1.1 INTRODUCTION

We are living in a truly fascinating time of change and promise. Within just a few years, rapid advancements in technology have transformed the way we do business, the way we communicate, the way we live (Gates, 2000). Information and Communications Technology (IT) is one of the most potent forces in shaping the twenty-first century. Its revolutionary impact affects the way people live, learn and work and the way government interacts with civil society. IT is fast becoming a vital engine of growth for the world economy. It is also enabling many enterprising individuals, firms and communities, in all parts of the globe, to address economic and social challenges with greater efficiency and imagination. Enormous opportunities are there to be seized and shared by us all (Shimbun, 2000).

As one moves towards the new millennium, Information and Communication Technologies (ICTs) has emerged as the most prominent technology to have a revolutionary effect on the lives of people across the world, becoming the engines of human and economic development. During this period, Indian engineers and scientists have earned a high degree of esteem around the world for their highly professional and innovative contribution to the technological advancements in this field.

The first revolutionary product of ICT was the invention of Printing Press by Gutenberg over 500 years ago, and this is followed by vacuum tube, transistor, integrated circuits, microprocessors, solid state memories, computer networking, electronification of all information and now the Internet technology, as one of the most remarkable phenomena of the century. In fact, the Internet has become the information world’s obsession. Painly it poses many strategic and searching questions for information users, information professionals and the information industry alike (Nicholas, 2000).
Dr. S.R. Ranganathan, father of Library Science, a man of great vision and inexhaustible energy, is an international authority on Library and Information Science movement. He defined the very purpose of technology and mapped out a philosophy and a practical science, as long back as, the 1930s. In the 1950s, he had foreseen the likely impact of new technological tools to store and distribute information. Today, they are in the form of databanks distributed around the world, almost in every office or household, which can be browsed by anyone in the world via the Internet (Ranganathan, 2001). His genius is attested to by the very portability of his ideas across time, technology and cultures right into the Internet era (Ellis, 1999).

The Internet is evolving beyond its anarchistic nature and haphazard interfaces to become the basis for an international information structure. The network is expanding beyond government labs and universities to commercial organizations, local schools and into homes. Increasing numbers of businesses-large and small are beginning to make use of Internet, and the Net is now accessible to anyone with a terminal, modem and phone line (Miller, 1994). The Internet is the biggest thing to have emerged in the past few years and is an indispensable tool for people in pursuit of knowledge and information. It is packed with both primary and secondary sources of information, to track, which one has to develop the ability to sift through millions of search engines hits. Most of the information products – data, reports and research papers are increasingly created in digital form distributed universally through the various Net services such as WWW, E-Mail, and FTP etc. Right from trivia tracking medical problems to conflicting nuclear doctrines, the Net is packed with every conceivable nugget of information.

The interactive and distributed nature of the Internet offers means for more effective communication and more inclusive participation among those
involved in the teaching and learning process. The Internet offers possibilities for academic and research community to enhance their learning, research, increase productivity, and promote creativity by providing access to enormous amount of learning materials. This great technological innovation has enabled the students to pursue their learning process beyond four walls of learning, facilitating effective communication among teachers, students, peers and experts in any field, anywhere and anytime with unlimited wealth of data and information for their research on the Internet.

Internet has been viewed as a valuable source of information that can assist students in the pursuance of knowledge, learning, research, and increasing their capacity for social interaction. Internet is seen to promote inquiry and creativity through interaction of various forms of knowledge such as text, multimedia, graphics, photos, music, video, sound, animation etc. (Karisiddappa, 2002). In this context, it is rightly said - The Sun can only shine on half of the globe at a time, while Internet delivered education can cover entire globe and around the clock with knowledge (Kostopoulos, 1998).

Academic and Research Libraries have made a significant investment in electronic information resources and associated computer-based technologies in general and Internet in particular, as an urge on the part of Librarians to provide technology mediated information services to the clientele at a tip of a tongue and for their survival before a non-professional steps into their shoes (Starkweather, 1999). In a remarkably short time, Internet, undoubtedly an information gold mine has evolved from an academic curiosity to a mass medium (Clausen, 1996) and has become an integral information service for Library and Information Centres. Research on the part of Library and Information Service Managers, as to how best they make use of this great technology – Internet, in not only extending Internet-based services to the user
community but also how effectively they adopt Internet in Library and Information activities, as a tool for enhancing efficiency in library, is a matter of concern.

The Internet is viewed as an extension of older technologies – its potential for libraries in using Internet for traditional purpose in information seeking, organizing and user behavior should become clearer. Internet has brought a new academic and research culture of understanding and co-operation providing a great boon to the Library and Information Centers in meeting the timely information by click of a mouse. The relevance of Internet to the Library is well described by Rudenstine (1996): “In fact, the Library and the Internet are being viewed increasingly as a versatile unified system, providing an enormous variety of materials in different formats... The Internet and its successor technologies will have the essential features of a massive library system, where people can roam through the electronic equivalent of book stacks, with assistance from the electronic equivalent of reference librarians. In short, one major reason why characteristics of the Internet are so compatible with those of universities, is that some of the Internet’s most significant capabilities resemble, and dovetail with, the capabilities of university research libraries. Just as the research library is an extremely powerful instrument for learning, so too is the Internet...”

In this context, Internet is considered as a great information source to the academic and research community and also a great information tool to the Library and Information Centers to supplement their information support to the user community by just push of a button. An attempt has been made to understand and evaluate the use of the Internet as an Information Source by Engineering Faculty and Research Scholars and its impact on Libraries of Regional Engineering Colleges (National Institute of Technology) in India.
1.2 STATEMENT OF THE PROBLEM

Use of the Internet as an Information Source by Engineering Faculty and Research Scholars and its impact on Libraries of Regional Engineering Colleges of India: A study

1.3 OBJECTIVES OF THE STUDY

1. To examine the level of literacy among Engineering faculty and Research scholars regarding the purpose, accessibility, learning ability, services, perception of Internet technology as an Information source and training for their academic and research endeavor;

   1.1 To identify accessibility to the Internet facilities;

   1.2 To indicate the purpose of using Internet;

   1.3 To identify the status of using Internet and their ability to use Internet technology;

   1.4 To identify the various Internet services frequently used;

   1.5 To evaluate the perception of Internet technology; and

   1.6 To explore the significance of formal training in Internet access.

2. To determine the various information sources accessed over the Internet and search strategy adopted while surfing the Net;

   2.1 To understand the type of Information accessed on the Internet;
2.2 To explore the Information sources preferred on the Internet as compared to Library;

2.3 To elucidate the search strategy adopted for searching information on the net; and

2.4 To identify the popular search engines frequently used.

3. To evaluate the problems encountered in the current state of Internet and level of satisfaction towards Internet;

3.1 To explore the institutional and Internet based problems encountered while surfing the net;

3.2 To evaluate the satisfaction level of Internet services; and

3.3 To evaluate the features of Internet as an information source.

4. To determine the relationship between specific learner characteristics viz. Status, Age, Qualification, Teaching and Research Experience, Formal Training, and the use of Internet;

5. To analyze the impact of Internet on library activities and services; and

6. To evolve an approach for optimal utility of Internet facilities and services for Engineering Sciences and thereby compile a web resource directory related to Engineering Sciences available on the Net.

1.4 RATIONALE OF THE STUDY

We live in an age where voice, data, and video are just bits, ones and zeros to be pushed down the broadest pipe or around the most accommodating
slice of spectrum. Digital technology combined with advanced software, smaller and more powerful microprocessors, and exponential growth in fiber and wireless bandwidth provides seamless universal connectivity termed as "virtual" convergence - everything you want is in one place, but that place is wherever you want it to be, not just at home or in the office (Gates, 1999).

The convergence of Computers, mass media and telecommunication technologies are creating a high speed ‘Network of Networks’ called the Internet, a zeitgeist of the millennium connecting individuals, business, industry, government and non-government agencies, academic and research institutions of the world.

Knowledge is Power so they say and the Information Managers of the future are certainly going to be responsible for a lot more information than have been forbears. In this regard, they will become information princess, ruling their kingdoms by day and increasingly in the future, by night also (Weinzenried, 1997). The mission of the library is to ensure that students and teaching staff are effective users of ideas and information. This is not an easy task ahead for Library and Information Science managers, especially in digital environment and requires specialized skills to meet the complex information needs of users to have access to right information in a way that can be comprehended and at a right time.

‘Use’ is the key purpose and ‘User’ is the key and dynamic component of any Library and Information system. Customer oriented approach, design and evaluation are founding pillars of any enterprise (Sridhar, 1994). All the luxuries of information revolution and problems of information explosion are centered on the users.
Library and Information Professionals have continuously engaged themselves in assessing user requirements and taking necessary measures to tune information retrieval systems to suit the changing environment based on the principle that - Understanding thy user is half the battle won. This is quite possible in specific domain of Library and Information Centers, wherein users information requirements, needs, behavior, perceptions, attitude, opinions, priorities, preferences etc., are known and manageable. However it may be difficult in the Internet environment, where anybody and virtually everybody could be the potential user of particular information.

Thus, user research in a digital environment is the need of the hour and the ultimate objective is to help in designing, evaluating and improving efficiency and effectiveness of library and information systems and their products/services in meeting their pre-determined goals.

In recent years, the Internet has emerged as a *de facto* global distribution medium for electronic information, in particular for academic information. Web publications from university campus sites and pre-print archives are flourishing on the Net. Refereed journal articles and article abstracts are increasingly accessible via web delivery from commercial publishers, research libraries and other intermediaries. Subject guides for the higher education and research community, providing links to high quality Internet resources, are becoming increasingly important discovery tools (Van der and Werf-Davelaar, 1999).

The Internet has evolved into a uniquely independent information exchange from its conception in the academic community that is able to grow organically, can operate reliably with little centralized management, and is built entirely on common standards. As the Web's popularity surged among students, researchers and other Internet enthusiasts, an entirely new industry emerged to
create software and content for the Web. This explosion of creativity made the Web more compelling for users, which encouraged more companies to provide Internet access, which encouraged still more individuals and businesses to get connected to the Internet. The main advantage of any new technology is that it amplifies human potential. In the 20th century, electricity, the telephone, the automobile and the airplane, all made the world more accessible to more people, transforming economy and society in the process. The Internet has the same revolutionary impact - individuals and businesses can overcome geographical, cultural and logistical barriers and improve the way they live and work. The Internet makes the world smaller.

In an educational environment, educators venture to try new tools, methods, theories, inventions, experiences to be used in teaching and learning process, the presence of Internet has been gaining irreversible momentum with its potential capabilities as a new instructional tool, effective communication tool, information and research source and entertainment tool.

The Internet has enabled the teaching community to support both traditional and non-traditional modes of the delivery of education. It offers new forms of effective communication around the clock irrespective of location imbibed with its facilities viz., E-mail, Listservs, newsgroups and net conferencing. With the variety of subjects covering different aspects of life and the capability of combining texts, graphics, sounds and motion pictures, the Internet has opened up a new dimension of the entertainment world.

Perhaps no innovation has impacted the library profession to such a great extent as the Internet, World Wide Web and networked resources. The interconnection of world through the use of Internet and Web has changed the fundamental roles, paradigms and culture of libraries and librarians once for all. The base of recorded information is growing at an accelerating rate in
increasing variety of formats such as texts, numeric, graphic, video, audio, images, etc. In addition, increasing arrays of computing and telecommunication technologies are emerging to create new options and opportunities for the development of information capture, storage, retrieval and delivery (Nageswara Rao and Babu, 2001).

As Internet has become integral part and parcel of Library and Information service, it becomes obligatory on the part of Library and Information Science professionals to carryout extensive research on Internet user study for promoting better use of Internet as an information source. Moreover, the studies covering Regional Engineering Colleges have not been carried out, and thus stimulated the researcher to undertake the study. The timeliness and importance of studying use of the Internet were described by Silva and Cartwright (1993): ‘As use of the Internet continues to grow, educational systems will be faced with increasing user demand for help and instruction … As students become linked to virtual libraries, on-line catalogues and databases, it is incumbent upon instructions to provide the means for students to optimally exploit these resources’

Internet represents the most technological development of our generation evolved as a worldwide communication and information-gathering tool. The study comprehensively tracks a wide range of values, behavior, attitudes and perceptions of Internet use. Hence the study.

1.5 SCOPE AND LIMITATION OF THE STUDY

The study is confined to the use of the Internet as an Information source by engineering faculty and research scholars and its impact on libraries of Regional Engineering Colleges (presently known as National Institute of
Technology in India. Out of seventeen, twelve Regional Engineering Colleges representing each corner of India, is covered for the study. The teaching faculty comprising of Professors, Associate Professors and Lecturers and Research scholars and Librarians were included in the study.

This research study is exploratory in scope. The research tools used for eliciting data from the respondents have its own shortcomings. Further, the time constraints and socially desired results are obvious, although the investigator has adopted multi-methodological investigation.

1.6 RESEARCH QUESTIONS

The research questions for this study relate to use of the Internet as an information source and its impact on Regional Engineering College Libraries. Research instruments were designed to answer the following questions.

- Do Engineering scientists have access to Internet facility?
- What is the purpose of using Internet?
- Do they use the Internet and if so, how long they have been using the Internet?
- How frequently the Internet services are being used?
- Have they undergone any formal training in Internet access and do they feel its necessity for meeting their nascent information needs?
- How do they perceive the Internet technology and rate their over-all ability to use the Internet?
- How do they search information on the net?
What are the popular search engines?

What are problems encountered while surfing the Internet?

What is the level of satisfaction towards Internet services?

What are the evaluative salient features of Internet?

Is there any relation between Use of Internet and Level of Satisfaction?

What are the preferences of information sources on Internet as compared to Library?

What is the impact of Internet on Library activities and Services?

1.7 RESEARCH HYPOTHESES

The extent of Use of Internet is independent of designation of respondents

The extent of use of Internet is independent of age of respondents

The extent of Use of Internet is independent of qualification of respondents

The extent of Use of Internet is independent of teaching experience of respondents

The extent of Use of Internet is independent of research experience of respondents
The extent of use of Internet is independent of formal training undertaken by the respondents

The extent of level of satisfaction is independent of designation of respondents

The extent of level of satisfaction is independent of age of the respondents

The extent of Level of satisfaction is independent of qualification of respondents

The extent of Level of satisfaction is independent of teaching experience of the respondents

The extent of level of satisfaction is independent of research experience of the respondents

The extent of Level of satisfaction is independent of level of formal training

Higher the level of satisfaction, higher will be the use of Internet and vice versa

1.8 ORGANIZATION OF THE STUDY

The research work has been organized into seven chapters. Chapter 1 deals with Introduction, Chapter 2 discusses Internet as an Information source for Engineering community, and Chapter 3 is a Review of Literature, Chapter 4 deals with Research design and Methodology, Chapter 5 deals with Results and Discussion, Chapter 6 provides a strategic model for Internet service and last chapter 7 concludes with Findings and Recommendations.
REFERENCES


