

ICT Based Information Search Patterns of Students and Research Scholars of Engineering Colleges in Kanchipuram District of Tamil Nadu: A Study

Vishal J

MBA, Department of Management Studies
Bharath Institute of Science and Technology,
Selaiyur, Chennai, Tamil Nadu 600 073
Bharath Institute of Higher Education and Research

1. INTRODUCTION

Now a day Indian education system to improve innovative information technology adapted to students and teachers. The information technology to growing significance is known as information. Information Technology is a generic term used to denote various activities connected with acquisition, storage, transmission, retrieval and processing of information. Simply speaking, IT is all about the management, movement and sharing of information through applications, computer systems and networks. The constituents of IT are computer systems and telecommunication systems, which together made it possible to provide information more exhaustively than before. information technology been defined as “the field of engineering involving computer based hardware and software systems, and communication systems to enable the acquisition, representation, storage, transmission, and use of information.”The discipline of engineering is concerned with that body of theory and practice that is relevant to the design and construction of real-world art facts arising from human endeavor. Successful engineering activity requires a wide range of skills and knowledge. Because the corpus of documented material relating to engineering is now so large, sub-domains of the subject usually have to be considered for example, electrical, mechanical, civil, bio-medical, and so on. Naturally, the fundamental purpose of engineering education is to impart relevant skills and knowledge to those people who are interested in gaining either a general awareness of the subject or who wish to become professional engineers and/or academic researchers. This paper discusses engineering education in India and the impact that Information and Communication Technology (ICT) is having and is likely to have in the future.

Information and Communication Technology (ICT) has brought unprecedented changes and transformation to academic library and information services, conventional LIS such as OPAC, users services, reference services, bibliographic services, current awareness services, Document delivery, interlibrary loan, Audio visual services and customer relations can be provided more efficiently and effectively using ICT, as they offer convenient time, place, cost effectiveness, faster and most-up-to-date dissemination and end users involvement in the library and information services process. The impact of ICT characterized on information services by changes in format, contents and method of production and contents and method of production and delivery of information products. Emergence of internet as the largest repository of information and knowledge, changed role of library and information science professionals from intermediary to facilitator, new tools for dissemination of information and shift from physical to virtual services environment and extinction of some conventional information services and emergence of new and innovational web based.

MOBILE TECHNOLOGY AND ACADEMIC INSTITUTIONS

As the mobile communication system evolved there is no doubt that the academic institutions also showed enormous growth using those systems. The observes that “Mobile phones have become an inseparable part of everyday life” which includes the whole of humanity, Shannon Smith et.al. In their study of undergraduate students and information Technology provide particular insight into the mindset of undergraduate students and their habit of mobile usage. Modern Internet is rapidly progressing beyond the creation, delivery, management and preservation of its resources to provide quality services for the humanities. The explosion of information through the WWW and human interaction through wireless devices and mobile telephony is increasing day by day. ICT tools have become backbone of the human community. They conduct their surveys online and trying to reach their goals using online resources. At this point, academic libraries provide greater service to accomplish their goals. If not they will become frustrated like keeping inefficient inattentive sales persons on big shopping mall. Therefore, academic libraries facilitate universal access of scholarly brains and allow scholarly community to accomplish their goals as efficiently, reliably and as expected as possible.

Modern information and communication technology have created a global village because of information revolution and the consequent computer based messaging system, and electronic networks for access to information and library services. ICT is a growing phenomenon in the society. Library is a dynamic and evolving enterprise in education. The trend now is information and communication technology, library and information have undergone various stages on transformation, storage and retrieval of information application in delivering library services. Such as oral tradition, letters, and figures on leaves and skins, while the librarians then were custodians. Ranganathan(1957) says in his five laws of librarianship which cut across all ages that “Library is a growing organism”.

MOBILE COMMUNICATION SYSTEM AND LIBRARIES

As more and more library related applications are trickling to emerge to satisfy library users it is imperative to analyze the connection between Libraries and Mobile Communication system. Firstly, it is important to acknowledge that all the other service oriented facilities have started embracing mobiletechnology as one of their main bandwagon to extend their service delivery; the libraries are left with very little choice.

INFORMATION TECHNOLOGY IN LIS

“Information technology“ is a generic term with wider implications. In the present context it includes computer and telecommunication technologies used for collecting organizing and disseminating information. According to Rowley (1996), information technology includes the following four major areas: Methods and tools of recording knowledge like computer storage media (Magnetic: Floppy disk, hard disk, tapes and Optical Storage Devices – like CD-ROM, DVD (Digital Versatile Disk) Rewritable CDs and DVDs) Methods of keeping records (Computer hardware, software, creating databases, etc.) Methods of indexing documents and information (Computerized indexes, Machine readable catalogues, etc.) and Methods of communicating knowledge (Electronic mail, facsimile transmission, Electronic journals, teleconferencing and data communication networks)

COMMUNICATION TECHNOLOGY

The progresses in communication technology and media have helped to increase access to educational resources and thereby enhance the quality of education. The use of interactive communication media has facilitated expansion of opportunities for higher education. To meet the increase in demands to access, locate and transform large amounts of data, libraries are struggling to make the best use of available telecommunications technology. A communication network provides interconnection of several computers wherein a user can communicate with any computer as local user. The system will have facilities to create, transmit and print a message or document electronically (Kawatra, 2000).

WIRELESS NETWORK TECHNOLOGY

Though there are a lot of developments in wireless network technology, in most academic libraries in India, cabled computer networks are more common than wireless broadband network. The emerging wireless, mobile and internet technologies may take some more time to have an effect in the University Libraries; however, a brief outline of some of the recent developments in wireless, mobile, internet and web technologies are listed below. Bluetooth is an emerging wireless technology meant for broadband wireless communication between devices like digital cameras, laptops, mobile phones, Personal computers, printers, scanners, etc., within a short range. 3G telecommunication or third-generation wireless communication technology is meant for wide area wireless cellular telephone network. It can process audio, graphics, video, etc.,

NEED OF INFORMATION TECHNOLOGY IN LIBRARIES

Library is a social body with the consecrated responsibility of collecting, organizing, preserving and disseminating knowledge. Information Technology has revolutionized information management to the degree that information will no longer confine to the four walls of the library. During the last few decades, information technology became a major factor on the library scene. The IT offers remarkable opportunities to provide solutions to some of the problems the libraries are facing these days and has great potential for a variety of applications in libraries as it contributes to improved quality, productivity and more effective services to the users. The impact of IT is visible in each and every activity of the library.

STATEMENT OF THE PROBLEM

The Libraries something like the humankind have been adopting and building use of IT, in particular the computer technology, to computerize wide range of administrative and technical processes. The wide extend application of IT in libraries has created a profound impact on all aspects of present day library environment. The college libraries are no exemption and these libraries are not far behind in the application of IT for the library operations and services so as to provide better facilities and services to their user community that primarily consist of students and the faculty members. There have been a several studies conducted on the application of Information Technology in academic libraries, particularly on the university libraries. However, there have been no systematic studies on the application of IT in the Engineering college libraries in India. As a result, no insights are available as to how Information Technology has been introduced and used in the Engineering College libraries in India. The impact of application of IT

on users in the college libraries is also not known and is not well documented. It is in this context that the researcher has undertaken the study to know the status of application of Information Technology and the level of user fulfillment in the Engineering College Libraries in Tamilnadu. The study has provided useful in sequence, for the most part to the Engineering College librarians and others about the application of Information Technology and its impact on the users in these libraries.

2. OBJECTIVES OF THE STUDY

1. To determine the Information technology application in theselectedEngineering College libraries in Tamilnadu
2. To measure of use of information technology applications forvarious library operations and services in the selected engineering college libraries inTamilnadu.
3. To identify the problems encountered in the use of Information TechnologyinEngineering College libraries in Tamilnadu.

HYPOTHESES OF THE STUDY

1. Ho = Association between information technology applications and various library network factors of Engineering College libraries in Tamilnadu
2. Ho = Association between information technology application and independent Websites
3. Ho = Association between communication technology applications and web resource services

UNIVERSE OF STUDY

There are 571 Engineering Colleges in Tamilnadu offering graduate and post-graduate programmes in engineering faculties with well established libraries. The researcher selected engineering College libraries in Tamilnadu for the study in hand. However, for this study, the researcher has excluded the Arts and Science colleges in Tamilnadu and also one more college which was recently established and offers degree programme in engineering only. Since all these colleges were not offering post graduate programmes, therefore, the post graduate students have been included for the present study.

SAMPLE FOR THE STUDY

The sample size for the present study was limited to 25% users consisting of students and teachers of engineering from each degree college. Out of this, 5 % and 20% constituted students and teachers respectively. In the 36th convocation in the ear of 2016 and Anna University more than 1, 92,000 students were graduated from its University departments and affiliated college. So we can arrive at a conclusion that around 2, 00,000 might have enrolled in course offered by the University, I.e. 5% of total students in these colleges.

RESEARCH METHODOLOGY

The researchers are adopted by questionnaire method. This data collected from primary as well as secondary. This method supplemented by interviews and face to face interactions with college

librarians, students and teachers. A draft questionnaire was designed based on discussions with professional colleagues and related research studies. Two sets of structured questionnaires were prepared; one questionnaire (Questionnaire-1) for the Librarians and another (Questionnaire-2) to the students and teachers. The purpose of the questionnaire for the librarian was to get data regarding general information about the college, library and IT infrastructure in the college library. The second Questionnaire meant for students and teachers was to gather data on general information about the users, knowledge of IT, usage of electronic resources and services; satisfaction level of users on the IT based services and facilities in the college libraries, impact of IT on the users. The Questionnaire-1 was designed and pre-tested with two librarians of the college libraries under study. The Questionnaire-2 was designed and shown to experts to review with regard to accuracy, order of questions and ease of understanding and use for collecting the data for the study the questionnaires were revised taking into consideration the respondents' comments and suggestions. The modified questionnaires were used for the final survey conducted between July 2016 and December 2016 in all the degree colleges covered for the study.

The random sampling method was used to collect the data from the users. The questionnaires were personally distributed to the librarians of the selected Engineering Colleges in Tamilnadu. The students and the teachers under the study were also given the questionnaires personally with interview about the importance of the study and also assured them. All the data duly filled in questionnaires from the librarians of 83 engineering colleges were returned. In order to get the questionnaire returned from the population of the study, the researcher had to follow up with the students and teachers time and again. It was too big a difficult task for the researcher to gather the information particularly from the students.

STATISTICAL ANALYSIS

The statistical tests have been used to analyze the data includes, Simple Percentage, ANOVA, Chi-square test, t-test, correlation analysis and factor analysis,. SPSS (Statistical Package for Social Sciences) version 21 was used to compute and analyze the data.

LIMITATIONS OF THE STUDY

The present study was considered only the faculties of engineering existed in all the 83 engineering colleges in Kanchipuram. The science faculty could not be considered in this study. The sample for the study has been limited only 25% users – students and teachers of the faculties of selected engineering colleges in Kanchipuram. The study covered the application of IT in the degree college libraries in Kanchipuram up to December 2016 and has no control over the new applications and future developments that may take place in these libraries.

ANALYSIS OF THE STUDY

FACULTY WISE DISTRIBUTION OF STUDENTS AND TEACHERS

SR NO	FACULTY	STUDENTS	TEACHERS	TOTAL
1	Arts	243	39	282
2	science	275	43	318
	Total	518	82	600

TABLE NO 1

The above table -1 shows that detail about faculty wise distribution of students and teachers. Among 600 respondents 243 students are related to commerce department as well as 275 students are related to science department and totally 518 students are taken as sample. 39 teachers are related to arts department and 43 teachers are related to science department and totally 82 teachers have been taken as sample. Hence overall sample size is 600 as shown in above table 5.1 respectively. Mostly students and teachers studied science related courses.

FREQUENCY OF VISITING THE COLLEGE LIBRARY

SR NO	USERS	USUALLY	SOMETIMES	RARELY	TOTAL
1	Students	314	145	59	518
2	Teachers	40	31	11	82
	Total	354	176	70	600

TABLE NO 2

The application of IT in a number of areas of our daily life has affected a lot on the way we work and live. The academic libraries are no exception to this where a large number of students and teachers use the libraries to meet their information needs related to academic and career development. A number of these libraries have been using IT to provide library and information services and facilities for the benefit of their users and to maximize the usage of the collection. The above table indicates that details of frequency of visiting the college library by the respondents. 314 students visit library usually, 145 students visit library sometimes and 59 students visit library rarely as well as 40 teachers visit library usually, 31 teachers visit library sometimes and 11 teachers visit college library rarely respectively. Totally 354 respondents visit college library usually, 176 respondents visit sometimes and 70 visit rarely. Most of respondents have habit to visit often college library.

PURPOSE OF VISITING THE LIBRARY

SR NO	PURPOSE	STUDENTS	TEACHERS	TOTAL
1	For reading	510	78	588
2	For issue/Return the library materials	407	45	452
3	To access the library catalogue	318	32	350
4	For preparing notes	503	75	578
5	To consult reference material for assignments	472	56	528
6	To collect reading material for research work	255	37	292
7	To meet friends	272	21	293
8	For using computer	351	53	404

TABLE NO 3

The above table - 3 demonstrates that detail of user's purpose of visiting the library. Among total users 510 students and 78 teachers go library with the purpose of reading. 407 students and 45 teachers visit the library to return the library materials. 318 students and 32 teachers visit library to access the library catalogue. 503 students and 75 teachers visit library for preparing notes. 471 students and 56 teachers visit library to consult reference material for assignments. 255 students

and 37 teachers visit library to collect reading material for research work. 272 students and 21 teachers visit library to meet their friends interestingly. 351 students and 53 teachers visit library for using computers.

KNOWLEDGE OF INFORMATION TECHNOLOGY OF USERS

SR NO	USERS	VERY GOOD	GOOD	AVERAGE	TOTAL
1	Students	201	206	111	518
2	Teachers	16	27	39	82
	Total	217	233	150	600

TABLE NO 4

Information technology has changed the society into information society and our way of life. It has made our life comfortable and easy. With the increasing impact of information technology on higher education, all the stakeholders of higher education are trying to integrate the process of teaching, learning and research. The respondent users were asked to indicate their level of knowledge of computers and other devices. The above table 5.4 clearly indicates that details of knowledge of information technology of users. Among total respondents 201 students and 16 teachers have very good knowledge about information technology. 206 students and 27 teachers have good knowledge about information technology. 111 students and 39 teachers have average knowledge about information technology.

SKILLS FOR OPERATING DEVICES

DEVICES	STUDENTS				TEACHERS			
	VERY GOOD	GOOD	AVERAGE	TOTAL	VERY GOOD	GOOD	AVERAGE	TOTAL
Computer	324	121	73	518	23	26	33	82
Scanner	322	144	52	518	44	25	13	82
Printer	282	153	83	518	29	34	19	82
CD/DVD	262	150	106	518	18	39	25	82
Pen drive	261	135	122	518	48	31	3	82

TABLE NO 5

Mere knowing about IT in terms of hardware and software may not be sufficient to operate computers and other associate devices. One should also possess skills to use them efficiently and effectively. The users were asked to indicate their levels of skills for operating various devices such as computer, scanner, printer, pen drive, and CD/DVD in terms of 'very good'; 'good' and 'average'. From the above table 5.5, it is clearly found that 324 students and 23 teachers have very good skills to operate computers and 121 students and 26 teachers have good knowledge to operate computers and 73 students and 33 teachers have average knowledge to operate computers. 322 students and 44 teachers have very good knowledge to use scanner and 144 students and 25 teachers have good knowledge to operate scanner and 52 students and 13 teachers have average knowledge to operate scanner. 282 students and 29 teachers have very good knowledge to operate printer and 153 students and 34 teachers have good knowledge and 83 students and 19 teachers have average knowledge to operate printers. 262 students and 18 teachers have very good knowledge to operate CD/DVD, 150 students and 39 teachers have good knowledge to operate

CD/DVD and 106 students and 25 teachers have average knowledge to operate CD/DVD. 261 students and 48 teachers have very good knowledge to use pen drive, 135 students and 31 teachers have good knowledge to use pen drive and 122 students and 3 teachers have average knowledge to use pen drive. It is clearly found that most of the respondents have good skills for operating electronic devices.

METHODS OF DEVELOPING INFORMATION TECHNOLOGY SKILLS BY THE USERS

SR NO	METHODS	STUDENTS	TEACHERS	TOTAL
1	Training programmes	483	73	556
2	Guidance from the library staff	436	61	497
3	Assistance from friends and Colleagues	506	74	580
4	Knowledge and skills gained at personal level	465	68	533

TABLE NO 6

The above table -6 demonstrates that details about methods of developing information technology skills by the users. 483 students and 73 teachers totally 556 users develop their information technology skills through training programmes. 436 students and 61 teachers totally 497 users develop their skill with guidance from the library staff. 506 students and 74 teachers totally 580 users develop their information technology skill through assistance from friends and colleagues. 465 students and 68 teachers develop their knowledge and skill at personal level.

PURPOSE OF USING COMPUTER

SR NO	PURPOSE	STUDENTS	TEACHERS	TOTAL
1	For study	511	80	591
2	For research	375	55	430
3	To search the Internet	518	81	599
4	To communicate with friends and colleagues	516	78	594
5	For academic assignments	324	35	359
6	To prepare presentations	265	45	310
7	For entertainment	506	67	573

TABLE NO 7

The above table indicates that details of user purpose of using computer.. 511 students and 80 teachers use computer for studies. 375 students and 55 teachers' use computer for research works. 518 students and 81 teachers use computer with the purpose of searching internet. 516 students and 81 teachers use computer with the purpose of communicating with friends and colleagues. 324 students and 35 teachers use computer for academic assignments. 265 students and 45 teachers use computer to prepare presentations. 506 students and 67 teachers use computer for entertainment purpose.

AWARENESS OF RESOURCES AND SERVICES OF THE COLLEGE LIBRARY

SR NO	METHODS	STUDENTS	TEACHERS	TOTAL
1	Orientation programmes	366	61	427
2	Presentations	432	75	507
3	Demonstrations	386	59	445
4	User meets	431	41	472
5	Brochures	379	46	425

TABLE NO 8

The college libraries reach out to their users by various methods to inform about resources available and services provided. In order to know whether the users of these libraries aware about the resources and services provided, they were asked to indicate the methods and meaning through which they came to know. The above table 5.8 indicates that details about awareness of resources and services of the college library. 366 students and 61 teachers perceived that they are aware about the resources and services of the college library through orientation programmes. 432 students and 75 teachers perceived that they are aware about the resources and services of the college library through presentations. 386 students and 59 teachers perceived that they are aware about the resources and services of the college library through demonstrations. 431 students and 41 teachers perceived that they are aware about the resources and services of the college library through user meets. 379 students and 46 teachers perceived that they are aware about the resources and services of the college library through brochures. It is clearly found that presentations mostly assist students to improve their awareness about resources and services of the college library as well as teachers.

AWARENESS OF COMPUTERIZATION OF COLLEGE LIBRARY

SR NO	USERS	YES	NO	DO NOT KNOW	TOTAL
1	Students	139	275	104	518
2	Teachers	8	56	18	82
	Total	147	331	122	600

As the colleges have started automating their functions, the libraries do not lag behind. The college libraries have started automating their functions by creating database of their records such as catalogues and circulation records. This helped the libraries to provide automated services such as access to online catalogue, issue/return of the library books etc. The above table demonstrates that details about awareness of computerization of college library. 139 students and 8 teachers say yes for awareness of computerization of college library. 275 students and 56 teachers say no for awareness of computerization of college library. 104 students and 18 teachers do not know about awareness of computerization of college library respectively.

SUGGESTIONS

Based on the research findings, the following suggestions are put forth for the various stakeholders: Knowledge on ICT is important for the students to communicate information using communication channels. The study found that knowledge on SMS is found high among the respondents. In order

to improve knowledge and skills on ICT, it is suggested that the authorities shall include curriculum on “Electronic Communication Systems and Services” for the engineering students.

Electronic resources are available in the form of e-books, e journals, and ETDs. These resources help the users to collect information for their educational purposes especially to carryout project works. In addition, separate workshop shall be organized to develop knowledge and skills on writing of research articles using ICT based resources.

In earlier days, the users were largely depending on printed resources to collect information for their educational purpose. But, today, the advancement in ICT helps the user community to access information easily. The information is available in a variety of forms like e-books, e-journals, online databases. In this study, the level of awareness on online databases and ETDs is found low. Therefore, it is suggested that the library users shall be trained well to improve the knowledge and skills to access ICT based library resources specifically online databases and ETDs.

The libraries especially, academic libraries implemented various ICT based services to provide information in the digital forms. These services will enable the user community to access to information remotely. Advancement in ICT makes it easy to create a digital repository for the intellectual works produced in the forms of articles, course materials and project reports. In this study the level of awareness on institutional repository is found low among the respondents. It is an essential and most important duty of the librarians and library staff to create an awareness of such ICT based library services specifically institutional repository services (IRs).

3. CONCLUSION

ICT enables the library professionals to introduce new services in networked environment. It is important for the library professionals to be aware of the new technologies. Perhaps, implementation of any technology in the library is based on the right attitude of the library professionals. Similarly, the library professionals have a variety of means and methods to acquire ICT skills from workshops, conferences and seminars. In this study, the barriers experienced by the library professionals are also highlighted. The Department of the library and information science and library associations should play a proactive role to remove the barriers by organizing innovative library programmes.

4. REFERENCE

- [1] Abdelrahman, O. H. (2009). The State of ICT Implementation and Training at the University of Khartoum Library System (UKLIS). Paper presented at International on academic libraries (ICAL 2009), New Delhi.
- [2] Adeyoyin, S. (2005) information and communication technology (ICT) literacy among the staff of Nigerian university libraries, *Library Review*, 54(4), 257-266.
- [3] Afrodite, Malliari., Stella, Korobili., and Sofia, Zapounidou.(2011). Exploring the information seeking behaviour of Greek graduate students: A case study set in the University of Macedonia. *The International Information and Library Review*.43, 79-91.
- [4] Ahmad, N., & Fatima, N. (2009). Usage of ICT products and services for research in social sciences at Aligarh Muslim University. *DESIDOC Journal of Library & Information Technology*, 29(2), 25-30.