Chapter 1

Introduction

- Background information
- Statement of the problem
- Definition of Key terms
- Need and significance of the study
- Objectives
- Hypotheses
- Methodology
- Organization of the report
- Scope and Limitations of the study
INTRODUCTION

Knowledge acquired by the humanity over 1000 years in the past is being overtaken completely by the knowledge acquired during the past few decades in the present century, thanks to the increasing division of labor, sophisticated technology and specializations with a futuristic vision. A nation may suddenly find itself left far behind on the ever-lightening path of progress simply because of its primitive and outdated educational system.

1. Background

Information Technology has a wide social application in almost all domains and activities of modern society. Information Technology, spreading throughout the world in a lightening speed has revolutionized each and every sphere of human activity. Information Technology is meant for storing, processing, and manipulating data, knowledge and information. Ultimately all these are meant for the benefit of society. The fundamental characteristic of such a society is its dynamism and unending progress. Life long learning is essential for the unending progress of society. Traditional classroom learning is not possible and not at all desirable for the life long learning. Moreover traditional methods of teaching and learning fail to provide efficient and effective learning. So there must be sufficient distance learning centers and Open Universities as an alternative system of education. Application of Information Technology application is the only possible way to improve the quality of higher education through distance mode, for its modernization.
Due to the explosive growth of knowledge and its interdisciplinary nature, the information handling has become extremely difficult. The advent of digital computers, advances in telecommunication technology, widespread use of networking, explosive growth of internet, mass storage media, virtual reality and databases have opened up new possibilities in dealing with the collection, organization, and dissemination of information. Now information can not only be stored, retrieved, communicated, and broadcasted electronically, in enormous quantities at greater speed, but can also be rearranged, selected and transformed.

A proper and systematic study of the social application of Information Technology is generally known as Modern Informatics, quite distinct from computer science, Information science and Communication technology. An information system is the organization what nervous system is to body. Timely information is required at every level of any organization to take the important decisions. Sometime lack of information in time can seriously affect the working of organization. Because of so much importance of information in the decision making process, organizations are willing to spend large sums to acquire information. For this purpose organizations can either have their in house processing system or avail the services of vendors providing such services. Whatever is the source of information, every information possesses a value. However Informatics, as a branch of study is in its early stages of development, despite initiatives taken by UNESCO, UNIDO, ITU and International Federation for Information Processing (IFIP).

Economic growth of India is fundamentally tied to societal transformation in the knowledge products and service sector. Of course this in turn strengthens all the areas like education, agriculture, and manufacturing through innovation and value addition. The development of India is only possible through exploiting knowledge intensive products and services.
Information, knowledge and communication technology have to be widely deployed in our transformation strategy along with newer technologies like biotechnology, nano technology etc.

Education is the key aspect to human resource development. National policy on education (1986) rightly pointed out that education is a unique investment in the present and future. In providing education, formal system has its own limitations. The formal system is unable to meet the needs of all learners. Thus open learning system has been initiated in the country in order to augment opportunities for those who have either been dropped out or remained deprived of formal education system. Further open and distance education system also act as an instrument of democratizing education and to make it a lifelong process.

Unlike conventional system a heterogeneous group of learners enroll to various open and distance learning institutions. The successful completion of the course / program is depends upon their characteristics. Distance education has earned the credibility of a viable and effective alternative channel for imparting education at all levels all over the world and India is no exception to it. However the academic performance of distance learners is usually looked down on account of its low quality or for some other reasons. Information Technology is applied and started to apply in most of the Open Universities and distance education institutions in the country. It is a matter of curiosity and concern for the educational policy makers and experts.

The constitution of India provides for equal educational opportunities for all. However, the goals envisaged in terms of overall coverage, equitable distribution and quality of education are still very distance in all stages of education. The disparities among male-female, rural-urban and region-to-region are especially higher and significant in higher education. The Govt. of India has expressed its commitment to promote education in a planned
manner. The task however is daunting. Almost half of our population does not enjoy access to even basic education. The situation is really pathetic. Formal system of education has, in general, has two constrains. One is spatial and other is temporal. Education takes place within the campus and in classrooms and laboratories. It is confined to the earlier period of one’s life generally from 6 to 25 years of one’s age. To quote Honry “any one who stops learning is old, whether at twenty or eighty; any one who keeps learning stays young” (Kulandai Swamy, 2002). In the era of continuing and life long learning a new class of learners has emerged and for them education does not terminate at the end of formal schooling. It is a life long process, which covers the entire life span of an individual. So we need today a system that helps transcend these limits of formal system and satisfy the learners’ immediate and long terms needs. Distance education provides the answer to such situations. It has a prominent role to play for education of the people with focus on the human resource development.

The policies and practices of the Government try to reflect the present demands and needs of the society. Undoubtedly, the new policy on education provided due emphasis on strengthening the distance and open learning systems in the country. National policy on education states that ‘life long education is a cherished goal of the educational process. This presupposes universal literacy. Opportunities will be provided to the youth, housewives, agricultural and industrial workers and professionals to continue the education of their choice, at pace suited to them. The future thrust will be in direction of open and distance learning.

Kulandai Swamy went ahead to say that distance education is no longer a matter of choice, but a compulsion of time. There are 11 to 20 percent students of the age in territory education system in many of the developing countries like Egypt, Mexico, and Brazil etc. Among the
remaining 94 percent who are outside the system, there are many who are highly motivated, academically talented, but could not go for higher education due mainly to social, economic and geographic constraints. The distance education system, besides other objectives meets the aspirations of these persons (Kulandai Swamy, 1998). By establishing various directories of distance education at the conventional Universities and state and national level Open Universities distance mode of education has earned its credibility as an effective alternative and parallel system of imparting education to the large number of the learners in the country.

The National Policy on Education (NPE 1986) state that “in our national perception education is essentially for all”. The program of action of NPE further states that “the open learning system augment opportunities for higher education, ensures access, is cost effective and promotes a relevant, flexible and innovative system of education”. Thus one could very well see that, trusting on the potentialities of distance education, it should become a part of the Government’s policy to educate the masses at all levels of education.

1.1 Information society

Information has become the most vital commodity for consumption and production in almost all aspects of the society. “Information society” has become a reality thanks to recent technological advances in electronics and telecommunication. The emergence of a new electronic communication system characterized by its global reach, its interaction of all communication media and its practical interactivity is changing and will change forever our education, culture etc. creating a new area of ‘cyber societies’ or ‘virtual communities’ (Jones, 1998). These technological advances resulted great changes in the field of education and learning.
About $11 Billion is earning in India through exploring IT. It is a clear evidence for the establishment of an ‘Information society’. Arun shourie in the world summit on the information society suggested four elements for the construction of an information society.

- Use of ICT to establish literacy.
- Develop the universal networking language, with which a person in Iran can read an article in any Indian language in Persian.
- Develop voice to text and text to voice software
- Complete research on reaching wireless signals to go to multiple 50/60 Kilometers.

1.2 Informatics

The study of social application of Information Technology for speedy development in the context of the third world is an entirely new branch of study. This new branch of study is generally known as Developmental or Third World Informatics. This third world or Developmental Informatics got international recognition mainly due to the theoretical, strategic and policy studies conducted by Mathew. (Mathew, 1987, 1992, 1998). Development Informatics mainly concerned with the study of social application of Information Technology in the modernization and speedy development of education, government administration, developmental activities, health care, culture and entertainment etc. in the context of third world countries.

1.3 Knowmatics

Research and development in the field of informatics has resulted in the formation of a new discipline called ‘Knowmatics’. Knowmatics is a new scientific and engineering discipline to study the structure, properties, behavior, representation and communication of knowledge so as to develop algorithms to process knowledge. All the achievements in Information
Technology are confined to data or information processing. No technology has been developed so far to process and organize knowledge. Though terms like knowledge management, knowledge organization and data mining etc have been used widely; they are limited to one form or another form of data processing. Knowmatics is interdisciplinary in nature. It is the result of integration of several disciplines like Epistemology, Cognitive sciences, Informatics, Brain research, Mathematics, Computer science, Library science and Networking. Knowmatics provide theoretical basis and methodological tools for developing algorithms for knowledge processing and Knowledge handling and thereby developing knowledge technology (Mathew, 2005).

1.4 Educational Informatics

Education and learning has become a life long process. Since it is impossible for the society to depend on formal educational methods for their life long learning, they began to depend more on distance learning methods. To live is to learn. No individual or society can survive without constantly learning new things. Thus life long learning can be considered as a process inherent and natural to human existence. However the pace and mode of learning changes according to the manner and mode in which the society is organized and the way individuals are positioned in it. Learning need of the modern information society has naturally to be different from those of primitive or medieval societies. Education is the vehicle of knowledge and information. Society needs life long learning to keep them paces with the trends in modern world. Distance learning is the only possible way for life long learning. For the effective and systematic life long learning Information Technology should be applied in all fields of education especially in the field of distance education. The application of Information Technology, in the specific context of education and training can be generally named as "Educational Informatics".
Information Technology has brought many benefits in the field of education, especially distance education. The application of computers and communication technologies have began to apply in almost all the fields of distance education such as student enrolment, staffing, instructional delivery, online classes and evaluation and assessment. Virtual Universities began to start in almost all the developed countries. Even in India steps are going on for the establishment of Virtual Universities and virtual learning. Due to the launch of ‘Edusat’ more possibilities of using communication technological tools are going to be exploited. A wide variety of advantages can be derived by the appropriate use Information Technology. Following are some of the benefits of using ICT in distance education.

- Help the learners to free from attending uninteresting classes and contact sessions.
- Communication with many students at one time.
- Flexible and convenient.
- Participants respond quickly.
- Classes are more interesting.
- Learning from the top-level experts in the field.
- Classes can be recorded, saved and reformatted for future study purposes.
- Easy and wider access to all kinds of information resources.
- Help to increase efficiency and effectiveness of teaching and learning.
- Improves the cost effectiveness of distance education.
- Provide remote access to the learners.
- Economic and time saving.

Though IT has the potential for modernizing the distance education system in the country, there is a wide gap between what is told and what has
been achieved. It is estimated that a large amount of learners are not aware of various tools and techniques applied in the field of distance education. The reasons in the application of Information Technology in the field of distance education or for its slow progress are many. The following may be considered important among them.

1. Technological backwardness of the society as a whole.
2. Existing infrastructure of the Universities.
3. Use of IT as supplementary to the conventional system of distance education.
4. Existence of study materials in the tabulated format.
5. Lack of importance for further study and research.
6. Limited student support services.
7. Inadequately trained teachers.
8. Lack of IT awareness among the learners.
9. Inadequate publicity for IT based resources and services.
10. Lack of a wide network among Open Universities in the country regarding exchange of information resources and services.

The application of Information and Communication Technologies in the field of distance education in India has gained much momentum. New and emerging technologies such as wireless networking, multimedia technology and satellite technology have immense possibilities in the field of distance education. Although the use of Information Technology in the field of distance education is low, it is expected to go up in the coming years with continued reduction in the prices of hardware and software. The extent of use of IT in distance education institutes will increase substantially. Open Universities and distance education institutes will use expert systems and virtual learning techniques using artificial intelligence in the near future. Use of mass storage devices such CD-ROM and DVD-ROM and flash memories
will increase further. The World Wide Web is going to be more interactive and multidimensional incorporating more virtual reality techniques.
1.5 Open / Distance learning

The Open and Distance Learning (ODL) has become an integral part of higher education globally. It is an effective tool for the provision of education to a heterogeneous group of learners as well as an alternative channel to democratize education all over the world. The origin and growth of distance education has its roots in the familiar circle to be squared. The development imperative of providing health and education facilities to the people in the poor countries, which they can hardly afford and without which they cannot develop such economic resources. This fact underlines the need for a proper educational policy. The goal of such a policy is to arrive at a balance between the demand for and the supply of education to secure the most beneficial form of educational development. This fact has been reiterated by the education Commission (1966) while observing that the growth of education should go together with the manpower requirements of an expanding economy.

ICT has made it possible for any learner to pursue education from any place and from any institution. Yet the learners’ geographical mobility from place to place, be it within a country or across the countries has been causing problems to the learners in pursuing the program of study, depending upon the nature, duration etc. of the program. To address all these problems, there is a need for effective network of distance and open education institutions with provision for transfer of students along with their credits, records and so on between and / or among all the institutions offering same programs in same media with same or equivalent syllabus or curriculum. Such a network calls for a well-coordinated mechanism to smoothen and facilitate the relevant opportunities. If this kind of transfer is made possible through different media, including the virtual mode that will be the best way for the distance learners at large. This perhaps is possible by promoting multiple consortia at
different levels, national, regional and international levels and through multiple media.

There are about 40 Open Universities in the world out of which 11 (27%) are located in India alone. Out of 1200 institutions in this field in the world, 72 (6%) are in India alone. As a sequel to this magnitude of growth, many associations of open and distance learning such as Indian Distance Education association (IDEA), Australian Association for Open and Distance Learning (AAODL), Asian Association of Open Universities (AAOU), International Council for Distance and Open Education (ICDOE) and so on.

In fact, the universal demand for education, thirst for knowledge and the failure of the mainstream education system in catering to the increasing popular demand for higher education were the major contributory factors behind the emergence of the ODL system. Appearance of knowledge societies where material and physical capital is gradually replaced with knowledge capital and of knowledge workers consisting of technically qualified people dominating the values in all spheres of life has revolutionized the concept of learning and re moulded it into one that envisions learning out of the four walls of classrooms and learning during the entire life span. This has contributed also to the legitimization of distance education as the right alternative to the conventional system; it has not only proved cost-effective but also has the right potential to reach out to the large segment of the unreached, the marginalized, and the needy. Correspondence education, which developed in the 19th century and remained in the educational margins till the second half of the 20th century, has come to be regarded as a route to social mobility by the socially and educationally disadvantaged. The very philosophy of distance education envisages complete freedom from any restraint on account of jurisdiction from which the conventional Indian
Universities suffer. There is no geographic restriction. Students in distance education system are free to learn at their own pace and convenience while being away from the institution.

A variety of media such as radio, television, computer and Internet etc are being used as a part of learning material by many Open and Distance Learning (ODL) institutions. As a result, course delivery in such institutions is multi-channel; multi-media mix (Kulandai Swamy, 2002). The requirements of the distance education for developing the course material using the multi-media approach has necessitated, apart from print material, embracing of technologies such as radio, television, audio and video cassettes. Last decade has witnessed a virtual explosion in the advancements made in several areas of technology especially those relating to computer, networking and communications, which have a direct bearing on the distance education system.

There are some positive educational implications associated with using technologies in Distance Education, like the availability of greater variety of learning resources; improved opportunities for individualities learning; the possibilities of greater control for students over their learning; more extensive coverage via technologies and therefore greater access to them; greater flexibility offered by the wide range of technologies; characteristic fall in the cost of new technologies as they become established; and there is a higher degree of interactivity as convergence occurs between old and new technologies (Khan, 1989).

Because of their qualities, such as greater delivery capabilities, contributing to specific learning activities, promoting participatory learning, motivating the learners to get involved with learning activities, accommodating individual needs and extending the role of teacher etc electronic media such as radio, television, computer and Internet etc have
been embraced as a part of learning material by many ODL institutions. However, in practice, the veracity of technologies use among institutions across the world is varied, and is commonly influenced by non-pedagogical factors, such as cost, access and availability as much as by pedagogical factors. The ways in which different institutions employ any one particular technology are also subject to great variation (Harry and Khan, 2000).

1.6 Educational Technology

Educational technology has been interpreted in two ways:

1) Technology in Education
2) Technology of Education

The former is the means, while the later refers to the core of what the ends should be learning, how it occurs and how technology may be developed to enhance learning. One of the principal distinctive features of the new IT enabled education system will be the opportunity provided for individualized self-paced learning, which caters to the individual abilities and aptitudes of the individual learners, and the possibility of one to one interaction with the teachers. This will also offer better opportunities to provide feedback and permit effective assessment of learning. IT application is only means. The ultimate goal is to improve the quality of education and to make it reach to large masses in flexible way. Educational technology deals only with transactional component or the process component. Educational technology is the systematic and hence takes a system view instruction. It encompasses learning goals, curriculum and contents including audio-visual aids, media, self-instructional approaches and evaluation. Thus in a professional sense, educational technology is a system approach to planning and execution of instruction to optimize human learning.
Conventional production factors such as land, capital and machinery are no longer sufficient to gain and sustain a competitive edge in the global markets. The bases for competition has shifted to how well and fast intangible assets such as knowledge, information, ideas and organizational capacity can be developed to reduce cost, increase quality and generate innovation to meet customer needs quickly and effectively (Bates, 1994).

There comes the importance of conducting a very detailed and systematic study of the social application of the Information Technology in the specific area of distance learning of the third world especially of India, so as to modernize them and withstand the challenges of time. In other words Educational informatics is the most important and relevant area of study as a developing alternative method to the system of higher education in India.

It is evident that the current approach of adding technology to existing institutional structures not only fails to exploit fully the educational potential of technology, but also actually increases the cost of education. In short we need to examine very carefully the purpose and function of educational institutions in the 21st century and use electronic technologies to build new institutional models to meet new educational needs (Bates, 1994). For the modernization of these method adopted in the filed of distance learning Information Technology should be applied in its various aspects. The present study is an attempt to explore the possibilities and to understand the level application of Information Technology in Distance Learning in higher education with special reference to India.

2. STATEMENT OF THE PROBLEM

The present problem under investigation is entitled “APPLICATION OF INFORMATION TECHNOLOGY (IT) IN DISTANCE LEARNING IN HIGHER EDUCATION WITH SPECIAL REFERENCE TO INDIA”.
2.1 DEFINITION OF THE KEY TERMS

2.1.1 Application

The word “application”, according to Oxford English dictionary, is 'putting of anything to use or purpose; specific use' (Oxford English Dictionary, VII, 1970). According to Chamber’s 20\textsuperscript{th} century dictionary application means 'the act of applying, administrating or using: a thing applied' (Chambers 20\textsuperscript{th} century thesaurus, new edition, 1983).

In the present study the term application is used for the way in which something can be used for a particular purpose.

2.1.2 Information Technology:

UNESCO (1973) defines, Information Technology as “Scientific, technological and engineering disciplines and management techniques used in information handling and processing, their applications, computers and their interaction with men and machines and associated social, economic and cultural matters”.

Information Technology can be defined as the acquisition, processing, storage and dissemination of vocal, pictorial, numerical or textual information by a microelectronics based combination of computing and telecommunication. In short we can say that Information Technology means Application of computer and communication technologies in the handling of information.

2.1.3 Distance Learning

Distance Learning is a system of teaching and learning in which students study in their own homes or at local centers using materials mailed or broadcast from a central unit. Tutorial work may handle by correspondence or
by electronic media with the central unit or a regional basis. The objective is to open up opportunities by overcoming all types of barriers in learning process like economic, geographic, work commitments, and conventional course structures, which have often limited access to educational and training facilities (Sewart, 1993). The last decade has seen a phenomenal growth in distance education and the integration of this method of education with the standard Information Technology applications in a large number of countries to such an extent that it is now no longer possible to think solely about the traditional education using traditional methods.

In the present study distance learning is used as a method in which students study from their places of convenience after registering for a formal course in any Universities.

2.1.4 Reference

The word “reference” means the act of referring or the state of being referred; that to which something refers (Reader’s Digest Universal Dictionary, London, 1993).

2.1.5 Higher education

According to Encyclopaedic Dictionary of Education higher education is “Education beyond secondary school that is viewed as intellectually more rigorous and sophisticated than that of the secondary level, and that either leads to academic degrees or is on a comprehensive intellectual level”

In the present study higher education is used for any of various types of education given in post-secondary institutions of learning and usually affording, at the end of a course study, a named degree, diploma, or certificate of higher studies. Higher educational institutions include not only Universities and colleges but also various professional schools that provide preparation in
such fields as law, theology, medicine, business, etc. The basic entrance requirement for higher educational institutions is the completion of secondary education, and the usual entrance age is about 18 years.

2.1.6 India

Republic of India is a federal republic that occupies the greater part of South Asia. India is a sovereign socialist secular democratic republic consisting of 25 states, each with a substantial area of control over its own affairs, and 7 less fully empowered union territories. The capital is New Delhi. With more than one sixth of the world’s total population, India ranks as the 7th largest country in the world, covering 3,166,414,957 sq. km, just slightly more than 2% of the earth’s total surface. The provision of free and compulsory education for all children up to age 14 is among the directive principles of Indian constitution. In absolute terms the output of well-educated individual is substantial.

3. NEED AND SIGNIFICANCE OF THE STUDY

The present study is mainly concerned with societal application of IT rather than its engineering or technological or even scientific aspects. IT has great potentialities for speeding up the process of development and it has multiplier effect or impact. Because of its application the whole society is going to realize its wide range impact within a short span of time. The society and its activities are very complex. Some of the well-known social activities can be identified as economic, political, social, cultural, educational and scientific activities. Information Technology must be given top most priority in the sustained development of any country. Then only modern society can be rightly called as ‘Cyber society’.

Modern computer and communication infrastructure must be built up, extending even the remotest places for the development of a country like
India. Especially in a situation where traditional Universities and higher education centers fail to fulfill their objectives and Virtual Universities and Tele-teaching methods are going to handle the control of higher education systems. In such a situation there is an urgent need for conducting a study about the application of IT in distance learning in the country, where there are many Open Universities and number of distance learners increasing day by day. The present study is an attempt to study about the present level of application of Information Technology and to explore the possibilities of application of IT in distance learning in higher education in India.

4. OBJECTIVES OF THE STUDY

The major objectives of the present study are stated below:

1) To assess the background characteristics of distance learners in the field of higher education in India.

2) To assess the attitude of distance learners and faculty members towards the distance education and conventional education and to examine the relevance of distance education as an alternate system of education.

3) To assess the present status and quality of distance education conducted by Open Universities in the country, and to suggest certain methods for improvement.

4) To assess the Information Technology awareness of distance learners and faculty members of the Open Universities in the country.

5) To review the availability and use of Information Technology tools at different Open Universities in the country.

6) To study about the present status of IT application in the field of distance education in the country and to examine the changes occurred
in the curriculum of Open Universities due to the application of Information Technology.

7) To find out the areas in which IT can be effectively applied and to identify certain prerequisites for the same.

8) To examine the information needs and problems and to assess the library use and library services provided by the Open Universities in the country.

9) To examine the feasibility of the establishment of ‘Virtual Universities’ and web based learning in India and to examine the delivery models, which are preferred in the web based learning environment.

10) To explore the possibility of modernization of distance learning through the application of Information Technology and to formulate certain policies and plans for the same.

11) To understand whether there exist any significant difference between large/medium and small Open Universities in the application of Information Technology in distance learning.

5. HYPOTHESES

The main hypotheses of the present study are given below:

1. The learners in the field of distance education in India come from different academic and social background.

2. Distance learning is a highly relevant alternate system of education in the modern times.

3. The academic community in the field of distance education is not satisfied with present methods and practices adopted in the field of distance education in India.
4. The learners and faculty members in the field of distance education in India are well aware and equipped with Information Technology tools.

5. The Distance learning and teaching methods practiced in the country is under the verge of extinction due to the recent developments in the field of Information and Communication Technology.

6. Various distance learning institutions and Open Universities are in different levels in the case of application of Information and Communication Technology.

7. In order to apply IT in distance learning, building up of infra structure (Hardware), designing and developing software, existences of human ware (overall social development) sector are necessary.

8. Open Universities and distance learning institutions have a sound library system and provide efficient and competent library services.

9. Establishment of Virtual Universities are highly feasible in a country like India and it is very much essential for the modernization of distance education in the country.

10. Application of Information Technology is the effective way to improve the quality of distance education and for the very survival of the system in the emerging socio-technological context.

11. There exists significant difference among different groups of faculty members in the use of Information Technology in their practice.

6. METHODOLOGY IN BRIEF

A brief description of the methodology used for the study is given below.
The present study will be focused on faculty members and learners of the important Open Universities in India like Indira Gandhi National Open University, New Delhi (National Open University), and two Open Universities in south India such as Karnataka State Open University, Mysore and Dr. BR. Ambedkar Open University, Hyderabad. The sample is selected out of eleven Open Universities in India. The sampling technique adopted is simple random sampling. The investigator has selected 250 students each from all the sample Universities. Out of 915 questionnaires distributed a total of 750 questionnaires were selected for the final analysis. From the faculty investigator has distributed the questionnaire to all the faculties in the headquarters of the sample Open Universities and collected data from them. A total 154 questionnaires, (92 from IGNOU, 38 form BRAOU and 24 from KSOU), received from the faculties are used for final analysis.

7. Presentation of the report

The report is presented in six chapters.

Chapter. 1 introduces the problem and explains the importance and significance of the study. It also presents the objectives, and elaborates on the scope, methodology, tools and techniques.

In Chapter 2, a detailed description about application of Information Technology in the field of Distance education has done. After giving a brief outline of the definition, evolution and need of distance education, the growth and development of distance education at the global level are attempted. A detailed description about various IT tools used in the field of distance education also reviewed in this chapter.

In chapter 3, the status of distance education is reviewed. Various studies in the field of technology-based education has discussed with a view to provide a strong basis for the study being conducted.
In Chapter 4, the methodology adopted for the study is discussed in detail.

In chapter 5, the data collected from the students and faculties of sample Open Universities are analyzed with the help of statistical techniques.

In chapter 6, findings and conclusions are summarized.

The presentation of the report, including the citation style of the study, has been made according to the 6th edition of the Modern Language Association- ‘MLA Handbook for writers of Research Papers’, 2004.

8. SCOPE AND LIMITATIONS OF THE STUDY

One of the prominent limitations of the study is its reach itself. IGNOU, BRAOU and KSOU are institutions having their presence even in the international education level. The vastness of the land and its diverse population may make degree by which the findings may vary, but the findings are not likely to be different from what has been observed here, if much wider sample had been studied.

Though this study has attempted to cover the entire spectrum of distance education, it needs to be noted that this study does not include all the courses and programs of offered by Distance Education Institutes (DEI) in the country. It is not feasible to conduct a study by covering all the Open Universities in the country, thus the investigator has selected three sample Open Universities such as Indira Gandhi National Open University, BR. Ambedkar Open University, and Karnataka State Open University for conducting the study. Though the investigator has distributed questionnaires among the entire fulltime faculty members from the sample Open Universities in the country, a large number of counselors from the regular streams teaching in the field of distance education are avoided.
Not many literatures on student support services from the perspective of learners were known to exist. There were not any previous studies, which gives a comprehensive coverage to the overall IT, tools used in the field of distance education either. Therefore in a way, this attempt may be termed as pioneer. Such lack of any previous attempts carries with it the disadvantage of lack of opportunity to compare and notice any deficiencies. However almost all of the instruments / assets employed in distance learning and their various attributes / features have been targeted for probe in this study.

The present study is a policy-oriented study. It is an applied study for formulating correct policies and strategies for the society or government to improve the system of distance learning in higher education in India. The purview of the study is India. There are many Open Universities in the country and, number of distance learners is increasing day by day. The present study concentrates on distance learners and faculties of three major Open Universities of the country. This study is intended to provide a basic methodological and theoretical framework for giving an explanation for the process of application of Information Technology in distance learning. The approach of the study is multidisciplinary one as it integrates the basic theories of education, information science, Information Technology, Library science and educational informatics. The basic approach of the investigator of the present study is mainly that of an information scientist rather than that of an educationist.

The findings of the study may be useful to administrators and higher education planners at national level and state level for formulating correct policies and strategies with regard to the modernization and application of Information Technology to meet the rising educational needs through the alternative system of education. This will be useful for library and information systems, network experts and managers in designing and
implementing highly efficient library and information systems in the field. The study provides a theoretical and practical explanation for the complex process of modernization and application of Information Technology in the field of distance education. The importance of such a study is very relevant, especially in a country like India where most of the people live in poverty and backwardness.

The present study indicates that through lot of efforts are being taken in the field of distance education for the application of Information Technology; the students still follow the conventional techniques of by hearting study materials and attending occasional counseling/ contact classes. Majority of the students are not utilizing the multimedia instruction system introduced in the field of distance education. There are lots of problems relating to the use of Information Technology tools. In order to solve them the entire dependence on the study materials should be minimized and the potential of Information Technology should be utilized to the fullest extent. Moreover the attitude of learners about distance education as a liberal and flexible way of education should be changed. Student support services in the field of distance education should be strengthened. The possibilities in the field of network and satellite technologies should be exploited to the fullest extent. In such a situation only distance education can be developed as an alternative method in the field of higher education in India. The present situation of teaching and learning should be changed so that it can be accessible even to the laymen of the country.
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