Chapter – I

INTRODUCTION

"Globalisation, new technologies and demographic developments constitute an enormous challenge; one of the answers to this problem is the access to lifelong learning."

- Jan Figel

Technology has dominated all spheres of life. The education is also one of the fields where we can see the impact of information technology. Over several years the education process has seen drastic changes in imparting knowledge. During the last few years it has been seen, an almost exponential development and growth of the digitalization, automation and the internet, with little sign of a slow down. No longer is Internet access restricted to a few selected education establishments it is now available to anyone in their place of work, local libraries, the Internet cites and even in the home. It is the information that has becomes the key to the success in different walks of life.

At the time of independence, India inherited an education system with glaring disparities between males and females, between upper and lower classes, between economically advantaged and disadvantaged groups and urban and rural population. Consequently, one of the primary responsibilities of the Government of India after independence was to make education available to all people. This responsibility was sought to be realized through the opening of more and more primary schools, secondary schools and colleges. However the formal education system alone was found to be unable to meet the demand for education. The access to education remained limited. The report of United Nations Development Programme UNDP (1993)
underlined the fact that only seven percent of the relevant age group is enrolling for higher education in India.

Today even the richest countries are convinced that they will not be able to provide adequate education to people as long as they exclusively depend on the formal education stream. There is no doubt that there has been appreciable quantitative expansion in the formal system of education. But the quality of education is very low. The relevance education provided through Universities and colleges has also been called into question. Universities have been referred to as “Ivory Towers”. All these factors underlined the need to develop an alternative to provide access to quality education to all. The result was the expansion of distance education, which was seen to hold the potential to achieve universalisation and democratisation of education.

1.1 Changing Scenario

Every stage of societal development requires an educational system that can adequately reflect its needs and demands. Consequently, modern institutions of higher learning are designed to bring about appropriate changes in administrative organization, curriculum, and learning methodologies in order to shape learners into active participants and productive members of a society. Currently we are witnessing in education global shifts that reflect changes brought about by computers and communication technology. This shift may be called Electronic Learning, or E-learning. E-learning is a mode of knowledge production and circulation wherein information technologies play a decisive role. The aim of learning is to explore and to add useful knowledge over and above faster copying, searching and distribute. This might be
called E-linking, E-relationships and networks and E-enhanced strategy. With the emergence of the Internet as the prime form of global communication and information exchange, E-learning has been brought to the forefront. In recent years, new public and private universities have been established to offer full-fledged degree programs delivered exclusively online. In its current form, E-learning is nothing but one more course delivery mechanism for distance education.

According to John Chambers (2001, Rosenberg), “the biggest growth in the Internet, and the area that will prove to be one of the biggest agents of change, will be in E-learning.” Alvin Toffler (2001) declared, “the illiterate of the 21st century will not be those, who cannot read and write but those who cannot learn, unlearn, and relearn.” An ancient proverb says: “if we don’t change our direction, we’ll end up exactly where we are headed”. This indicates that everyone will have to constantly change and adapt the new learning styles if they are not to lag behind.

Today the Internet has become an important instructional tool to facilitate the transfer of many types of information from one computer to another, and is rapidly becoming an effective means of communication in schools and colleges. Internet-based instruction has been manifested in one-to-one (tutor-to-student), one-to-many (tutor-to-group) and many-to-many (group-to-group) approaches to instruction.

According to Davies (1998)², Education has become a commodity in which people seek to invest for their own personal gain, to ensure equality of opportunity and as a route to a better life. As a result, providers of Higher Education (HE) are finding themselves competing more than ever for students, funding, research, and recognition within the wider society. Even as competition has always been an issue for universities,
historically the focus was national rather than international. During the last decade and through the development of virtual education i.e. distance methods of delivery and new communication methods, higher education has become ‘internationalized’; providers are able to export them-selves and as a result competition has been extended beyond national boundaries.

E-learning has grown tremenously over the past several years as technology has been integrated into education and training. Koprowski (2000) estimates and suggest that the amount of money U.S. companies spent on the IT-based delivery of training grew from $3 billion in 1999 to $11 billion in 2003. Gold (2003) described, the worldwide market for E-learning is projected to be more than $18 billion by the end of 2005, with some organizations projecting that over half of their training and education will be delivered electronically over the next five years. Haugen, LaBarre, & Melrose (2001); Liaw and Huang (2002); McEwan (2001) suggest that colleges and universities also continue to increase their web-based course offerings to appeal to audiences such as working adults who otherwise have limited access to higher education and according to O’Neill, Singh, & O’Donoghue, (2004); Schleede (1998) as curricular and organizational changes demand new ways of delivering education to individuals. Meyen, Aust, Gauch, Hinton, and Lsaacson (2002) projections suggest online offerings will continue to increase significantly in educational as well as corporate settings in years to come.

Although E-learning continues to grow rapidly, it still remains at an early stage of development. Koohang and Durante (2003) said in their study, developers and deliverers of online learning need more understanding of how students perceive and
react to elements of E-learning (since student perception and attitude is critical to motivation and learning) along with how to apply these approaches most effectively to enhance learning.

1.2 Concept of Learning

Learning occupies a very important place in our life. Most of what we do and not do is influenced by what we learn and how we learn it. Learning, therefore, provides a key to the structure of our personality and behaviour. Broadly speaking, the term learning stands for all those changes and modifications in the behaviour of the individual, which he undergoes during his lifetime.

1.2.1 Definitions of Learning

“The term learning covers every modification in behaviour to meet environmental requirements”.

- Gardner Murphy (1968)\textsuperscript{11}

“Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual’s attempt to overcome obstacles or to adjust new situations. It represents progressive change in behaviour. It enables him to satisfy interest to attain goals”.

- Crow and Crow (1973)\textsuperscript{12}

1.3 Concept of Traditional Learning

The traditional learning comes in basic four forms\textsuperscript{13}:
(1) **Classroom sessions:** Attending lectures wherein teacher takes lesson topic-by-topic or lesson-by-lesson. Generally learning takes place in collaborative atmosphere, wherein students are encouraged to ask question and teacher answer the query or encourages other students, to do the same. Teacher also asks question to the students and encourages students to answer the same.

(2) **The lab sessions:** Experiments are carried out in the lab by the teacher and/or by students themselves and study observations/ results of these experiments.

(3) **Library sessions:** Students go to the library and explore books/study notes/magazines on subjects of their interest. Some of the reference copies can only be studied in the library and by paying small deposits students can also take books home. Though in many cases, number of copies of books are limited and a few students are turned away dissatisfied.

(4) **Collaborative learning:** Students get in touch with co-students and discuss about their queries and get these queries solved by discussion among them or in some
cases by meeting the teacher solve the query. This is also a form of collaborative learning in the traditional learning.

1.4  The Concept of Distance Learning

The term “distance education” represents approaches that focus on opening access to education and training provision, freeing learners from the constraints of time and place, and offering flexible learning opportunities to individuals and group of learners. The terms “distance education” and “distance learning” are used to cover any situation when the student and teacher are not in the same place.

The openness presupposes the availability of education—*anyone, anyway, anywhere and anytime* without social, physical and geographical restrictions. Open and distance learning is usually contrasted with ‘conventional’ or face-to-face’ education, which may be described as the form of education which takes place in a classroom.

However, both ‘distance’ and ‘face-to-face’ education are labels covering a wide range of variations and methods. ‘Face–to-face’ education may be supported by a range of media, and may be combined with periods of independent study. In a similar way, distance education has a variety of forms, according to the educational philosophy, organizational approach and choice of technology, and distance educators may incorporate into their programmes an element of face-to-face teaching. To meet the emerging demands of ‘knowledge era’ distance learning has been accepted and recognized mode of education.

1.4.1  History of Distance Learning
Historically, distance education can be traced back to the 18th century, to the beginning of print-based correspondence study in the US. In the mid-19th century correspondence education started to develop and to spread in Europe and the United States. Isaac Pitman, the English inventor of shorthand, is generally recognized as the first person to use correspondence courses.

By the late 1960's and early 1970's significant changes in distance learning occurred due to development of new media technologies and delivery systems. The Open University (OU) in Great Britain became the first autonomous institution to offer college degrees through distance education. The OU now uses all possible forms of technology to deliver learning to students.

Open and distance learning in India dates back to the 1960s. By the 1980s there were 34 universities offering Distance education through departments designed for that purpose. The first single mode Open University was established in Andhra Pradesh in 1982, followed by the Indira Gandhi National Open University (IGNOU), and subsequently in Bihar, Rajasthan, and Maharashtra, Madhya Pradesh, Gujarat, Karnataka, West Bengal, and Uttar Pradesh (established throughout 1980s and 1990s). The establishment of these single mode distance education universities was stimulated by the government’s intention to democratize education and make it lifelong. The year 1995 witnessed the enrollment of 200,000 students in open and distance learning, accounting for 3% of total higher education enrollment. Correspondence courses continued as the main vehicle for distance education. Instruction was primarily print-based, although audiotapes or laboratory kits occasionally supplemented the written materials. However, new development in communications technologies, particularly
radio and television broadcast, led to the emergence of non-print-based distance
education systems.

In the late 1980s, and early 1990s the development of the fiber optic
communication systems, in other words the use of networking and Internet, allowed for
the expansion of live, two-way, high quality audio and video systems and the new
concept of electronic learning comes in education. According to Tompkins (1993)¹⁴, the
initial cost of fiber optic system may have been high, the long term savings and benefits
of the technology balance the initial cost.

A range of factors including emerging Information and Communication
Technologies (ICTs), liberalization, privatization and globalization have enlarged the
demand for open and distance learning. While the government is responsible for more
than 90% of open and distance learning funding, plans are underway to involve the
private sectors more closely.

1.4.2 Concept of E-learning

The term E-learning means Electronic Learning and it is basically the online
delivery of information communication, training and learning. E-learning is Electronic
learning, but the ‘E’ in the E-learning has a number of other implications as mentioned
below¹⁵:
Exploration - E-learners use the web as an exploratory tool to access lots of information and resources.

Experience - The web offers E-learners a total learning experience, from synchronous learning to threaded discussions to self-paced study.

Engagement - The web attract learners by enabling creative approaches to learning that promote collaboration and a sense of community.

Ease of use - Not only is the web easy to use for learner, but to learning providers across all technical platforms (Windows, UNIX, etc.)

Empowerment - The web puts learners with a set of tools that enables the content and allows learner to choose the way in which they learn best.

E-learning involves the use of computers and Internet to aid in the learning process. If a computer is a standalone, then we have Computer Learning (CL) that can be used either Computer Based Learning (CBL) or Computer Assisted Learning (CAL).

CBL involves the computer taking the place, for the most part, of the teacher, and is popular in distance education. CAL involves a teacher using E-learning to supplement face-to-face teaching. This also applies to the Internet with web page access. As with CL, Online Web Learning (OWL) can either be Online Web Based
Learning (OWBL) or Online Web Assisted Learning (OWAL). Following figure shows the parallel relationship between CL and OWL.

(a) Difference between CBL and CAL

(b) Difference between OWBL and OWAL

1.4.3 Related Terms to E-learning

Related terms to E-learning include Distance Education, Online Education, Distributed Learning, Internet Education, Computer-based Training, Computer-Mediated
Communication, Computer-Assisted Instruction, Virtual Education, Cyber-Learning, Asynchronous Learning and Blended learning / Multi-model instruction.

Here are some basic definitions of these related terms:

**Distance Education**

Barry Willis (1995) defines - "When a teacher and students are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication, is used to bridge the instructional gap."

**Online Education**

Greg Kearsley (1997) defines Online Education as :

“Online Education allows the study of higher education courses through the electronic medium of Internet. Course Materials, including reference papers, study materials and contact with tutors and fellow students are all accessed through the use of personal computers and telecommunications.”

**Distributed Learning**

According to Oblinger and Maruyama (1996) distributed learning,

"Where the learning environment exists among a dispersed student population, is structured according to learners' need, and tends to integrate traditional institutional functions (e.g. classroom and library)."

**Internet Education**
Using the Internet to teach or learn. The Internet is the "network of networks" or a global computer connection that allows any user (called a client with an Internet connection) to access information on any other computer that furnishes it.

**Computer-Based Training (CBT)**

Training (of humans) done by interaction with a computer. The programs and data used in CBT are known as "courseware."

**Computer-Mediated Communication (CMC)**

Computer-Mediated Communication that takes place through, or is facilitated by, computers. Examples include Usenet and e-mail, but CMC also covers real-time chat tools like video conferencing.

**Computer-Assisted Instruction (CAI)**

A computer-assisted instruction program, "the computer takes over from the teacher in providing the learner with drill, practice, and revision, as well as testing and diagnosis".

**Virtual Education**

Virtual education is the use of information and communication technologies (ICTs) to deliver educational programs and courses.

Farrell (1999) reports that "the label virtual is widely and indiscriminately used around the world and frequently used interchangeably with other labels such as open and distance learning, distributed learning, networked learning, Web-based learning, and computer learning."
Cyber-Learning

Cyber Learning is an innovative approach to higher education on the Internet. Students take courses from home, office or other convenient locations at times that fit their schedule.

Asynchronous Learning Networks (ALN)

The ALN Center defines Asynchronous Learning Networks (ALN) as "people networks for anytime - anywhere learning." ALN "combines self-study with substantial, rapid, asynchronous interactivity with others."

Blended Learning and Multi-Modal Instruction

This term is often used when learning takes advantage of the best aspects of in-person or face-to-face interaction and E-learning technologies.

1.4.4 Types of E-learning

There are four basic types of E-learning.
1) **Self Study sessions** -

Here students take self-study lessons from the web server on which rich multimedia content developed using instructional design.

2) **Asynchronous Learning (Not happening at the same time)** -

In this type of learning, the student can learn from e-mail support given by the faculty and discussion board wherein students and faculty collaborate on non real time to impart learning.

3) **Synchronous Learning (happening at the same time)** -

Again Virtual classroom is similar to the real classroom in the traditional learning in many ways. However, it also differs in some ways offering significant advantages to the students. The teacher and students can simultaneously explore the vast information repository of Internet.

4) **V-Lab Sessions** -

This is a new frontier in E-learning and is still evolving. Through this tool for example, you can configure Cisco routing sitting on your desktop though router will be situated at a distant place.

### 1.4.5 Strengths of E-learning

There are many valid reasons why online programs are rapidly becoming a popular form of distance learning in higher education today. Here is a list of some of the major strengths of online learning:
1) Learning is self-paced and gives students a chance to speed up or slow down as necessary.

2) Learning is self-directed, allowing students to choose content and tools appropriate to their differing interests, needs and skill levels.

3) Accommodates multiple learning styles using a variety of delivery methods geared to different learners, more effective for entrain learners.

4) Students can participate in classes from anywhere in the world provided they have a computer and Internet connection.

5) Geographical barriers are eliminated, opening up broader education options.

6) 24/7 accessibility makes scheduling easy and allows a greater number of people to attend classes on demand access means learning can happen precisely when needed travel-time is reduced or eliminated.

7) Overall student costs are comparatively less (tuition, residence, food).

8) Potentially lower costs for companies needing training and for the providers.

9) Fosters greater student interaction and collaboration.

10) Fosters greater student/instructor contact.

11) Enhances computer and Internet skills.

12) Draws upon hundreds of years of established pedagogical principles.

13) Has the attention of every major university in the world, most with their own online degrees, certificates and individual course.

1.4.6 Objectives of E-learning
The objective of E-learning should be to create vibrant learning environments wherein a user goes through life like an interactive experience. *Environment and Experience* is two fundamental concepts that guide the E-learning field mentioned below:

1) To access educational resources from outside the institution on a global and instant basis.
2) To obtained quick and easy way to create, update and revise course materials.
3) To increase the flexible interaction with student through e-mail and discussion forums.
4) To obtained location and time independent delivery of course materials such as course notes, diagrams, reading list, etc.
5) To prepare quality-learning materials, ability to combine text, graphics and a limited amount of multimedia, enabling instructional designers.
6) To increased learner control through hypertext based presentation of information.
7) To obtain opportunities for international, cross culture and collaborative learning.
8) Ability to serve a large number of students at a potentially reduced cost.
9) To develop self-learning ability.

1.4.7 Need of E-learning in India
India has the world largest illiterate population and second largest population. Numerous governments tried to eliminate illiteracy completely from India but failed simply because of its enormous geographic spread and huge population. However the advent of E-learning in India has made this task easier and achievable.

With a population in the learning age group of 18-32 of roughly 350 million, the country’s educational infrastructure like schools, colleges, labs and even roads leading to schools have hardly kept up. Yet there is a far bigger problem that affects the quality of education in our country. The factors that affect the quality of traditional classroom learning in India are:

1) Huge population
2) Poor infrastructure like bad roads, ill-equipped schools and colleges
3) Poverty
4) Child labor
5) Lack of awareness
6) Inadequacy of good and qualified teachers
7) Poor educational system with little or no emphasis on practical learning and unable to equip students with professional skills.
8) Unemployment

1.4.8 How E-learning can be an advantage for India

1) Through E-learning programs, few good teachers can be teamed up to teach hundred and thousands of students especially those students who live in
remote areas and don't have access to good schools, teachers and quality education.

2) E-learning programs offer anytime and anywhere learning which is very beneficial for those students who work.

3) E-learning can add multimedia capabilities to the learning material, which make the course much more interactive and interesting especially for those students who are completely illiterate and rely purely on visuals.

4) E-learning is far more cost effective than the traditional learning because of its scalability and ubiquity.

5) The absorption levels of students are 20% higher in a virtual classroom than in the traditional classrooms.

1.5 Traditional Learning Versus E-learning

Society is rapidly changing with technological advancements and schools/colleges cannot be left behind. The traditional learning that takes place works, but a change is needed. A change in the school/college system is needed because society is changing. If schools/colleges are not involved with the technological advancements then the students will not be educated. And more importantly, the students are the adults of the future therefore; it is necessary to educate the students with the help of technology. The traditional school system is broken; they are not teaching the necessary tools for the changing technological society.

It is not necessary to think that traditional schooling is abolishing, but incorporate both traditional and technological learning. The idea that a student can go to class and
not participate and is still considered present is horrible. The use of technological learning would prevent this from occurring. A student that is taught through technological learning is solely responsible for proving their presence. If students want to be noticed and accounted for they must participate.

The issue is not which teaching/learning style is better, but the information that is being retained and taught. The teachers need to worry about teaching the necessary tools for the students to be able to apply their own knowledge. Teacher should teach lesson by using the current technology and become a motivator for the student that helps to changing the attitude of the student and become a good self E-learner. If this will be obtained through technological learning then this should be the learning style of the future. When you learn 70% of information retained through discussions with others then technological learning would help students retain more information than traditional learning and to achieve better academic result also. With technological learning a student has discussion after discussion on-line with others. Like Claudia Wallis17 said, "Not only do all 17 students in the class participate, but twice as many outside the class have joined." This is very true, not only do you have the opinions of only 17 students, but possibly thousands. In a traditional classroom only 17 students involved in a discussion for more participants other arrangements have been made. On-line the arrangements don't need to be made it just happens.

Technological learning has many more advantages that traditional learning. You can learn when it's convenient for you, not Monday Wednesday Friday at 12 noon. Someone that works full-time can still be able to get some courses done at night or on weekends. Those people who live out of town or who live in a town with no university do
not need to worry about commuting or moving just to attend school. On the other hand one of the serious issues that come with technological learning is self-discipline. When people are at home they tend to be distracted very easily. Self-discipline is also an issue in the work place, but when you sit in an office you tend to do your work.

The biggest problem with technological learning is the lack of knowledge many people have about computers and the Internet and lack of environment provided by the institution. Availability of technological learning environment for educating student feels them comfortable. Traditional learning may not be as successful in teaching retainable education, but they offer socialization. We need to collaborate both traditional learning and technological learning. Traditional learning would offer the one on one and socialization that people need and technological learning would teach the students how to use the necessary tools to apply to everyday situations.

1.6 The Implications of E-learning for Lecturers

In today’s global and competitive environment the Information society requires the use technology enhanced learning and teaching at different educational forms and levels. As the basics of E-learning are combination, implementation and relationship of the activities for learning and teaching via different electronic media. Therefore the recognition of the pedagogical and technological dimensions of E-learning is important as it concerns the development and application of technology enhanced courses. Specific components of E-learning might be used in different educational degrees both in secondary and higher education. The efficiency of technology enhanced learning and teaching depends on several factors. Most important of them are:
Suitable technological tools – both hardware and software;

Appropriate didactical approaches – different approaches are to be followed to implement the technological tools in various educational forms, taking into account the different abilities and preferences of learners and lecturers;

High-level competence of lecturers – lecturers appear in two important roles: as developers of E-learning content and as tutors implementing ready-made courses;

Positively motivated lecturers and students - to use information and communication technologies and E-learning.

In the implementation of E-learning programmes, higher educational institutions are demanding a change in the role of university lecturers. According to McFadzean (2001)\(^\text{18}\), traditional teaching and learning skills need to change in order to get maximum benefit from virtual learning, hence lecturers are posed with the task of developing a new model of effective teaching. Research carried out by Learning Peaks (2001)\(^\text{19}\) implies that, in an online environment the role of a lecturer focuses more on administration than teaching. The Learning Peaks study proposes that the four core competencies of an online lecturer are administrator, facilitator, technical support and evaluator. Lecturers must be provided with sufficient time and resources to ensure that online courses are suitably developed and implemented to meet the needs of students.

1.7 The Implications of E-learning for Students

It is widely acknowledged that implementation of E-learning leads to a fundamental shift in learning styles; however research into the effects of this shift is inconclusive. Firstly, Knight (1996)\(^\text{20}\) proposes that, E-learning will benefit students who are used to being ‘spoon fed’ on the basis that students can no longer be passive about
their learning. This view is endorsed by Hawkes and Cambre (2000) who claim that in order to gain results, students must take responsibility for their own learning. Secondly, and in contrast to Knight, the views of Kershaw are noted. Kershaw (1996) proposes that, students will not automatically become careful, self motivated individuals and that success in fact depends on the level of interaction between students and lecturers that is required to stimulate good results. Based on the lack of conclusive evidence relating to the effects of a change in learning style, it seems appropriate to assume that not all students respond well to an E-learning environment. Cooper (1999) points out that, independent learner have the potential to be successful in distance education; however those lacking in the skills to study independently will not react well in a virtual environment. Under such circumstances, institutions implementing E-learning must be aware that students will react differently to the changing paradigm of learning and rather than implement changes across the board, should aim to offer courses tailored specifically towards the different learning styles. In failing to take such action, universities run the risk of low success rates and at worst, failure.

1.8 External Factors Driving E-learning

According to Middlehurst (2001); Mc. Burnie (2001) external factors influencing the inner life of higher education institutions, including the use of ICT, can generally be distinguished into: economic, social, cultural, and technological factors as well as the changing role of governmental policy. The emergence of the knowledge
economy, in which economic productivity and growth is increasingly dependent on the development and application of new knowledge, creates a growing demand for a highly educated and flexible work force, leading to a further pacification of higher education and to an increasing need for lifelong learning opportunities.

The process of globalization, characterized by increasing global economic interdependence and international competition, leads to the emergence of an international higher education market in which a growing number of traditional and new types of higher education providers compete with each other. The process influences at the same time the role and responsibilities of the nation state in the higher education sector. ICT is both driving and enabling the processes toward a knowledge-driven global economy. It allows higher education providers to accommodate the specific needs of students in terms of mode, pace, place and time of study and to cater to different and new target groups and markets both locally and globally Center for Higher Education Policy Studies CHEPS (2000)26.

1.9 Need and Importance of the Study

"Nothing is permanent except change".

In a world where change is the only constant there is a need for tools techniques to help institutions become more effective. In the twenty first century, people are fading up with old styles, they need change very fast. To stay in the competing world, Institutions have to take initiatives to compete with all the challenges of changing world.
"Change your self before they change you". As an example of communication system, in the early phase of communication, people are sending their messages through birds. Then the process got a spark of change and it burnt out with the new ways like mail, telephone, pager, email, mobile, internet etc.

In the same way, in the early phase of education system, education was provided by black board and chalk. Then books and materials come into picture. And now computer and Internet play a vital role in providing effective education. With the reference of World Wide Web in 1969, the world of teaching and learning has adopted it as one of its main innovations. A McKenzie\textsuperscript{27} report has indicated that, by 2008 we need to develop over 2.2 million IT knowledge workers. According to Goddard (1998)\textsuperscript{28}, the demand for higher education is expanding exponentially throughout the world and by 2025 as many as 150 million people will be seeking Higher Education. Yet the current education system seems to be unable to equip students with variety of these skills.

Many studies report the virtual learning environment as more effective, efficient and satisfying than the traditional learning situation. In recent years, several case studies Piccoli et al. (2001)\textsuperscript{29}; Kekkonen- Moneta and Moneta (2001)\textsuperscript{30}; Marandi and Luik (2003)\textsuperscript{31}; Zhang et al. (2004)\textsuperscript{32}; McDonald et al. (2004)\textsuperscript{33} have dealt with the use of Virtual Learning Environments in teaching Information and Communication Technology (ICT). The case studies have most commonly been related to the learning of basic types of IT skills, for example word processing, which everyone should master, in order to study or teach full-time. This fact has probably increased the motivation to learn and explains the good learning results.
As India has one of the largest higher education systems in the World. Educational uses of Information and Communication Technologies (ICTs) have made an enormous contribution to improving education and to the development of learning theories. Increasing competitiveness, technological change and social processes require continuous upgrading of skills and personal growth. Technological innovation, the adoption of new teaching/learning theories and social change depend on teachers to modify their role, to introduce new contents, tools and methods, and to deal with a heterogeneous student population.

The online education programmes are very much needed in Indian Universities and other academic institutions. The first prerequisite for starting such programmes is the development of ICT infrastructure in Indian universities. Fortunately, E-learning has the answer to all of these issues. E-learning environment is a real boon of ICT application. The notable point is that the new E-learning model can co-exist well with the traditional learning environment. It not only makes distance learning easy, but also enhances the classroom-based teaching. Today E-learning and E-learning environment is very essential for every professional college like Medical, Dental and Engineering college to improve the quality of education. Hence it is very important to find out the effect of Traditional learning and E-learning on the students academic achievement. That’s why the researcher realizes the importance of the present study.

1.10 Selection of the Problem

The interest in E-education is growing very rapidly in India. The Ex-President of India Dr. APJ Abdul Kalam announced a vision plan that envisaged an empowered
science and technology based by 2015 saying that there is a need to energies our university system and enable it to respond to the pressures of the market, so that, it can retain and attached talent. A proposal of the government too was announced to set up several institutes of science, technology and IT in various parts of the country as part of its effort to revitalize the higher education system.

A large number of studies compare student achievement between web-based learning versus traditional delivery models. Ryan (2000)\textsuperscript{35} suggested that, achievement test scores of students in the online and in the face- to-face classes were either statistically equivalent, comparable, or roughly at the same level. Maki (2000)\textsuperscript{36} indicate sometimes the online students performed significantly better or acquired greater learning than the face-to-face students. According to Piccoli et al. (2001)\textsuperscript{37}, students in the virtual learning environment would score higher points in the exam than the students in the traditional classroom.

Zhang et al. (2004)\textsuperscript{38} suggested the students in the E-learning environment got significantly higher grades than those in the traditional classroom situation. And the lecturers used a virtual learning environment to synchronize video presentation with PowerPoint slides and lecture notes. Walker and Harrington (2004)\textsuperscript{39} compared the effects of computer-based learning and instructor-led training in fire safety. They found that the computer based group used less time than the traditional lecture group for the training, so the computer-based learning might be more effective than traditional lecturing. Lee et al. (2002)\textsuperscript{40} found in their study that, positive attitudes towards using computers were the key factor in the virtual learning environments success. Students' positive relationship to computers helps also the learning process. By considering the
Indian situation of higher education and after going through the above studies there are some questions arise with traditional learning and E-learning and for that researcher first wants to check:

1. Is there a sufficient knowledge and attitude of students and lecturers have about the E-learning?
2. Is there have an environment and facilities provided by the institution?
3. Is the traditional learning or E-learning or both methods are essential for better academic achievement?
4. Is there a positive attitude of E-learning compared to traditional learning of Medical, Dental and Engineering students?
5. What should be the academic outcomes of the students by E-learning than traditional learning?

Thus the present researcher has decided to take up this study for investigation and state the problem as under.

1.11 Statement of the Problem

"A Study of Traditional Learning and E-Learning of Final Year Students of Medical, Dental and Engineering and Their Efficacy on Their Academic Achievements"

1.12 Operational and Functional Definitions

- **Study** -
  
  “To take pains for acquiring knowledge for practice or for an experiment.”
● **Traditional Learning** -

Teaching methods, which are generally used to teach various subjects in the class. (Functional)

● **E-learning**:

Cisco system defines E-learning as

"E-learning is Internet-enabled learning, components can include content delivery in multiple format E-learning provides faster learning at reduced costs, increased access to learning and clear accountability for all participants in the learning process in today's fast-paced culture, organizations that implement E-education provide their workforce with the ability to turn change into an advantage."[42]

In present study Electronic learning or E-learning is learning method can be used in conjunction with face-to-face teaching, to find out the effect on academic achievement of the students of Medical, Dental and Engineering.

● **Medical**-

This gives physiological knowledge of human being and remedies of various diseases. (Functional)

Practice of the prevention, diagnosis and treatment of disease or injury. (Functional)

● **Dental** -
This gives the better knowledge about diseases of the teeth of human being and their remedies.

- **Engineering** -
  Applications of scientific principles for practical purposes, such as construction and developing power sources. There are many different fields in engineering including MECHANICAL, CIVIL, CHEMICAL, ELECTRICAL AND NUCLEAR. Academic training starts with a graduating in the fundamentals of science and general engineering. All the above Medical, Dental and Engineering are the professional courses so the definition of the professional course is –

- **Professional Course** –
  The knowledge or skill obtained or developed by learner for particular profession.

- **Efficacy** -
  A measure (as a percentage) of the actual output to the standard output expected. Efficacy measures how well someone is performing relative to expectations.

- **Academic** -
  Having to do with education or study.

- **Achievement** -
The successful reaching of a goal used particularly to refer to real-life successes and when evaluating a person’s life. (Functional)

- **Academic Achievement** –

Merriam Webster defines Achievement as –

“The quality and quantity of a student’s work and hence academic will be the whole years scholastic work done by a student.”

### 1.13 Objectives of the Research Study

Objectives are nothing but the basic reason for carrying out a particular survey of study. Defining objectives makes easy the research work, gives it a driving force to yield and useful solutions for the chosen problem.

The following were the main objectives of the study –

1) To construct an attitude scale for measuring the attitude of final year students of Medical, Dental and Engineering colleges towards Traditional learning and E-learning.

2) To construct a opinionnaire for measuring the attitude of lecturers of Medical, Dental and Engineering colleges towards Traditional learning and E-learning.

3) To measure the attitude of students of Medical, Dental and Engineering colleges towards Traditional learning and E-learning.

4) To measure the attitude of lecturers of Medical, Dental and Engineering colleges towards Traditional learning and E-learning.
5) To compare the attitude of male and female final year students of Medical, Dental and Engineering colleges towards Traditional learning and E-learning.

6) To measure the effect of Traditional learning and E-learning on the academic achievement, by collecting the final examination marks obtained by the final year students of Medical, Dental and Engineering.

7) To compare the efficacy of traditional learning, E-learning and both learning on the academic achievement of final year students of Medical, Dental and Engineering.

1.14 Hypothesis of the Research Study

Hypothesis is usually considered as the principal instrument in research. Definition of hypothesis is as follows.

According to John W. Best—

“Hypothesis is a shrewd guess or inference that is formulated and provisionally adopted to explain observed facts or conditions and to guide in further investigation.”

In short hypothesis becomes the basis for action or investigation in its most elementary stage. It was hypothesized that:

1) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards behavioural factor of E-learning.

2) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards affective factor of E-learning.
3) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards cognitive factor of E-learning.

4) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards behavioural factor and affective factor of E-learning.

5) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards behavioural factor and cognitive factor of E-learning.

6) There is no significant difference between the male and female final year students of Medical, Dental and Engineering towards affective factor and cognitive factor of E-learning.

7) There is no significant difference between the male and female final year students of Medical towards Traditional learning.

8) There is no significant difference between the male and female final year students of Dental towards Traditional learning.

9) There is no significant difference between the male and female final year students of Engineering towards Traditional learning.

10) There is no significant difference between the male and female final year students of Medical and Dental colleges towards Traditional learning.

11) There is no significant difference between the male and female final year students of Medical and Engineering colleges towards Traditional learning.
12) There is no significant difference between the male and female final year students of Engineering and Dental colleges towards Traditional learning.

13) There is no significant difference between the Traditional learning and E-learning of male and female final year students of Medical colleges.

14) There is no significant difference between the Traditional learning and E-learning of male and female final year students of Dental colleges.

15) There is no significant difference between the Traditional learning and E-learning of male and female final year students of Engineering colleges.

16) There is no significant difference between the Traditional learning and E-learning of male and female final year students of Medical and Dental and Engineering colleges.

17) There is no significant difference between the efficacy of Traditional learning and both learning on academic achievement of final year students of Medical, Dental and Engineering.

18) There is no significant difference between the efficacy of E-learning and Both learning on academic achievement of final year students of Medical, Dental and Engineering.

19) There is no significant difference between the efficacy of Traditional Learning and E-learning on academic achievement of final year students of Medical, Dental and Engineering.

20) There is no significant difference between the efficacy of Traditional learning and E-learning and Both learning on academic achievement of final year students of Medical, Dental and Engineering.
21) The attitude of Lecturers of Medical, Dental and Engineering towards E-learning is not significant.

1.15 Scope and Limitations of the Research Study

According to R. K. Sharma –

“Limitations make the general topic to a workable size, establish limits of the delineated topic that are to be investigated for the specific research.”

Though research studies are unlimited but it has certain boundaries. The research should not be done at random and should be efficient as possible. For this it is very important to define these boundaries.

The scope of this research study are:

**Area**: All the Medical, Dental and Engineering colleges of Vidarbha region only.

**Population**: All the final year students of Medical, Dental and Engineering colleges of Vidarbha region only.

**Content**: A study of efficacy between the Traditional learning and E-learning attitude of final year students of Medical, Dental and Engineering colleges.

The present study had the following limitations in it.

1) The study was limited to the Universities of Vidarbha and Nashik of Maharashtra State only viz. Sant Gadge Baba Amravati University, Amravati, Rashtra- Sant Tukdoji Maharaj Nagpur University, Nagpur and Maharashtra University of Health Sciences, Nashik.
2) The study was conducted on final year male and female students and lecturers in the colleges of Medical, Dental and Engineering of Vidharbha region only.

3) The study was conducted to measure the attitude by using the attitude scale and opinionnaire for final year students and lecturers of Medical, Dental and Engineering colleges only.

4) The study was conducted only for comparing the efficacy of traditional learning and E-learning and both learning on the academic achievements of the final year male and female students of Medical, Dental and Engineering.

5) No other factors were considered for the present study.

1.16 Research Significance of the Study

The main reason for doing this study was to experienced and explores E-learning (on line education) and see if the results are comparable to those achieved through classroom-based instruction in terms of academic achievement. Hence present study is significant in the following respects:

1) In designing an attitude scale for measuring the attitude of the final year students of Medical, Dental and Engineering towards traditional learning and E-learning and their efficacy on their academic achievements.

2) In designing an opinionnaire for measuring the attitude of lecturers of Medical, Dental and Engineering towards traditional learning and E-learning.
3) In measuring the academic achievements towards traditional learning and E-learning of the final year students of Medical, Dental and Engineering of Vidarbha region.

4) It is also help in knowing whether the traditional learning or E-learning or both learning methods plays a vital role in providing effective education to the final year students of Medical, Dental and Engineering.

5) Present study is helpful in knowing whether the Universities and Institutions are needed to evaluate whom they train and how.

6) The present study is helpful for the online learners how to achieve updated knowledge in the concerned fields.

7) Present study is also helpful to all areas of education like continuing education, distance education and all faculties of education as a new technology.

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