audio-visual media were the products of the Twentieth Century. The audio media came in 1920s and grew very fast after the world War-II. They are now used for entertainment, education and information all over the world. The visual media came later in the sequence but expanded very fast. Now more sophisticated technologies, such as video cassettes, cabal T.V., Computers, video text, video disc, video phone, facsimiles etc. are used for communication world over. The communication satellites are geared to bring the world together for welfare of human beings. Gradually, more and more technologies were added to it in the form of micro fish, electronic storage and discrimination, net working, World Wide Web (www).

Similarly, in this fast changing world, people became more and more hungry for knowledge. As the major source of knowledge is information, people invented more and more sophisticated technologies to access, retrieve and store huge amount of information. It gave birth to

IT, computer and related electronic devices. In this process of innovation and creation, IT mixed up with CT in such a way that it was found difficult to distinguish and separate both. This combination of IT and CT provides huge potential and a platform to access, retrieve, store and process large amount of information and it helps to communicate this processed data to other part of the world. This potential of ICT made it popular among students and teachers. Now every corner of education is trying to incorporate ICT with it.

1.4 INTEGRATION OF ICT IN EDUCATION

Education plays a vital role in the building of society. Modern societies cannot achieve their aim of economic growth and higher standards without education. The development and prosperity of a nation is always determined by the education. Due to the expansion of population, the need of education correlated to economic development, the social need of the different societies, and the attachment of education with status in different countries of the world. The two crucial problems like, knowledge explosion and population explosion that modern world faced, have raised a large number of difficulties in the field of education like poor physical facilities, less provision of teachers and low enrolment of students due to poor economic conditions, social superstitions and geographical barriers. Thus to minimize these difficulties educational technologies like, radio, televisions, computer, teleconferencing, videoconferencing, internet, satellite etc. play an important role. In order to improve the overall efficiency and quality of the teaching and learning process, technology plays an important role. It also plays a very significant role in increasing the quality of learning or the degree of mastery. It reduced the time to attain desired goals. It also

increases the capacity of teachers in terms of number of learners taught, without reducing or affecting the quality of teaching and finally, it reduces the cost of education for students.

1.5 HISTORICAL BACKGROUND OF ICT IN EDUCATION

The first significant technological change that was reflected in education was the invention of typography and printing. But it took several centuries before books were available for every student's individual education. Other attempts in using various teaching aids (generally technology) are connected with the industrial revolution. In education, of course, it is not the steam engine, with which the beginning of technological progress is generally associated. But, for example, the famous inventor **Thomas Alva Edison** had the idea of replacing the textbooks with motion pictures. Similar ideas appeared with the emergence of phonograph, radio broadcasting, tape players, TV as well as video. These attempts were rather unsuccessful. None of these aids replaced standard textbooks nor changed classical instruction methods. The mass form of one-way information transfer, such as in public broadcasting, prevents individual learning, because it does not reflect individual needs. The sequential presentations such as tapes and videos, etc. do not allow for working with the piece of information actually needed. Therefore these means can only play a role of supplementary specialized material.

Similar attempts were noticed in the 70's and 80's, when first **personal computers** reached the markets. There were suggestions that computers would soon replace not only textbooks, but also even teachers. These hopes turned out vain again. The computers of that time were trying to manage the instruction process in such a silly way that the interest of

students was rapidly vanishing. Instead of the subject matter the students were keener on gaining the best results, which was often possible without relevant knowledge.

Today we find ourselves in similar situation, but on a different level and with different consequences. Individual technical teaching aids have been transformed into integral information and communication technology. Interconnected computers are able to play the role of all the above-mentioned technical aids including textbooks. There is no need to wait for the exact time the desired information is broadcasted or to walk to the library or video store. The range of possibilities in using the ICT is even much wider. They enable very **sophisticated control** of the work of the users of educational applications as well as **uncontrollable communication** of all the connected people via Internet. **Bradicka (2003)**

1.6 RECOMMENDATION OF COMMISSION AND COMMITTEES ON ICT

Since our society heavily depends on ICT in many aspects of work and personal life, it will be expected our schools to familiarize pupils with computers and related ICT components and teachers should use all resources to the possible extent. Hence the following committees and commissions have recommended its use in education:

National Curriculum Framework For School Education (2000) stated that “The new technology has a tremendous potential to revolutionize education and transform school dramatically..... Integration of ICT into schooling would demand the educational planners to look beyond the current urban classrooms devising updated

plans for education in an electronic environment even in far flung rural area and expanding their design so that the computer becomes more than a subject of study. It is not merely integrated into an existing curriculum it becomes, instead, an integral part of the schooling process resulting in universal computer literacy, computer aided learning (CAL) and finally, computer based learning throughout the country.”

National Task Force on Information Technologies (1998) has realized the vast potentials of IT in different fields including education as it stated the following lines :

“Information Technologies (IT) modernize the economy, expands and deepens the possibilities in education, accelerates growth, creates, large scale direct and indirect employment to the educated youth and boosts exports. If there is one single technology, that can be applied right across all sectors of technology, all area of administration, all levels of education and all types of services, it is Information Technology. Similarly, if there is one technology where India can emerge as a strong global player in the foreseeable future, it is IT.”

The Sixth Five Year Plan (1975-80) Document stated that : “ The importance of Educational Technology has to be adequately provided for grater efficiency, effectiveness and wider reach of educational programmes.”

National Conference on Integrating Technology into Teaching Learning (2002) has recommended the following priority actions need to be taken at National and State levels :

1. The Ministry of Human Resources Development, Government of India and other decision makers ensures that ICT networks,

infrastructure, computer facilities and human resources training are available to all Educational Institutions.

2. The concept of Educational Technology be demystified so that Educational Technology is fully understood in its real perspectives, from the narrowed concepts of hardware technology to a comprehensive concept of development, application and evaluation of systems, techniques and aids to improve the process of human learning.

Most of these commissions and committees emphasized the potentials of ICT in education and recommended the action needed to incorporate ICT in every classroom irrespective of geographical location, socio-economic and educational status of people, caste, creed and colour.

1.7 RELATION OF ICT WITH STUDENT, TEACHER AND EDUCATION

The ICT need and importance differ from person to person and discipline to discipline. In educational setup also different stakeholders differs with the different ICT needs. Teachers need differ from the need of students. It also differs from the need of administrators and educational planners. Here some of relation of ICT with education, teacher and student are given for understanding the need of ICT for student, teacher and education.

1.7.1 ICT AND EDUCATION

We are living in an information society. In this information society, knowledge is becoming one of the country's most important strategic resource, whereas learning is becoming the most important process for the individual, for business & industry and for society at a large. The rapid technological development means that knowledge is no longer a "once in a life time" experience for the individual. It is rather an asset, which constantly has to be updated. Therefore, recurrent education gained increasing importance for young people as well as for adults with a view to maintain and develop their earlier acquired qualifications.

ICT can leverage the creation of poles of educational excellence where ICT provides access to advanced knowledge, helps to develop educational research capacity, helps to develop and empower teachers and thus breaks their isolation, improves school-community relation, helps in introducing new educational methods, techniques and new contents. ICT will provide stimuli to improve educational quality on a system-wide basis. Also great deal of the value of ICT in education lies in their capacity to enhance pedagogy and management.

Furthermore, ICT have great potential for revolutionizing accustomed methods of educational planning, management, monitoring and evaluation. Their use is not limited to processing and analyzing educational data or to rationalizing communication between stakeholders. Their real strength is the facilitation of more transparent, democratic, and decentralized educational decisions that involve not just the different levels of government but equally importantly, students, parents and civil society at large.

1.7.2 ICT AND STUDENT

It should be noted that learning process always takes place in the cognition of an individual and affects on the psychomotor and affective development of him. Education is therefore a very personal process of leaning. Learner expresses his/ her achievements through the skills and functionalities acquired, which are very much dependent on technologies of the age or tools and techniques the society uses. Hence basic and fundamental process of leaning is very personalized and is independent of technologies and modes to education. However, it needs interactivities with other individuals or learning materials, which are dependent on the technologies of communication age.

From an overall point of view it is the objective of education system to qualify human being for working life and for life in general. Thus, it is not solely the aim of the education system to qualify young people and adults to acquire and reproduce the knowledge, which is disseminated by their teacher. The crucial new factor in connection with the information society is that young people and adults are to be qualified creatively to sort, select, process and use the great amount of information, which ICT give access to. Moreover, in connection with the basic education they are to acquire new methods of learning process in order to enable them responsibility for a continual and lifelong updating of their qualifications. ICT works like a boon to the students. It has broken the boundaries of classroom, school, state and nation. Quantum of information can be piled with the students within few hours. Now students feel empowered with this invent of ICT.

1.7.3 ICT AND TEACHER

In this age of rapid change and uncertainty, there is one thing of which is certain that teachers need to adapt to the change for their survival. They have to keep pace with new methods and technologies. New knowledge based on the latest research can in a few seconds be distributed globally with the help of ICT. Knowledge is constantly changing and becoming obsolete so rapidly that the distributors of knowledge i.e. the teachers can hardly updated themselves with this pace of change. Knowledge is not static but dynamic. It increases at very high speed in which the amount of knowledge is increasing globally makes the teachers warn about their role today and tomorrow. The role of the teacher must change in the sense that it is no longer sufficient for teachers merely to impart content knowledge. It will however, be crucial for teachers to encourage critical thinking skills, promote information literacy, and nurture collaborative working practices to prepare children for a careers several times. One of the most ubiquitous forms of ICT- the Internet gives access to an exponentially growing storehouse of information sources, almost unlimited networks of people and computers, and unprecedented learning and research opportunities. Sometimes ICT illiterate teacher feels pity while comparing them with his ICT literate students. Therefore it is necessary to revise the traditional understanding of the role of the teacher in this information society. Today, the role of teacher has changed from giving or passing of information to the organizer and distributor of the teaching with the integration of ICT in the educational programmes and in teaching learning process. With the integration of ICT in educational process, they can elevated themselves from the arm-chair tutor to knowledge worker. The awareness, use and the need of teachers is felt

for the ICT in education which can help them to empower them for the future classes and students.

1.8 ICT AWARENESS OF TEACHERS

The explosion of digital technology has created a revolution in educational instructions. The flexibility, high speed and huge storage capacity of ICT is causing teachers to redefine and rethink the traditional process of teaching. The challenges facing teachers are to evaluate relevant applications of information and communication technologies in the teaching learning process. At the same time, instruction utilizing information and communication technologies must reflect what is known about effectiveness of student-centered teaching and learning process.

The digitization of technologies has made a great impact on teachers' role. The impact can be felt in many ways. Digital technologies are changing the ways teachers interact with students in the classroom. As the importance of language to learning, the ways organizing and relating information facilitates understanding and the influence of social factors in the classroom are all impacted by digital technologies. Now the instructional approaches are also influenced greatly, as they are incorporated by a variety of technologies. Now teachers and students alike are interacting in new ways afforded by digital technologies. Teachers and students have virtual discussions related to course content, advice and counseling in a wide variety of times and paces through e-mail and other features of the web. Teachers and students now produce documents with more information and in far more diverse formats as a

result of desktop publishing, online libraries and databases and file transfer capabilities. The pervasiveness of digital technologies motivates a thorough review of technological impact of instruction in education.

Present school education courses should take advantage of the capabilities of technology and extend instruction beyond or significantly enhance what can be done without technology. Teachers should experience technology as a means of helping students explore topics in more depth and in interactive ways. As a large number of teachers are not computer and ICT literate, they have to face a tuff time in near future due to gradual shifting interest of students towards ICT. The time may be imagined to see the miserable conditions of an ICT illiterate teacher teaching ICT literate students. In this context, now it is the high time for every ICT illiterate teachers at least to create awareness about ICT, ICT literate teacher to be the ICT masters and the ICT masters to see it as sky is the limit.

1.9 ICT USE OF TEACHERS

In this new technology era, the role of teachers has changed and continues to change from being an instructor to a constructor, facilitator, and coach to create learning situation and environment. ICT is very useful for teachers with this new roles. Teachers can integrate ICT into teaching-learning process effectively if he developed various skills and competences like, creativity, flexibility, logistic skills, skill for project work, administrative and organizational skills and collaborating learning skill. Apart from these skills and competencies, the effective and efficient use of ICT depends largely on the technical competency,

attitude, appreciation of teachers for ICT. They should be able to appreciate the potential of ICT and have positive attitude towards ICT. They should operate computer and use basic software for work processing, spreadsheets and power point etc. They have to evaluate the use of computers and related ICT tools in education of students. The minimum use of ICT by teachers are desired. The extensive use of ICT may include the evaluation of educational software and courseware, search on internet for resources and use of e-mail, chat, new ICT based instructional principles, research and appropriate assessment practice, effective multimedia based presentations to support teaching learning, integrate ICT tools into learning activities throughout the curriculum, create hypertext documents and understand about network, and keep up-to-date as far as ICT or educational technology is concerned. There is immense potential of ICT which can be grabbed by the teachers using ICT optimally and maximally in their class instruction and for their professional developments.

1.10 ICT NEED OF TEACHERS

There is a need to change in each and every sphere of the society according to the tune of information and communication technology. It has the ability to enhance every type of development in the society. Education is the only means to incorporate information and communication technology in the developmental aspects of the society. ICT can also be used as a tool to improve the quality of education for preparing the society and its manpower to face the challenge of the future. It requires the proper manpower to handle and use ICT in school in a proper way.

In general there is change in every sphere of teaching and learning. This change is going to accelerate the immediate future of education. The very fast change in technology had made the situation worst. When considered, there is little value in placing a teachers, trained in the 1970's or 1980's who had no orientation to become sophisticated technology users, in a position where they feel that they are required to compete with a senior student already working in information and communication technology. Variations on these issues are likely to become more common in the years ahead. In this connection teachers' requirements and needs may vary. To face the need of the today's and tomorrow's teachers to face the tomorrow's net-students the ICT need of common teachers would vary according to the level of ICT awareness and use of teachers. Level of essential competence which will enable teachers to integrate information and communication technology in ways which broaden and deepen the teaching learning environments they create for students and access to expert assistance from both Para-professionals and other teachers, when they require it. There have been at least major ways of using computer technology in education by the teachers by learning of programming, learning word processors, spreadsheets and database and understanding the power of the computer as an information source. This phase of computer learning is all pervasive as it takes computer uses out of the realm of the enthusiast and requires higher order analytical skills or organizing, evaluating and synthesizing information. Increasingly, teachers in schools will be in competition with networking systems, for example, it may happen with introduction of online schools. The curriculum and its transaction can be chalked out according to the specific need of the in-service and pre-service teachers. The ICT need of teachers will vary from person to

person, some may be interested to be ICT literate, some may be interested to be ICT-savvy and some may be interested to be ICT masters according to their background and interests. Teachers need may very from instructional use of ICT to the ICT use in management and administration. The need may be for institutional, professional and personal development of teachers. If there is a felt need of teachers for ICT, it can help them to find different ways to learn ICT use in education which can help them to empower them for future schools. Here is an humble attempt to study the ICT awareness, ICT use and ICT needs of school teachers.

1.11 RESEARCH QUESTIONS

Every piece of research is based on some research questions which comes in the mind of the researcher. Research questions are the product of the experience of the researcher, review of the related literature and conceptual clarity on the research topic. In the process of research, researcher tries to find the answer of the research questions. Before conducting this piece of research work, the researcher have the following research questions in his mind.

What is the ICT awareness and need of the teachers of the secondary and higher secondary school teachers of Saurashtra region?

What is the extent of ICT use among the teachers of the secondary and higher secondary teacher of Saurashtra region for different purposes like, teaching-learning, professional development and personal development ?

Whether there is any relation between the ICT awareness, use and need of the teachers of the secondary and higher secondary school of Saurashtra region and some of their background variables?

The researcher had undertaken the present study to get the answer of some of these research questions.

1.12 RATIONALE OF THE STUDY

ICT is one of the recent developments of the twentieth century in India. It has changed each and every system around the globe from house related systems to industrial systems. Significantly, it has influenced the educational systems in all its forms. In the educational field different types of Information and Communication media are used to impart education. Radio, T.V., Tape recorder, OHP., LCD Projector, Computer and now with advancement in these technologies has changed the scenario. Internet and advanced computers are now being used in education as an instrument of instruction. This digitization has made it possible to design, develop, deliver, manage and assess teaching – learning process. It increases the efficiency of the system and makes it more powerful.

The ability to use ICT effectively and appropriately is now seen as essential to allow learners to acquire and exploit information within every sphere of human activity. It can be assumed that specific forms of ICT will change with time. However, the need to be able to aware and use ICT purposefully will remain the key to full participation in an information society.

The school curriculum already reflects the perceived value and importance of developing ICT literacy and indeed, information literacy in all students. For example from 8 to 12 standards, computer is added into the curriculum. This emphasis is followed through in the proposals for the requirements of higher education and still ICT is identified as one of the core skills areas, and as such, the option for assessment and certification of achievement will be available. There is also a complementary move towards using, for example, multi-media packages in staff development for teachers by Intel. ICT has changed the scenario of school education and is going to add more change in the system. It is also stated in the National Curriculum Framework for School education (2000). Changes in the perception of 'learning environment' have been highlighted by National Curriculum Framework (2000), which seek to exploit the potential of ICT. The National Curriculum Framework has emphasized on the utilization of ICT in schools. The success of ICT in school education depends on teachers, students and authorities in the school. Teachers have a major role to play. Teachers can lead the journey forward.

Teacher is the gateway of information, teacher act as a mentor, instructor, director and guide to help students to grasp and make them understand. For that teacher should do best of his part, for that teacher uses different methods, approaches and techniques. But these are not enough in today's IT world. So he needs to utilize ICT resources in his teaching which is emphasized by National Curriculum Framework (2000) and many committees because future of the students depends on their performance in secondary and higher secondary education as it is

considered as the base for professional courses and higher education. So it is the duty of teacher to clear the doubts of students and make them understand. It can be possible or enhanced by ICT awareness and use of ICT by teachers. So the investigator has made an attempt to conduct a study at secondary and higher secondary level to know the ICT awareness, use and need of secondary and higher secondary school teachers.

In recent years there has been increase in the availability of computer hardware and software in schools, often as a result of Government funded initiatives, and/or sometimes as a result of schools effort to raise funds for ICT resources. However, having technology does not mean that it will automatically be integrated as resources in day to day teaching. The effective and efficient use of ICT will be out of question unless institutions have these and teachers are aware of this technology integration. Successful integration into the curriculum depends on teachers being convinced of the relevance of ICT as a means of providing access to a range of resource for themselves and students. The emphasis must be on using appropriate technologies to enhance and support effective teaching. Indeed, teachers require to be able to select and utilize technology in a useful manner. Even teachers need to be able to exploit modern information sources such as internet for themselves as continuing learning for their personal and professional development. As a result, potential impact of information and effective use of ICT in the classroom has far and wider implications. Sometimes, teachers may not be aware of ICT due to the unavailability of resources and lack of skills. Teachers may be interested to have these skills. For these purpose, teachers have specific 'needs' like skill training, availability of

resources. Therefore investigator has selected ICT need of teachers as one of the variable.

Several studies conducted with this regards revealed that teachers are aware of the potentials of ICT in education but only few teachers use ICT resources in their teaching due to lack of skill or unavailability of resources. So keeping in mind ICT awareness, use and need of teachers the investigator has decided to conduct a survey. Several variables may be linked with the ICT awareness, use and need of teachers like more education may lead to more awareness in ICT or English medium background may lead to be more aware in ICT. Hence investigator is interested to know the relationship of few background variables with ICT awareness, use and need of secondary and higher secondary teachers.

Saurashtra region is known as the cultural city of Gujarat. It has strong cultural and educational heritage due to the former rulers of Gaekwad rein. Because the maharaja introduced compulsory education hence The culture of this city use to be changed according to the change of the time for which it has retained its status as the cultural city of Gujarat. Whether the teachers of Saurashtra region are managed themselves according to the needed demand of ICT and computer Education. Hence the investigator has taken the proposed study to know ICT awareness, use and need of secondary and higher secondary school teachers of Saurashtra region. It will also help the investigator in term of feasibility of conducting the study. Further, keeping the time factor in mind, the investigator has decided to limited the study only to the schools of Saurashtra region. Even very few research studies have been conducted in this regard to know the ICT awareness, use and need in different

dimensions, like, for academic development, professional development and personal development. The present study may through some light on these matters. Hence the present study is an attempt to know the ICT awareness, use and need of secondary and higher secondary teachers.

1.13 STATEMENT OF THE PROBLEM

A STUDY OF ICT AWARENESS, NEED AND USE AMONG SECONDARY AND HIGHER SECONDARY SCHOOL TEACHERS OF SAURASHTRA REGION OF GUJARAT.

OBJECTIVES OF THE STUDY

Following objectives were formulated to realize the present study which are given as follows:

- I. To study the ICT awareness of secondary and higher secondary school teachers of Saurashtra region.
- II. To study the ICT use of secondary and higher secondary school teachers of Saurashtra region.
- III. To study the ICT need of secondary and higher secondary school teachers of Saurashtra region.

1.14 DEFINITION OF THE TERMS

ICT : For the present study ICT (Information and Communication Technology) means (computers for word processing, power point, spreadsheet, CAI(Computer Assisted Instruction) and related software, internet for e-mail, chat, searching, web designing, and for giving project work, LCD projector for PowerPoint presentation, and T.V. presentation and OHP, Television, and Radio) meant for classroom practice, professional development and personal development of teachers of secondary and higher secondary schools.

ICT AWARENESS: It means the knowledge of teachers of secondary and higher secondary schools regarding the components of ICT like, computers for word processing, power point, spreadsheet, CAI(Computer Assisted Instruction) and related software, internet for e-mail, chat, searching, web designing, and for giving project work, LCD projector for PowerPoint presentation, and T.V. presentation and OHP, Television, and Radio.

For present study ICT awareness is defined operationally as the awareness score secured by a teacher in the awareness scale prepared by the investigator.

ICT USE: It means the use of the ICT components of ICT like, computers for word processing, power point, spreadsheet, CAI(Computer Assisted Instruction) and related software, internet for e-mail, chat, searching, web designing, and for giving project work, LCD projector for PowerPoint presentation, and T.V. presentation and OHP, Television, and Radio by the teachers of secondary and higher

secondary schools for classroom practice, professional development and for personal development.

For the present study ICT is defined operationally as the score secured by a teacher in the scale prepared by the investigator.

ICT NEED: It means the need for skill training and ICT resources for classroom practices, professional development and for personal development of the teachers of secondary and higher secondary schools.

For the present study ICT is defined operationally as the score secured by a teacher in the scale prepared by the investigator.

1.15 DELIMITATION OF THE STUDY

The present study is delimited to the Secondary and Higher Secondary Schools of Saurashtra region following the syllabus of Gujarat Secondary and Higher Secondary Education Board.

1.16 CHAPTERIZATION OF THE PRESENT STUDY

The present study comprises of five chapters. Chapter I i.e. **‘Introduction’** deals with conceptual framework, rationale for the study, statement of the problem, objectives of the study, definition of the terms and delimitation of the study. Chapter II i.e. **‘Review of Related Literature’** deals with review related to ICT awareness, use and need of teachers, observation from review and its implication for the present study. Chapter III i.e. **‘Plan and Procedure’** deals with methodological details of the study. Chapter IV is **‘Analysis and Interpretation’** deals

with detailed analysis and interpretations of data collected. Chapter V i.e. **‘Summary and Findings’** deals with summary of the present study, major findings, and suggestions for the further studies. Bibliography and Appendices are placed after the fifth chapter.