Chapter II

REVIEW OF LITERATURE

A summary of the writings of recognized authorities and previous researchers provides evidence that the concerned researcher is familiar with what is already known and what is still unknown and untested. Since effective research is based upon past knowledge, this step helps to eliminate the duplication of what has been done, and provides useful hypotheses and helpful suggestions for significant investigation

Busha and Harter (1980) described the functions of literature review as follows:

a.) It helps to narrow and more clearly delineate the research problem.

b.) It reveals overlooked conclusions and facts that ought to be taken into consideration before the initiation of a research project.

c.) Suggests new approaches for the planning of investigations.

d.) Uncovers the methodologies that were successfully used by the other researchers.

e.) Helps in the determination of the degree to which particular problems have already been investigated.

f.) Assists investigators to develop firmer understandings of theoretical implications of proposed inquires.

Review suggests a method and a technique of dealing with a problematic situation, which may also suggest avenues of approach to the solution of similar difficulties, a scholar may be facing. It can provide the investigator with new ideas and approaches, which may not have occurred. It also assists the researcher in evaluating own research efforts by comparing them with related efforts done by others. Keeping the previous references as guidelines, efforts were made to find out
that the researches completed are related to the present study. Review of related literature is an important and it gives a clear cut skeleton of the study. It helps researcher to insight of similar studies. The researcher has scanned 106 reviews, classified into national and International level and arranged chronologically as following:

**National Studies:**

Srivastava (1997) reported results of a questionnaire based survey. It was conducted in 22 RRD institutions in India. The study was arranged to explore the extent of usage of IT components by library professionals and the coverage of IT in their library science programs at graduate and post graduate level. IT components form an integral part of library operations and services. For the library professionals DOS/ UNIX database, library applications software, CD-ROM database, word processing, bar coding, multimedia etc. are important. The outputs of the study shows that library and information science courses must expose students and practicing library professional to various components of IT. It also highlighted the need of regularly redesigning the syllabus of LIS course to include the advancements in technology.

Nair (1997) arranged an analytical study to understand the attitude of librarians in Kerala state towards the use of information technology in library and information management. The objectives of the study were to find out the attitude of librarians towards information technology. The study was conducted with 284 professionally qualified librarians in different libraries of Kerala. The tools used include a scale of attitude towards information technology, general data sheets and job satisfactory inventory for library professional. At the end of study result shows that majority of librarians look positively towards information technology. They also showed acceptability about modern technology in library activities. Librarians
considered IT not as a means to reduce their workload but as a device to render effective information service to patrons. Librarians engaged in different professional work were similar in their attitude towards information technology.

Aornam S. Ally & Dheenadhayalan (2000) conducted a research study under the topic, "Availability and use of information technology in university libraries in Tamil Nadu." The study pointed out that the availability and users of information gadgets like computers, online, email, audio-visual, microfilming network and communication facilities in university libraries in Tamil Nadu. It correlates the budget allocation, year and Establishment of university libraries and training program attended by the librarians with the availability of IT facilities. It ranks the university libraries having maximum IT facilities.

Moorthy (2001) has attempted to find out the impact of electronic media on library and information centers with special reference to India. Purpose behind the study was to assess the infrastructure available in libraries, the level of automation and extent of usage of electronic media in library and information work. The study included R & D institutions in science and technology and universities. Topics related to infrastructure hardware and software, availability of library LAN, database created, CD-ROM based science, internet connectivity etc. were covered in the topic. It also focused on necessity of the training of the library staff to handle electronic media. The study exposed that the extent of use of electronic media is improving with the influence of digital libraries, online journals. In the library system; one of the major concerns is the training and computer literary of library staff and user. He noticed the need of restructure the curriculum of library and information science courses in India by including various aspects of ICT applications.

Kannappanavar and Vijaykumar (2001) have arranged a survey to understand the use of hardware and software facilities available in the agricultural
university libraries Karnataka. Main purpose to arrange this survey was to analyze the access of networks, information services and hurdles that came across at the time of introduction of information technology in university of agricultural science libraries in Karnataka. The study covered holdings of the agricultural university libraries, in house database, use of IT in administration and the impact of IT applications on libraries. This survey find out that none of the university libraries at the time of study is having database and full implementation of IT applications in their libraries, though the agricultural university libraries are having hardware and software facilities to some extent, the results are not reaching the clientele. It recommends that the librarians should approach the university authorities to train the library personnel on IT application and approach funding agencies. Like INFLIBNET and ICAR for their library automation and provide IT based information services to their users.

Singh and Garg (2002) evaluated the biomedical information centers and libraries (ICLs) in India. The study was arranged to assess the status of infrastructure available in biomedical ICLs. Further to determine the impact of computer on biomedical librarianship, use of computers by ICLs users and informational professionals. They also tried to identify the impact of computers on carrier development in ICL services. There were three sets of questionnaires used to find out the relationships between IT development and its application in biomedical ICLs by users and professionals. Researchers reach at certain conclusions they find out that there is an increase in number of technologies available and adequate hardware and software facilities in ICLs. The survey reveals that computer based networking facilities are gaining importance in biomedical LICs. Biomedical information users depend more on computer facility for various purposes. The users are of view that all staff should have higher qualifications for the effective use of IT based services.
Gulati (2002) discussed the status of information and communication technologies in Indian libraries with special reference to special libraries and the efforts made by various institutions to propagate e-information products and services. This paper highlights the Consortia efforts in India like JCCC consortium, INDEST consortium, CSIR E-Journal consortia and UGC-Infonet, it further discusses digitization efforts in India at NISCAIR, New Delhi, IIITM Kerala, C-DAC Pune and the digital library of India in addition it incorporates details on major information systems in India (such as NISSAT) and major library networks in India (such as INFLIBNET, DELNET, CALIBNET, etc) it also details the challenges for library and information science professionals in the present IT environment.

Temjen and Saraf (2003) Studies the attitudes of academic and research library professional towards information technology and it's relationship with library and information science courses in India. The study focus on the attitudes of library professionals working in the seven states of North eastern part of India, based on already developed and tested scales of attitudes towards computer and information technology. A total of 163 library professional working in these libraries were given a questionnaire having 81 items and 122 respondent statistical analyses performed on the data using SPSS 7.5 version are factor analysis and analysis of variance (ANOVA). The five variable identified through factor analysis are anxiety, efficiency, work performance, use confidence and acceptance. He reported that anxiety ranks highest among the different variables of attitude towards information technology and suggest various information technology infrastructural facilities and training and education in information technology to library professionals working in North East to be at par with the main stream.

Ramana and Rao (2003) reported in his study that central university (CU) libraries in India are currently at various stages of advancement in the use of
information technology (IT). They present the results of a research study conducted in order to survey the use of IT in CU libraries. It covers computers and software packages used, computerized library operations. Development of databases, bibliographic standards used computerized information services, level of participation in networks and computerized facilities offered to users etc.

Vaishali G. Choukhande (2004) arranged a study to understand librarians computer awareness and use of IT application in college libraries of Yavatmal District (Maharashtra). She conducted a questionnaire survey of college libraries to find out the proportion of librarians computer awareness and use of IT application in college libraries of Yavatmal district. The finding of this study was that out of 34 respondents 18 librarians were computer literate and aware of information technology; only 8 colleges had computers in the library and 6 college libraries were automated. The result of this study suggests that UGC should provide financial help for the automation of college libraries of higher education and the librarians must get ready by keeping abreast of latest information technology in order to face the new challenge in information field.

Mohamed Haneefa (2010) conducted a study. She assessed special libraries with the context of application of information and communication technologies in special libraries of Kerala. The survey using structured questionnaires, semi-structured interview and observations, provide a state of art application of ICT in automated special libraries of premier research institutions in Kerala. The study identify the factors that promote or hinder application of ICT, users satisfaction, ICT skills of library professionals and the facilities for training in ICT in special libraries. It also assesses the attitude of users and librarians towards the application of ICT. Results of the study show that most of the libraries have essential hardware and software facilities and they are providing training for their library staff in ICT based
services. The librarians and users have a highly positive attitude towards ICT application and the main barrier to ICT application is inadequately trained library professionals.

Jeevan and Nair S. Saji (2004) surveyed premier libraries in Thiruvanathapuram to assess the information technology adoption and to collect information about various IT components useful for better library organization and comprehensive as well as swift information services. Data was collected by using questionnaire and interview method. Eighteen scientific, technical and research libraries both under central and state Governments situated in Thiruvananthapuram were participated in the survey. All eighteen libraries were of the opinion that IT had a positive impact on the day to day work of the library and that IT played a positive role in enhancing services, user satisfaction meeting user's demand, and overall library image, problems faced in IT adoption included inadequacy of funds, shortage of IT skilled manpower, difficulties in periodic upgradation of infrastructural facilities, frequent change and advancement of technology, high hardware and software costs, insufficient training of professionals and absence of hands-on training.

Banerjee, Swapna (2005) provided an overview of how information technology is used in curriculum and instruction, and highlights the role of the librarian in this process. The significant increase in students numbers, growing diversity in the age and academic profile of students, the development of a competitive clients focused ethos in higher education, a greater emphasis on research have all led to radical changes in higher education and the method of instruction. The Symbiotic role of the lectures and the librarian in the colleges in providing digitized lecture notes, which will help in e-learning helps the students to sharpen their skills and also develop new concepts. The function of the teacher is not to disappear, the access to lecture notes given in an organized way to learner community through the
use of subject specific portals by the librarian will be more important. A case study of
the subject of Chemistry has been dealt, with appropriate amalgamation of note by
lectures and suitable subject portals, whereby students can learn the subject through
web based access.

Cholin (2005) provided an overview of information technology implementation in different university libraries in India that provides effective access
to resources available within universities and elsewhere. The study focuses on the use
of information technology in university libraries by studying the status of information
technology applications in Indian university libraries at various levels. For the
compilation of study, survey method was used. The study was conducted among 66
university libraries which is approximately 25 % of the total number universities out
of them 54 libraries were responded to the study. The factor studied include
manpower in the universities across the country can overcome distance and time with
the use of ICT tools in universities and UGC INFONET to provide scholarly access to
resources. The study reveals that the university libraries in India are at various stages
of development in the application of information technology tools in their day to day
activities.

Watane, Vinchurkar & Choukhande (2005), conducted a study under the
title “computer literacy of library professionals and use of information technology
related services in the college libraries of Amaravati city”. The main objectives of the
study were to find out the awareness of IT application among the professionals and
the proportion of application of IT in libraries. A questionnaire survey of selected 38
college libraries was conducted and the results using simple statistical analysis reveals
that majority of library professionals are computer literate and are not reluctant to
make use of IT applications in their libraries. Automation is progressing in all the
college libraries under study and they are providing library services of which 50% are IT oriented.

Jange and Samey (2006) evaluated the use of internet as an information source by libraries of National Institutes of Technology in India. Questionnaire survey method was used for data collection. Data was collected from seventeen National Institutes of Technology spread across the country. Objectives of the study were to understand the perceptions of internet technology by library professional, to identify the purpose of using internet by library, and to explore the use of internet service and its impact on library activities and services. It was observed that all the libraries perceive internet as a communication tool and look at it as a supplement to the online library. Among the internet services, email, online database and WWW are the most frequently used internet services by the librarians. The results indicated that the libraries make use of internet mainly for identifying latest books and journals in acquisition and serials control activities of libraries, search engines are the ultimate mode of searching information and colleges assist in getting the desired information. Further it indicated that the libraries of NIT accepted the significance of internet in library activities and services. The librarians have to reorient themselves, and adopt the new technology to generate services and resources where skills of structuring and organizing resources are put to its best use.

Nath Bahl and Kumar (2007) studied librarian’s level of knowledge and skills regarding the ICT use. The study was arranged among the librarians of Chandigarh city. They also tried to be aware with problems faced in the use of ICT's and their training needs. The study also investigated the extent of adoption of ICT in Chandigarh city libraries as modern tools of providing library service to user. A questionnaire was used to collect data with the context of ICT skills and knowledge of librarians with 9 sections on respondents background file management, word
processing, spreadsheets, database, presentations, e-mail and internet. Survey of 21 academic and public libraries reveal a low level of ICT knowledge among librarians and a general lack of formal training among the academic librarians. The study recommends library education with a balanced curriculum including both traditional as well as ICT knowledge and skills.

Sangeeta & Sarika (2008) highlighted the present status of academic libraries of Manipur, particularly college libraries of valley areas on varied aspects like ICT based services, automation status and other including problem in ICT application. It also disclosed some suggestions to improve the service conditions of college libraries.

Santha Devi Antherjanam anad N K Sheeja (2008) reported that Information is knowledge, facts or data. For the purpose of enabling the users to assimilate information, it should be repacked. Knowledge becomes information when it is channelized through proper way. Success of effectiveness of communication technology can be count as how effectively it provides its users. Is mode of communication of information rapid, economical and authentic? Authors noticed that A large number of ICT enabled services including OPAC; e-resources etc. were available in the university library. Studies have been done to find the impact of ICT on different sections of CUSAT library by observing the activities of different sections; discussions with colleagues and visitors; and analyzing the entries in the library records.

The research article of Kaling Borang Gautam Kumar Sarma (2008) was based on a survey of application of information and communication technology in two major academic institution libraries of Auranachal Pradesh i.e. Rajiv Gandhi Central University library and NERIST (North Eastern Regional Institute of Science and Technology) Library. Here the discussion was done on the status of library

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automation, different software packages used for automation, OPAC use of e-resources and the extent of their use in library operations of these two libraries. The paper also spotlighted the problems and difficulties being faced by the library authority in applying ICT in the libraries.

Walmiki and Ramakrishnegowda (2009) surveyed the outline of status of ICT infrastructure of selected six university libraries in Karnataka. A structural questionnaire was used for data collection. This study focused on details of use of hardware infrastructure like PC's, Laptop, Server, Scanner, Printer, Software facilities for automation of housekeeping operations. Digital library activities were included in the survey also. Availability of Internet connection for providing source of information and LAN facility detailed in the study. They find out that most of the libraries facing insufficiency of hardware and software facilities internet with required band width. The university libraries have to plan implement and develop ICT infrastructure to utilize the benefits of digital information environment.

Singh, Sharma and Negi (2009) reported current state of art, use and application of ICT in LICs in Nodia in their study. The study was based on 25 LICs of public, government, corporate and private enterprises in Nodia. The data was collected through mail/ email among the librarians of selected institutions. Authors tried to find out the opinion of the librarians about the barriers in application of ICT in LICs and their attitude towards adopting the technology. The results shows that lack of awareness about interest and initiation of library professional towards ICT application in the library are the major barriers of ICT application in LICs even though the attitude of the librarians towards. ICT application/ use in the LICs were very positive. The majority of LICs in Nodia has good hardware, software facilities but ICT based services, and products were not reaching the users to the extent expected. Problems of inadequate finance, infrastructure underutilized, hence it is
essential that ICT resources should be enhanced. ICT skilled staff should be increased or trained in using and handing ICT.

Parameshwar S. and Patil D.B. (2009) investigated the use of Internet resources by faculty and research scholars. Basic purpose behind the survey was to find out the use of internet, internet resources and services its impact on teaching and research and the problems faced while using the internet. It was a questionnaire based survey and data was collected from faculty members and research scholars in Gulberga University. A total of 305 (112 + 193) were distributed, and 214 were returned findings included that a majority of the users have been using the Internet for two to four years. Slow speed downloading problems, and lack of training are the major problems. Gulberga University must improve its information and communication technology, including e-mail access, orientation, and training programs in the use of internet resources and facilities in library.

Sampath Kumar and Biradar (2010) observed the use of information communication technology (ICT) in 31 college libraries in Karnataka. Study covered the ICT infrastructure, status of library automation, barriers to implementation of library automation and librarian’s attitudes towards the use of ICT. The survey carried out using questionnaire, observation and informal interview with selected college librarians. It showed that lack of budget, lack of manpower, lack of skilled staff and lack of training are the main constraints for not automating library activities. Even though library professional have shown a positive attitude towards the use of ICT applications and library automation, majority expressed the need for appropriate training to make use of ICT tools.

Arup Kumar Mondal and Amit Kumar Bandhy Opadhyaya (2010) expressed in their study that application of information and communication technologies in academic institution in West Bengal has increased in the recent years.
But still the speed of automation of libraries in general degree college of Burdwan Sadar (North and South) is not up to the mark. Libraries have certain problems viz. unavailability of Trained manpower. This study examines the situation of IT application and related manpower problems in government aided general degree college libraries of Burdwan Sadar (North and South) West Bengal. Although IT application in college libraries is no doubt a boon, its implementation is a most challenging Job, especially in government aided general degree colleges in West Bengal as they face lot of constraints like shortage of manpower, lack of proper training, and personnel motivation.

Helauddin (2010) commented in his study “current position of libraries in ICT environment in Faridabad District of Haryana State” that the position of various service provided by libraries with support of information & communication technologies to their users is as good as expected. The observed that 54 % users are satisfied with ICT based library services, 45 % users are not satisfied due to single computer at issue counter. They demanded more terminals at lending counter 55 % users are rat satisfied with the number of terminals in the library. They need more terminals with high speed connectivity.

Sheeja N.K. (2010) conducted a study to investigate the application of information and communication technologies (ICT) in university libraries in Kerla, a State of India. The study used a combination of structured questionnaire, unstructured interview, discussion with library professionals and observation methods to examine the current state of ICT application level, ICT based resources, services and infrastructure of university libraries of Kerala. The study finds that university libraries in Kerala are far behind in the application of ICT’s. All libraries have local area networks and they provide internet services. The assistance of INFLIBNET is notable. An inadequate fund for infrastructure is the major obstacle to ICT
application. The paper illustrates how university libraries in Kerala adopted ICT in their housekeeping operations and provides recommendations to enhance ICT application.

Mohamed Haneefa and Shukoor (2010) examined the information and communication technology (ICT) literacy among the library professionals of Calicut University. The study was delimited with the library professional in the central library and departmental libraries of Calicut University only. Data was collected through a structured questionnaire. The study reveals that the professional assistants are more ICT proficient in ICT skills than the junior librarians and assistant librarians. The use of ICT-based resources and services, library automation software, and general purpose application software is high among the junior professionals than the senior library staff. Library professionals were rarely using digital library and institutional repository software. Majority of the professionals were confident in handling ICT and Internet tasks, but still they need some advance training or orientation in library automation, digital library and institutional repository software.

Praveen Babel, S.D. Vyas (2011) arranged a study with the libraries of deemed universities in Rajasthan under the title "Application of information technology in academic libraries of Rajasthan: A survey report". The survey attempted to find out current situation with the context of following aspects. application of information technology, availability of reading material, use of application software, user services, housekeeping operations, networking accessibility of libraries, problems in computerization and networking. The analysis shows that the use of technology in libraries is increasing steadily and significantly. The level of response shown to the present survey indicated that deemed university libraries continue to be more interested in using IT in future. The respondents clearly
indicated an awareness of current development concerned with automated library systems even in those libraries where IT has not been used much.

Sivakumaren K.S., Geethav and Jayaprakash B. (2011) presented paper "ICT facilities in university libraries: A study". The objectives of the study were to identify the ICT infrastructure facilities available in the university libraries, ICT based software implemented in the university libraries and various types of electronic resources available in the university libraries. A structured questionnaire was used for data collection. The data was collected from ten university libraries, that from government university libraries and deemed university libraries of Chennai. It is found that no library was using digitization software. It is very useful to digitize rare collections such as older and out of print editions. The study recommended that "University libraries must increase the numbers of computer terminals to enable the users to maximize the usage of ICT based resource and service. The digital library is one of the most useful services in the university library. Users can access digital resources using a number of different open source digital library software packages. The libraries should implement digital library software.

Thanuskodi S. (2011) pointed out that Libraries are important resources for individual as well as for communities and organizations. For centuries libraries have been regarded as depository of books, manuscripts, journals, newspapers and other form of printed material. Gradually the process of recording information has changed and is reflected in the growth and variety of sources. The electronic revolution, specifically, internet is narrowing the information gap. The power of web technology is enabling the generator of information to disseminate their creativity at low cost and high speed. This paper is on attempt to investigate the use of information and communication technology by the academic community of the government law colleges in Tamil Nadu. For this purpose a survey was carried out
using the questionnaire tool. The findings indicated that most of the respondents 37.28% percent use electronic information resources through e-mail. 29.38% percent of respondents use electronic information resources through DVD's and CD ROMs. The result shows that 4–5 hours of access to internet takes the first order reporting among the faculty members and students of the government law colleges, above 5 hours of access to internet the second. Based on findings of the study some recommendations are made that is legal education curricula should be revised at the national level to accommodate the integration of information literacy and the use of e-library, either as embedded or standalone course. This is in recognition of the changes in technology, especially in managing legal information. Awareness should be generated on the e-resources to obtain current legal information, more computer terminals should be installed in the college library for easy access to students and faculty members. Better user education programs should be conducted by the college libraries as the students and faculty members, depend heavily on the library staff to get their required information. This will reduce the dependence of the students on the library staff that can devote more time in other activities of the library. Major findings at the study are that faculty members occupy the first position with respect to their overall satisfaction on online database maximum students reported that the services of the library are poor.

Tyagi (2011) conducted a study to examine the use of online journals and the databases by the UG and PG students, researchers and faculties of IIT Roorkee. Main objective of the study was to identify users’ attitude towards different features of electronic resources, their awareness of INDEST consortium, the purpose of using EIS and their preferred formats. The study concluded that interest of respondents is growing in e-resources at IIT Roorkee, India. Further study revealed that majority of respondents showed their satisfaction regarding the online journals
and databases acquired by the library. Awareness among the users about the availability of electronic resources was found highly satisfactory. It was also noticed that electronic resources mostly used to fulfill research needs. A very high percentage of the users perceived e-resources as a replacement for print resources in meeting their information needs. The respondents regarded electronic resources better for accessing current Comprehensive information.

Farahi, Mina; Tavassoli, Gandhi and R.T.D. Ramesh (2011) carried out a study to investigate and compare the current status of information technology in medical libraries in India and Iran. Although medical libraries in both countries have a handsome mechanism of hardware, software and communication facilities but still there is a space to achieve excellent IT levels. Numbers of libraries in both countries have library management software. However, only few medical libraries in both countries are fully automated. Iranian librarians were facing problems of insufficient institutional support, funds, trained and skilled professionals, and absence of planning and training courses, as the most important problems in IT application, while none of the options were rated as the most important problems militating against effective use of information technology by Indian medical librarians. The research compare the status of information technology in India and Iran as developing countries and provides recommendations to promote library automation and effective application of information technology.

Dhanavandan (2011) found that the role of engineering colleges in the technical manpower developments is quite significant. He also commented on the need of rapid information communication technology infrastructure and in this context, there is a need for adequate development of electronic resources. The lack of adequate finance is the main reason for not developing information communication technology infrastructure especially in the case of libraries, those that do not receive
financial aid from UGC of India or others like AICTE. The problems can be solved only through the aid from the state government or AICTE. The establishment of information communication technology infrastructure facilities in the self financing college libraries in Tamil Nadu can improve the efficiency of information support, the information retrieval and quality of education.

INFLIBNET (2012) is providing the financial and technical assistance to Indian University libraries to create basic infrastructure, networking, training and use of ICT for library operations and services, university libraries of Rajasthan are getting e-resources with the help of INFLIBNET.

Parveen Kumar (2012) in his study “Use of ICT Based Resources and Services in Engineering College Libraries in Haryana, India: An Analytical Study” concluded the current position of libraries in ICT environment in Haryana State. A structured questionnaire was used to collect data to complete present study. Data was collected from the librarians and users of the libraries of engineering colleges. It evaluated the user's attitudes, awareness and satisfaction about the library services is being provided with support of ICT. The results of the study revealed that the ICT based resources used by the largest percent of users was the e-resources.

Dhanavandan S., Mohammed Esmails, and Nagrajen M. (2012) conducted a study "Access and Awareness of ICT Resources and Services in Medical college libraries in Pondicherry". The study is confined to the information and communication technology based resources and services in medical college libraries in the union territory of Pondicherry. The basic aim to conduct present study was to assess the success and failure of the reading habits and varying interest of teachers in their fields, such as general subject and also it will be guidance to the librarians to procure the required documents. It was also attempted to examine the different factor if information and communication technology by the faculty members of medical
college libraries, to be aware with the difficulties and problems faced by the teachers while accessing and using electronic resources and the use of different type of electronic resources and asserting the preference of search engine. Data was collected by using a well structured questionnaire. The study concluded that most of teachers use internet. Mostly they were using electronic resources for their research/study and communication purpose respectively. It is also found that maximum number of respondents was able to handle electronic devices to acquire desired information from resources. They either get guidance in the library or the take formal training at external agencies. Most of the respondents were using Google to access the information in the internet and stated that access to current up to date information as a benefit of using electronic resources, too much information retrieved is the main barrier to access electronic resources and they preferred text books.

Vijaykumar A., Thomas Jaison (2012) mentioned that libraries play a very important role in promoting the progress of knowledge it is part and parcel of any learning institutions. Library is associated with all academic or technical institutions, which is pivot of teaching-learning process college library play an important role in providing overall library and information services to the students. We have just entered in new millennium and we have lot of challenges before us for keeping us in pace with modern development in information technology which have brought information explosion and information revolution.

Tiwari and Sahoo (2013) commented that the Information and Communication Technology (ICT) has affected the libraries to the great extent. Libraries use ICT to maintain housekeeping operations, services, uniformity and extension of library facilities, university libraries of Rajasthan (India) are using computer and associated technology for library activities. This study attempted to reveal the basis infrastructure, use and privation during the implementation of ICT in
University Libraries of Rajasthan. Survey method was used to collect data. The paper encompasses the information about the staff, collection, financial sources, hardware, software, networking infrastructure, housekeeping operation users services, training and problems areas encountered during implementation of ICT in university libraries. It was concluded that ICT activities are not updated stage in the university libraries of Rajasthan. The lack of basic management and proper planning and frequently change in ICT are basic hurdles for successful implementation and development of ICT.

Kanchan Kamila (2013) Fast-paced change in technology, particularly the origin of ICT and social, political, economical change forced to managerial change in Libraries and Information Centers (LICs) is necessary for LICs to survive in the twenty-first century. In this context, managerial change towards structure, technology, task, people, library policies, objectives, and functions of information systems and processes of managerial change in LICs are discussed, and the chapter concludes that “Change Management” is the only feasible solution to overcome all the difficulties and problems created in the ever-changing environment for the overall development and progress of LICs in the ICT era.

Chopra and Kaur (2013) studied the use of e-resources by research scholars. They noticed that most of the research scholars preferred to use e-journals for their research work. Study also reported that a majority of the users were using e-thesis which are available on Shodhganga. Study further revealed that majority of research scholars stated that e-resources do not diminish the importance of traditional print resources.

Kumar (2016) arranged a study to examine the use of e-resources by the medical students. The study presented a comparative analysis of PG and UG student’s use of e-resources. Author concluded that PG students had preference for e-resources
like e-research reports, ETDs, e-journals, e-books on contrary to UG students who preferred using e-research reports to other e-resources. though, a similarity was observed in case of search strategy used for accessing e-resources where majority of both PG and UG students used title search for searching purposes. Finally he noticed that Undergraduate students were spending more time daily in searching and accessing e-resources than the postgraduate students.

**International Studies:**

Huang, Shi-hsion (1988) stated the impact of information technology on library management has recently been the preoccupation of academic libraries the influence of the computer based library system on house-keeping procedure, CD-ROM in online databases, and the use of expert systems for library technical processing. There is much evidence to suggest that the capabilities of resource sharing among library networks will be enhanced. He Recommended that the open system interconnection (OSI) as a standard of networking communication protocol in the various computer environments and raises several problems facing libraries and librarianship in their future development.

Ellis Badu, Edwin (1990) conducted a study and he briefly described technological developments in libraries during the twentieth century. He also provided a brief profile of academic libraries in Ghana as a preamble to a discussion of copying techniques, communications technology, microforms and data processing. He examined problems associated with the use of technology and puts forward suggestions to improve the situation in Ghanaian libraries.

Vespry and Kitiyadisal (1992) surveyed the application of information technology (IT) among academic libraries in Thailand. The survey showed that librarians are generally aware with IT in libraries and keen to automate their library
services. It also showed that the speed of IT implementation in academic libraries depend to a large extent on administrator's support.

Muirhead (1993) reported the results of a survey which was funded by British library. The survey was conducted with 503 UK public, academic and other libraries to determine the activities of systems librarians and the nature of the employing organizations. The survey findings concern what systems librarians actually do, the kinds of stress they are exposed to and the rewards of the job. As IT penetrates further into LIS the extent to which the applications of IT fall within the systems librarians’ purview was an objective of the survey. This survey indicated that for a considerable majority there has been a widening of their role majority said they were involved in IT developments additional to managing their library housekeeping system standard office automation, CD-ROM, PC-based application, and network management were among the most frequently mentioned areas.

Siddiqui (1997) reported the use of information technology in Seven Saudi Arabian university libraries. Data was collected through a questionnaire from deans of academic libraries and other library professionals were interviewed. The data was about information about availability and use of information technology like computers, networks, electronic mail, online information retrieval, CD–ROMs), facsimile transmission, personal computers (PCs) and the internet in the academic libraries, he also focused and tries to determine computerized library systems, databases and services used in the libraries the most widely used automation systems (DOBIS and MINISIS) and the numbers of online and CD–ROM databases acquired by specific libraries. The survey results show that information technologies used by the academic libraries are: automation networks, electronic mail, online searching, CD-ROM searching, tele-facsimile, and personal computers. The academic libraries are using these information technologies to provide excellent service to library users.
In addition all seven academic libraries are using IT in performing their day to day work of processing and services.

Tran and Gorman (1999) reported results of a survey conducted with 36 information professionals in Vietnamese libraries. Main objective of the study was to explore the development in the implementation of information technology (IT) in the library and information sector. It intends to determine what librarians have been doing with computers and to examine the availability of electronic resources in libraries. It also tried to identify knowledge and skills needed for the provision of e services. Most of the librarians designated that they need proper training to handle and utilize electronic devices, tools such as computers, CD-ROMS, Internet etc.

Chisenga (1999) conducted a survey to understand the use of internet for professional developments by library professionals in sub Saharan Africa. A survey of 47 librarians through mailed questionnaire. The study reveals that library professionals of said jurisdiction use internet and electronic mail facilities at workplaces. The use of e-journals, discussion group and other web resources was quite low and in some cases non–existent because of shortage of computers, poor telecommunication lines and inadequate internet use skills also creating unhealthy circumstances among the respondents. The study finds that the library professionals had positive approach towards the use of internet in facilitating professional networking and sharing of information.

Marjariita (1999) carried out a study in order to identify the educational needs of the library staff of Finnish polytechnics. The educational needs identified by the library staff concerning four main topics (library work, leadership and management, information technology, and learning and learning environment) as well as the main topics for continuing professional education most of the library staff needed to learn more about how to teach information skills how to integrate libraries
into the context of polytechnic information management and how to use information
networks effectively. 70 percent of the respondents were interested in learning more
about these three topics. 53 percent respondent recognized the design of the learning
environment as an educational interest and they wanted to improve teaching and
training skills. The respondents have no problems with IT applications and Excel,
Word, PPT etc. and they interested in learning more about networks. As the
polytechnic libraries are not integrated into polytechnic information management, the
professionals need continuing education and training in information technology and
management.

Webster J. (1999) worked on the financial aspect of library. He pointed out
that Technology Resource Fees (TR Fees) provide a definite source of finance for
library technology. But it integrating these student funds into library budgets requires
strategic planning, good communication and student involvement. Reports results of
a questionnaire survey of TR Fee programs at Oregon state university (OSU)
institutions and a broad student survey to explore how libraries may exploit these
funds. The study was undertaken to collect information about the following unsolved
issues: how libraries can be involved in the decision making process or use the funds;
whether student fees should be used to fund experimental projects, ongoing resources
and services; the optimum level of student involvement in decision making; whether
adequate communication with the entire campus community concerning these fees
exists; and whether other models of distribution and communication exist at peer
institutions. He discussed the three critical issues, viz. planning, communication and
budgeting. Study concluded that the library can help the entire campus in developing
a responsive TR fees program, strategic planning can be routine and regular
evaluation of services can be less threatening.
Iwe, J. I. (2001) conducted a study under the title "Women librarian form a considerable proportion of the academic staff of university libraries in Nigeria". The study was aimed to be aware with the status, role and position of women in the university library from the perspective of information technology (IT) in the new millennium. Author identified the challenges of the future and offering trends towards their solution. Advances in information technology have made a lot of impact on information processing, storage and dissemination in the developed countries. Nigeria is also a developing country and it accepted the principle that better information management lies in the use of technology. This principle must be put into practice if the country is to achieve the maximum efficiently in information delivery and communication. Women librarians in university libraries are well equipped to contribute towards this.

Al–Quallaf and Al–Azmi (2002) arranged a survey study to find out the availability and use of information technology in public libraries in Kuwait. The study includes hardware/ software, patterns of connectivity such as LAN's Internet etc. training and development activities. The study showed that few libraries have Internet connectivity, limited use of ICT applications, and the implementation of an automated library system are very slow factors impeding the development of information technology are planning, funding, human resources and building structure. The survey also showed that library personnel are positive towards IT.

Jankowska, Maria Annu and Marshall, Linnea (2003) stated in their paper that lately it looks extraordinary development in information and communication technologies (ICT). Many new tools and services, and traditional tools, such as the catalog, could be developed or enhanced by librarians to effectively support the academic community in teaching and learning, he pointed out that how social interaction between technical and public service librarians could enhance library
services to the academic faculty and students during these demanding times of technologies and information overload, and the team approach to library service can improve social interaction between librarians when the perpetuation of the traditional academic organizational model is not efficient enough for the faculty and student need-driven use of information. Rapid changes resulting from ICT demand constant social interaction that would be facilitated by establishing working teams for specific tasks.

Stephen A. Akintunde (2003) provided an overview of trends in library practice worldwide. The trend is largely moderated by information and communication technology. The new tools of library practice are therefore essentially digital. Author has conducted a survey to understand the historical background of economic and social environment of library practice in Nigeria before discussing the new libraries. Main focus of the study was to discuss the use of electronic mat, web browsing and web page design, utilizing resources on the web, and manual processing. At the end author listed the challenges in the way of the Nigerian academic/research librarian in appropriating the new tools of library practice. The challenges include funding for ICT, Internet connectivity, maintenance of facilities, provision of functional infrastructure (such as telephone and reliable electric power supply) and of course, training and continuous professional development.

Matesic, Maura (2003) noticed that "organizations across North America were exploring the budding of wireless networks and their potential to enhance other technologies in post secondary education. Author also examined the deployment of wireless networks, the growing use of PDAs in education from K-12 to higher education. The increased use of wireless and PDAs has many implications for the academic library, and provides numerous opportunities in a wide range of library initiatives, including library instruction, library promotion, and outreach."
Jiao, Qun G and Onwuegbuzie, Antony J (2004) arranged a study to find out the impact of computer based technologies on library service since past couple of decades. They noticed that computer based technologies become dominant forces to shape and reshape the products and services the academic library has to offer. The application of library technologies has had a profound impact on the way library resources are being used. Although many students continue to experience high levels of library unease, it is likely that the new technologies in the library have led to them experiencing other forms of negative affective states that may be, in part, a function of their attitude towards computers. This study investigates whether student’s computer attitudes predict levels of library anxiety.

Ramzan (2004) conducted a study to determine the extent of information technology (IT) utilization in libraries in Pakistan. He also explored the librarians’ level of knowledge in IT and their attitudes toward IT in libraries. The study has been conducted with 244 librarians in Pakistan and they were asked to indicate the extent of computers, CD-ROMS, network server, and related hardware, email, internet, software and electronic databases available, use of IT based systems and resource by the library staff and patrons, and the degree of changes occurring in IT applications in their libraries. The respondents’ level of knowledge as well as skills in IT was examined through measuring the scope of knowledge of technology rate of keeping abreast of IT. Study also examined their publications regarding use and usage of IT in libraries. Author concluded that 13.5% respondents had no knowledge in technology. Further it was noticed that 33% had primary knowledge. The findings of the study also reveals that availability of appropriate IT and its proper utilization are important variables that are capable of increasing the librarians attitudes more positive towards IT which implies the librarians require continuing education and exposure to increase their level of knowledge of new technologies.
Scherrer (2004) carried out a study to examine roles of the reference librarians from academic health sciences libraries in changed environment over the past years and what challenge these changes present. A series of eight focus groups selected from reference librarians were studied. The survey results confirm the role changes of librarians as a result of advancements in information technology in addition to providing traditional reference services, it was found that librarians engage in teaching, designing web pages, engage in outreach through liaison initiatives etc. Librarians strived to meet their patrons needs by developing web page to facilitate patrons finding the resources they needed as easily as possible librarians identified areas for further training in specialized databases, resources needed by researchers and other modern technologies implications for library education and continuing professional development is also stressed.

Obioha (2005) identified the role of ICT in information seeking and use amongst research officers in research institutes in Nigeria. The study examined awareness, use, exposure to ICT; role of ICT and improvements on ICT tools. It shows that ICT plays a considerable role in information sourcing, generation, processing, storage, retrieval, dissemination and also entertainment. It also proved that to upgrade the use of ICT there is need to have regular power supply, stable infrastructure and provision of more ICT tools and centers.

Adeyoyin (2005) arranged a study to understand the level of ICT literacy among library staff in Nigerian libraries. A structured questionnaire was used as a tool to collect necessary data. The study covered 18 university libraries of Nigeria. The study revealed that Nigerian university libraries, which form the basis of knowledge for the country, do not have professional librarians whose skill-set is adequate to meet the ICT applications which are indispensable for the acquisition, organization, provision and dissemination of knowledge, library management, for its

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part, should acknowledge the wide-ranging benefits of both ICT and raise level of ICT literacy for university libraries and their mother institutions.

Hoskins (2005) investigated the ICT knowledge and skills of subject librarians of the university libraries of Kwazula-Natal. 43 subject librarian’s form the universities were selected as population for the completion of this study. Questionnaire was mailed to the respondents to collect data. The data was collected about what ways subject librarians were using ICT's, what the level of ICT knowledge and skill was amongst the subject librarians, what problems the subject librarians faced in the use of ICTs and what their ICT training needs were. Interpretation of the results revealed a low level of ICT knowledge and skill amongst subject librarians and a general lack of formal training for ICT's amongst the subject librarians. The findings of the study show that subject librarians generally do not have the knowledge to explore and take advantage of the opportunities technology creates, nor did they have the skill or ability to perform the applications functions and operations described above effectively. By identifying the problems that subject librarians face in the use of ICT, it is evident from the findings that the majority of these problems were as a result of a lack of understanding, knowledge, skill and a lack of training. The author suggests that library school should provide a curriculum that is balanced so that it provides for an education in traditional librarianship as well as ICT knowledge.

Fatoki, Oluyinka Catherine (2005) noticed that Poor telecommunication infrastructure was hindering the most library activities in Nigeria. However, after the emergence and spread of wireless technologies, especially the global system of mobile communications (GSM), this paper seeks to consider the implications of this event on library services, with suggestions on the possible applications to academic libraries. A background study of information and communication technology status past and present in Nigeria was carried out, especially the impact of wireless
technologies on the global scale and in the country findings. The GSM technologies acceptance and growth rate among the Nigerian populace has serious and great potentials for enhancing the communication and information technology related services in libraries and information technology related services in libraries and information centers in Nigeria. However, information managers need to fully exploit the opportunities presented by this relatively new phenomenon with a view to providing improved products and services to the library users, especially in the academic sector. This paper highlights the use of GSM technologies library services, it targets librarians and information managers who have been limited in the past by inadequate telephone/telecommunications infrastructure encourages the professionals to exploit the opportunities presented by these expanding technologies.

Gemani, Paul (2006) undertook a study to explore the way in which the internet and e-research are changing the nature of scholarly communities and libraries; and to suggest how librarians can become more engaged with the e-research process. A survey and focus groups investigating Internet use by academic staff and research students at Curtin University (Western Australia) for e-research and scholarly communication purposes. The survey questioned respondents on their formal and informal scholarly communication practices and the extent to which these have changed due to internet access. Further questions explored the extent to which respondent's use of the library had been impacted by internet access service. The study indicated that research users are positive regarding the usefulness of the internet for research purposes and for expanding their scholarly community, but their attitudes are also marked by ambivalence; in particular they report that the internet may not replace the need for some more traditional forms of scholarly communication. Respondents reported that they making less personal use of the library but greater use of library services. The paper concludes with observations about changes to scholarly
communities and the opportunity offered for academic librarians to develop the concept of e-research literacy as a means of enhancing their engagement with scholarly communities.

Islam and Rahman (2006) arranged a study to be aware with present, status of information and communication technology (ICT) in Bangladesh to represent the scenario of growth and development of ICT in relation to the evolution of the information explosion. The study also aimed to suggest suitable suggestion to provide better library and information services in Bangladesh. The status of information technology (IT) in Bangladesh is not as good as other developed countries, but recently the situation has changed significantly. Libraries and information services centers are expected to get immense facilities to access and cooperate with information world. A UNDP funded program SDNP virtual library has prepared a union catalogue of 13 libraries, all of which are using CDS/ ISIS software for bibliographic record keeping.

Adeyoyin (2005) reported in his survey which was conducted among the professionals, para-professionals and other members of staff of 28 university libraries in West Africa. Aim of to arrange the study was to ascertain the information and communication technology (ICT) literacy level among the staff of English speaking university library staff and their counterparts in French-speaking university libraries. The results showed that ICT, literate professional librarians’ quantity is very less and majority of ICT Non-literate professional librarians was high. Findings of the study shows that there was need for knowledge acquisition among the librarians in Nigerian university libraries to be able to offer efficient services in the emerging ICT era and that the ICT literacy among the librarians was low and hands on practical experience was lacking among the librarians in some cases. The application of information and
communication technology in West Africa university libraries and their subsequent use require that these technologies should become part of library staff training.

Obajemū (2006) reported in the survey arranged with 84 participants at the cataloguing, classification and indexing group of the Nigeria library association workshop in 2004. The study also determined the impact of the annual workshop on the application of information and communication technologies (ICT) to cataloguing and classification in Nigerian libraries. The work covers 43-libraries, universities and polytechnics, college of education, research institutes and ministries in Nigeria. He noticed that workshops had encouraged the participants to further pursue ICT. The finding also reveals that the workshop had positive impact on the participants with respect to the application of ICT to classification and cataloguing.

Brindley, Lynne J. (2006) look into a review of library provision in higher education, which was originally set up in 1992 by the funding councils of England, Scotland and Wales, and the Department of Education for Northern Ireland. The review group was structured into three sub committees under the umbrella of the main review committee. The responsibilities of these sub committees were respectively: funding and resources; the management of libraries; and information technology (IT). He stated as the report supported the need for; electronic delivery of documents over networks; the electronic availability of teaching materials for students; the opportunities for resource sharing and practical co-operations; and an integrated approach to information access and delivery in a complex environment. Funding was also made available to help supply these findings. It was intended that the program should raise awareness, encourage use of networked services, and ensure that those working in libraries can provide appropriate training and support of users.

Sami and Shahida (2007) conducted a survey to understand whether any effect of gender on the use of IT facilities in libraries and information centers or not.
It was titled "use of IT in information centers: gender based analysis". 375 respondents were examined during the study. The internet was the most popular facility used by respondents of both the male and female gender. Authors concluded that need to use information technology facilities was high for users irrespective of their gender. Techno-stress was not a critical issue among users of both genders. Users’ preference to use computers and related technologies depended up on the cultural family and the educational background of the users.

Islam, Md.Shariful, Islam, Md. Nazmul (2007) reported that Bangladesh started to use information technology from 1964, but library automation was still in its grass root level. The results of a survey of nine libraries and information centers in Bangladesh are presented public and private universities and research organizations were surveyed to determine the extent of information and communication technology (ICT). Recommendations for solving problems associated with the implementation of ICT are included.

Odero-Musakli, Damaris; Mutula, Stephen M. (2007) arranged a study to explore the internet adoption and assimilation among university libraries in Kenya. The study was based on a literature survey and the experiences of the authors with the higher education system of Kenyan. They noticed that the potential advantages of the internet appear to have precluded the foresight of Kenyan university libraries to the challenges that may be associated with its deployment. There is clear under utilization and considerable disparities between and within the libraries in their levels of general information and communication technology (ICT) deployment and use in Kenya. Most of the public university libraries prefer conventional methods of service. It was also revealed that major part of the library employees was not ready to embrace and integrate these information technologies in their routine operations. If promising ICT applications cannot be widely deployed, then the benefits resulting from such
technologies are likely to be equally curtailed. This paper confines itself to discussion of the internet in Kenyan university libraries. The paper also focuses only on fully fledged Government and private universities as they are among the major stakeholders of the internet initiatives taking place in institutions of higher learning in Kenyan. Higher education in Kenyan has expanded tremendously in the last decade and there is need for studies that address various issues that relate to technology adoption and use that include legal and regulatory frameworks, technology transfer, capacity building and management of new technologies. With students and staff in higher education the world over increasingly gaining access to the internet and other new technologies, the future of universities depends on their capacity to institutionalize such technologies to meet the complex needs of the academic populace. The ubiquitous presence of ICT, in academic libraries, especially the Internet and its potential impact on learning, teaching and research, implies that any effort that would shed light on his technology is laudable. This underscores the need to understand the underlying factors that impede or promote individuals' response to the internet based technology in university libraries not in Kenya but elsewhere.

The study of Olatokun, Whole Michael (2007) investigated the availability, accessibility and use of Information and Communication Technologies (ICT's) among female academicians in six universities in South Western Nigeria. The study adopted a survey design approach and the questionnaire was administered on 246 women academics in the six universities. Findings revealed that the use of ICT facilities such as computers, printers, internet, individual websites, photocopiers, telephones and mobile phones was relatively high among the respondents compared to the use of scanners, facsimiles, videoconferencing and teleconferencing. Also the women academics used the ICT facilities for various tasks notably for statistical analysis, work processing, internet browsing and searching for information, electronic
communication and preparation of course materials. Author also find out the notable difference in women academics access to the ICT facilities compared with their male counterparts and some factors responsible for this were identified. The study argues that though increasing availability and access to ICT is very pertinent to making women academics avail themselves of the benefits of ICT, but other factors that would make them become a part of the decision making equally be addressed. The study recommends some policy options and strategies that the government and the management of the surveyed institutions should adopt. They should not only increase the access of women academics to ICT, but also enables them participate in the decision making and control of ICT deployment.

Herman, Sonia (2007) in an attempt to meet evolving client needs, Southbank Library needed to become more flexible in the alert services were delivered. The paper investigates whether providing a short message service (SMS) for students to text the library for information would offer a readily accessible alternative to e-mail and live chat service. SMS reference service where thoroughly researched in Australia and overseas to gage their usefulness for Southbank institute libraries. Demographic statistics of the student population allowed researches to determine how appropriate SMS reference technology would prove to be for library clients. The study finds that implementing SMS reference allowed the library the opportunity to access students via a familiar accessible service. SMS a librarian has become part of the Southbank institute library ask a librarian service, which includes e-mail, phone and live chat access for students and staff by adding this new technology to the reference services, users are now able to send questions and receive answers from Southbank librarians by using the next messaging facility on their mobile phones. Practical applications SMS has become a popular way of communicating particularly among the younger generation. However it is important
that individual libraries evaluate the appropriateness of this technology for their clientele for South Bank library it was a suitable technology as so many of the students use text messaging. It was felt that a large number of international students would benefit from this service often students with English as a second language feel more comfortable texting a question than using more conventional methods of communication. The successes of SMS reference service at South Bank institute library revolves around three key points; SMS meets our clients’ needs instantly, SMS is a relevant form of communication for students; and finally, the ease of providing SMS technology originality/ value. When researching other educational institutions using SMS reference technology it became clear that universities were leading the field. South Bank institute of technology was the first vocational education institute to implement SMS reference and it's experience should benefits similar skilled based training institute.

Coyle, Karen (2008) carried out study on "Technology for small libraries". The ultimate in large-scale technology for libraries is the vast union catalog established by OCLC, world cat. With more than 60,000 libraries and 100 million records, world cat is the largest library catalog in the world. What cannot be measured, however, is what world cat does not contain; the many small libraries or less connected libraries that cannot afford to be part of world cat or that simply have no means to produce the data that world cat requires for participation. There is at least one group working to bring technology solutions to libraries throughout the world that otherwise would not be able to participate in the global library community: Electronic information for libraries (EIFL). The group negotiates access to online resources for its members and has a program that promotes the use of open source software.
McIntyre, Alison (2008) in the article 'Bibliogging' Blogs for library communication' coated as "Blogs are a successful strategy for disseminating internal information to library staff working in public services. They provide a convenient medium for the transfer of day to day communication, facilitate best practice and create an archive of institutional knowledge. Blogs are also a valuable tool to communicate targeted subject specific library information to academic staff. The experience at UC library suggests that although faculty are heavy users of the internet this does not necessarily generalize to their use of blogs, and librarians need to take a leadership role in promoting blog technology as a way of transforming internet communication and external relationships with library users.

The purpose of this paper is to describe two case studies conducted at the University of Canterbury (UC) which demonstrate the potential of blogging as an internal and external communication tool. The internal blog was used to communicate and manage information for service staff across the library system, while the external blog communicated content and service updates to the academic community. The paper relates the experience of setting up an internal and external library blog. Selecting blog software and staff training issues are mentioned. The advantage of blogging and the challenges of developing and maintaining readership are discussed, as are criteria for success. A survey of academic staff on their use of information technology was also conducted.

Adeyinka (2009) examines the attitudinal correlates of some selected Nigerian libraries towards the use and application of ICT in various libraries. A total of 41 librarians from automated libraries in the Oyo state of Nigeria formed the study's population. The computer anxiety and attitude towards microcomputer utilization (CAATMU) scale and a librarian attitude questionnaire was used for data collection main objectives of the study was to find out relationship between demographic
variable of respondents age, gender, prior knowledge/ experience and training, educational qualification computer anxiety and librarians attitude towards ICT. The analysis of result shows that all the four out of the five variable age, gender, educational qualification and knowledge of ICT significantly correlate with librarian attitude towards ICT; while the variable ICT anxiety correlate negatively with the attitude of librarian towards ICT. The study emphasizes the need for libraries to embark on training their librarian who does not have knowledge of ICT.

Mohsenzadeh, Faranak; Isfandyari-Moghaddam, Alireza (2009) conducted survey to define the status of the application of information technology in academic libraries located in Kerman, the center and largest city of Kerman province, Iran and to understand the problems and difficulties in using information technology in these libraries. The survey has covered 17 libraries belonging to Shahid Bahonar University, Kerman Medical University and Islamic Azad University. Two kinds of questionnaires were distributed to libraries one for librarian and the other for library staff. The findings of the survey have been analyzed using SPSS software. He pointed out that the level of application of information technology in Kerman academic libraries is acceptable but they should improve their status to match with ever increasing demand for better librarian services at universities the most important problem and serious difficulty is the lack of educated librarians, which needs a suitable investment and planning and although about 70 percent of librarians in Kerman academic libraries have participated in related training courses, the most serious difficulty in using information technology is still the lack of educated librarians. Practical implication based on the research findings, several suggestions for improvements can be made for example recruitment of multi-skilled librarians familiar with information technologies related to the mechanism of work in academic libraries planning and designing ongoing courses of information technology and
related skills promotion and introduction of various academic library services through compiling and publishing manuals and guides equipping academic libraries with more information technology facilities having a special budget for development of information technology infrastructure overcoming telecommunications barriers and shortcomings to better use of information technology and mechanizations of all academic library departments to provide information services more optimally and speedily. The research studies the rate of using information technologies in Iran as a developing country. Hopefully uncovering and understanding some unknowns based on such investigations can help to address the digital divide within universities and countries governing them.

Burhanna, Kenneth, J. (2009) explores Web. 2.0 technologies in an academic library through focus groups with undergraduates at Kent state university. Results reveals that students despite being heavy users, are less sophisticated and expressive in their use of web 2.0 than presumed students set clear boundaries between educational and social spaces on the web, and the library may be best served by building Web 2.0 into its site and extending it's services into course management systems.

Al–Daihani, Sultan (2009) reports the results of web based survey designed to explore the attitude of library and information (LIS) academics to web 2.0. It investigates their familiarity with web 2.0 concepts, tools and services and applications as these relate to LIS education and the barriers to their use. A web based questionnaire was administered to 44 academic staff in three LIS schools, two located in Kuwait and one in Wisconsin, us it was found that they have a low level of familiarity with and use of web 2.0. Thirty-one of the respondents reported that US schools should be responsible for planning and management of web 2.0 integration, while 26 thought that these should be the responsibility of individual academics.
Lack of training was found to be the most inhibiting barrier to the use of web 2.0 applications. It was also found that institutional affiliation and Internet experience were significant factors in regard to a number of online activities and web 2.0 barriers. Other personal factors had no or very little significance. The data from the study provide base line data for studies on web 2.0 in LIS education which could contribute to appropriate initiatives for the integration of these applications.

Chew, Ivan (2009) conducted a study to present an exploratory survey as a part of presentation for the Bridging world’s 2008 conference. It seeks to understand how library institutions in the South East Asia (SEA) region have implemented web 2.0 technologies-blogs, RSS feeds, wikis, or the use of services like quicker, youtube, de.lici.ous. Libraries, surveyed were in Hong-Kong, India, Indonesia, Japan Malaysia, and People Republic of China, Philippines, Singapore and Taiwan. The survey relied on reference in published paper, Internet searches and personal contacts. The survey found that more academic libraries than public libraries were using web 2.0 technologies. Blogs and RSS feeds were the most common. Blogs were used mainly as web publishing tools rather than as a means to engage library users. The survey is not comprehensive. The search relied mainly on English publication and keywords, while the native language of most countries surveyed was non-English. Future research could comprehensively cover each country, by the type of library or language. The paper contents that web 2.0 do not rely on technology, but more on practice and participation. The emphasis should be on relationships rather than transactions, suggestions are offered on how libraries can adopt a library 2.0 mindset without focusing on technology. A call is made to establish an East Asian Librarians 2.0 directory. The paper offers a non-technological perspective to institutions and practicing professionals who are reviewing their web 2.0 implementation.
Breitbach, William (2009) focused the successful implementation of an embedded instant messaging (IM) reference service using Meebo. The article provides data to legitimize the developments of such services and demonstrates a successful model. A pilot study to assess the usefulness and functionality of Meebo's embedded IM as a reference service tool was conducted. Detailed data on all reference transactions were collected and analyzed for comparative purposes. Also included in the study is a survey of librarians and staff involved in providing the service. He finds out adding the embedded Meebo chat widget increased the use of synchronous. Virtual reference service by 49 percent embedded IM reference transaction take significantly less time to answer than question point transactions. Higher level reference questions (Research Questions) take nearly the same amount of time to answer over IM as they do in person. Further research to determine why IM reference transactions are significantly shorter than those conducted with question point is needed. A limitation of the current study is that there was no patron feedback collected. The data collected suggest that embedded IM is a viable alternative and perhaps a better alternative to other vendor based synchronous chat reference systems with very low capital and personnel investment, a successful synchronous and local IM reference service can be launched institutions that have not begun to offer synchronous virtual reference service have a free and viable option to do so. Embedded IM is a relatively new technology. Alouth several libraries are using embedded IM, there are no published articles analyzing its use and comparing it to other virtual reference services.

Haridasan and Khan (2009) reported the influence and use of electronic resources by the social scientists and explored the various aspects related to the use of e-resources. They noticed that respondents were using e-books, e journals, e-mail, and online databases frequently. It was also pointed out that most of respondents spent
more than one hour for searching/accessing e-resources. The major purpose of using e-resources in case of faculty members was found to be for study and learning purposes while the majority of research scholars used e-resources for research work. Further it was identified that a higher percentage of faculty members were using e-resources to update knowledge as compared to the research scholars. Furthermore, it was revealed that the social scientists strongly agreed to the need of e-literacy for the better utilization of e-literature. Study concluded that respondents need proper guidance for effective utilization of e-resources.

Abubakar, Bappah Megaji (2010) Study investigated the availability and use of information and communication technologies (ICTs) in six university based library schools in Nigeria. Survey research methodology was adopted, and two sets of questionnaires were administered to the directors and 65 academic staff of the six-library school. Findings indicate that all six school studied have a fair number of IT applications for education and training of students but that more is needed.

Buczynski, James A (2010) in his study, "Developing faculty ICT competencies inside and outside the library" he stated that despite all the financial resources that are direct to support and acquire learning technologies, the results have been generally disappointing. Faculties are eager to use technology but lack the technical skills, ability and experience. Library staff included a talent tool rich in information and communication technologies (ICT) WEB 2.0 technical expertise and experience in terms of content sourcing and procurement, library technical services and selection staff have broad knowledge of the marketplace for online information and content as well as experience in licensing access. They have a firm grasp of the transaction process, workflows, pricing and licensing negotiations. Content development and sourcing inevitably involves access management, online storage, copyright and licensing things at which libraries are good. ICT deployment is
changing teaching and learning on campus, and the roles of those involved in teaching and learning are also changing. Whether formally through mandate library services or informally through back channels, library staff are supporting faculty new technology use as well as faculty teaching materials content sourcing and procurement.

Kumar, Sharma Ajay (2010) in their study. "Knowledge management and new generation of libraries information services: A concept pointed out that" The library will play a very crucial role in the extension and modification of knowledge. The growing need for knowledge management has influenced every component and operation of a library. Knowledge management requires more effective methods of information handling, speedy transfer of information and linking of information with individuals and their activities, it demands library patron centered development of information system and services and customization of information at the individual level. Libraries have been thought of as being expert at collecting and organizing published information. This study intended to be on overview to assist knowledge management in terms of its relevance for library and information science professionals. Development of information technology (IT) and it's application in library and information centres the concept of document management and again the entire scenario of information management has started it's change to knowledge management (KM). This study pointed and mainly focuses on the concept of knowledge management and the role of library and information professionals in managing the knowledge and information in the digital environment it also highlights the importance of library and information professionals in the organizations such as knowledge creation, acquisition preservation and sharing knowledge and information he also pointed that the development and use of information and communication technologies (ICT) in the library and information centers.
Kaur, Har (2010) find out how technological innovations have led to the improved information management and library services information technology (IT) and information communication technology (ICT) have changed the information seeking behavior of the users and services being provided by the librarians. Journey from print phase to the era of electronics (E) has been discussed. How information needs have been changed from asking for a book or a journal to an article of a topic with the provision of E-resources has also been discussed. A survey has been conducted to know the changes in the information seeking behavior and needs of the medical professionals and librarians in this era of 'E'. Increase in the demand of E-resources by the users as well as librarians have been observed with the growth of knowledge to use these resources in spite of some problem in using E-resources almost every user need E-resources in one or other form. Provision of E-resources has shown a rapid growth in research. This information explosion, increasing needs of users, lack of self sufficiency and financial crunch has led to the formation of consortia all over the world.

Lippincott, Joan K. (2010) in his study, "A mobile future for academic libraries" pointed out most college students own cell phones and laptops and the capabilities of these and other devices are expanding libraries have the opportunity to extend new types of services to users of mobile devices and to develop license, or otherwise make available scholarly content that is configured for mobile devices. Ideally, libraries will become part of an institutional planning process for the development of services for mobile devices, practical implication. The more pervasive use by students of smart phones, the uptake of e-book readers, and the increasing use of mobile devices is some areas of the curriculum all have implications for libraries, social implication some writers in this area believe that the increased capabilities of mobile devices could lead to new forms of engagement with student
learning; this possibility can be embraced by academic libraries that seek to be strong partners in the teaching and learning process of their institutions. This paper synthesizes developments and provide suggestions for the future.

Bridges, Laurie (2010) the purpose of this paper is to provide an overview of the current state of worldwide mobile usage; mobile technologies, libraries' use of mobile technologies including a review of library mobile catalog options, both vendor-supplied and in house created; perspectives from current library leaders and innovators on the importance of incorporating the libraries resources into the mobile environment; and future directions for mobile library services. A range of recently published literature (2008–2010), which aims to provide practical statistics and resources for libraries wishing to mobilize their website, is summarized in order to provide the reader with tools for creating a mobile library proposal. The sources are sorted into sections: mobile phone popularity, smart phones/ web enabled phones, mobile phone use, library mobile websites and catalogs, and what library leader have to say. They find out an evaluative summary of mobile statistics and resources, indicating the salient points and how to find more information for libraries wishing to draft a mobile library proposal practical implication. The paper presents a useful source of information for both libraries wishing to create a proposal for a mobile library site, and for libraries that simply wants an overview of the current state of mobile use and technologies. The paper includes up-to-date data about world wide mobile phone penetration rates and mobile phone use and is the first to argue for proposing the development of both a mobile library website and a mobile catalog.

Dahl, David (2010) in September 2008, the Albert S. Cook Library at Towson University implemented an intranet to support the various functions of the library's reference department. This intranet is called reportable. After exploring open source options and the other Web 2.0 tools the department (under the guidance
of the library technology coordinator) chose Microsoft Windows share point services 3.0, a proprietary product, as their intranet platform various components of share point fulfill the reference department's needs, which include recording transactions, publishing policies and procedures, and sharing pertinent information at the reference desk. Several lessons and best practices have emerged since the departments initial share point implementations. A survey of reference staff indicates satisfaction with the reference portal but more training is needed for the portal to be used to it's maximum potential. Staff use of the portal has served as an example for other departments in the library and for the university in the future the reference department plans to explore unused share point components to solve additional departmental needs and to continually assess and maintain the existing implementation.

Cummings, Joel; (2010) carried out a survey in order to better understand the nature of handheld mobile computing use by academic library users and to determine whether there is a significant demand for using the library services with these small screen devices. A survey is created to measure whether people want to access on OPAC with a small screen. Additionally, through open ended questions understanding of handheld mobile computing impact on and implications for, the services provided by academic libraries. Findings A total of 58.4 percent of respondents who own an web enabled handheld device indicate that they would use small screen devices, such as PDAs or web enabled cell phones to search a library OPAC. The increasing prevalence of handheld mobile computing device such as PDA and web-enabled cell phones warrants investigation as to it's impact on libraries. This study examines an academic library user population and the potential demand for using the library catalog with handheld mobile computing devices.

Iwhiwhu, Basil Enemute; Ruteyan, Josiah Oghenero, and Eghwubare, Aroghene (2010) coated "Conducted a Survey of Staff and students have a personal
mobile phone, but that GSM technology has not been implemented in the library staff and students see potential for GSM use in library services although there are problems with infrastructure, cost and service interruption. Recommendations are made for improving the situation and implementing GSM.

Aina A.J. (2010) focused the emergence of information and communication technology has served to integrate higher education programs into a global village. Such that anyone or any organisation, the library in particular who ignores ICT in this century is likely to be sidetracked, irreparably outdated and grossly limited in the acquisition of skills needed for sourcing information. This study involved a survey to examine the ICT resource support availability, utilization and proficiency among university libraries in Nigeria, with special reference to Lagos State University (LASU). The population for the study consisted of 240 sample respondents. Data were collected through a 20 items questionnaire constructed and validated with a reliability coefficient of 0.68. The data collected were analysed using the frequency count and $x^2$-test. The findings revealed that the ICT resources support availability in the university was adequate; the actual use of ICT was to search for journal articles, to access reference materials, to conduct research and to send e-mails. However, patrons proficiency was inadequate. The constraints on the use of ICT resource support were also significant, it is therefore recommended that libraries in Nigeria take advantage of these technologies, invest more on latest ICT resources, organise training programs and catchup with the technological world.

Chauhan Vasantray (2011) Discussed that the libraries in the past used to be temple of knowledge-knowledge generally reserved only for the few. Today, ICT provides a means of reverting this paradigm, not only by providing access to information, but also by disseminating information and fostering interaction. It enlarges the scope of acquisition processing, organization and dissemination of
information and knowledge; it raises speed, reduces costs and overcome space, time language and media barriers. The librarians in academic and research institutions have to apply the tools and techniques of ICT to meet the changing requirements of the users by innovating its procedures and systems.

Kotresh N. (2011) in his study "Impact of ICT in/on Rural and Urban first grade college libraries" provides a tool to understand the new things developed around the world and make use of them for personality development and thereby to encourage quality services. It provides a method that follow administrators of the college or higher educational institutions to improve mission, critical process in the library. The library employees will benefit by focusing on user's requirements and understanding how their service contribute to pleasing the user, secondly, working with colleges on improving the processes with which they are most familiar, thirdly, becoming involved in sharing ideas for improvement in an orderly way, fourthly, focusing on meeting users’ requirement and finally making their services more fulfilling and less frustrating.

Tiemo, Pereware A. and Edewor, Nelson (2011) surveys the information and communication technology (ICT) readiness of higher institution libraries in Delta state, Nigeria. By means questionnaires and observation techniques were used to analyze the data generated findings revealed the higher institution libraries ICT demographics, available ICT facilities and equipment, critical service areas automated in these libraries, as well as constraints to ICT use to include poor funding, inadequate skilled manpower, non-reliability of electricity supply, inadequate technical support, and poor implementation of policies and lack of maintenance. The study concludes that higher institution libraries in Delta state, Nigeria are yet to fully embrace ICT in library and information service delivery. They recommended that facilitate the use of ICT in these libraries were also set forth.
Little, Geoffrey (2011) in his article keeping moving: smart phone and mobile technologies in the academic library he focused on that smart phones and new mobile devices and technologies have broad application for reference, instruction, access, collection development, systems and technical services librarians, all of whom need to develop a knowledge of the way that users and creators and providers of information are engaging with and responding to them. Use, demand and increasing technological developments indicated that all sign points to smart phone and mobile device becoming cheaper and even more pervasive at the same time as they become easier to personalize.

Haliso, Yacob (2011) Stated that the use of information and communication technology (ICT's) upgrade service quality of librarians. In spite of this, it was noticed that librarians in Nigeria do not maximally utilize the ICT's. Consequently, the communities of scholars complain of the poor information services provision by librarians. It is in light of this that this study investigated factors that may be responsible for the poor utilization of the ICTS in the Southwestern Nigeria. The study was done through a descriptive research design and enumerative sampling technique used. The findings of the study indicated that lack of organizational commitment towards ICT acquisition constituted the highest barrier towards ICT use while, lack of ICT strategy, erratic power supply and lack of funds significantly affected ICT use. The study recommended that library and university administrators work hand in hand to ensure the ultimate utilization of ICTs in their respective academic.

Krubu, Dorcas Ejemeh (2011) carried out the study on "The impact of Information and Communication Technology (ICT) in Nigerian university libraries" he pointed that computing technology, communication technology, and mass storage technology are some of the areas of continuous development that reshape the way
libraries access, retrieve, store, manipulate and disseminate information to user. Information and communications technology (ICT) has impacted on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT provides and opportunity to present value added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents and digital libraries: and initiate ICT based capacity building programmes for library users. ICT has brought unprecedented changes and transformation to academic library and information services conventional LIS such as OPAC, user services reference service, bibliographic services, current awareness services, document delivery, inter library loan, audio visual services, and cushioning 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, content and method of production, and delivery of information product. The 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 considering the enormous benefits that are experienced in the impact of ICT in Nigerian university libraries, the Nigerian academic libraries still
experience some obstacles or hindrances in the effective and efficient use of the ICT resources in the library.

Issa, Abdulwaheb Olanrewaju (2011) stated in his study that the application of information technology to service delivery in territory institutions libraries in Nigeria is scanty, thereby making it's effects restricted. This study is therefore, geared towards investigating the effects of information technology applications on library services and use at the federal university of Technology Akure if these facilities are available and put into effective use in order to successfully carry out this study. A survey research method was adopted using questionnaire and interview as the major instruments by personal observation. Descriptive statistical method was used for data presentation, analysis and interpretation. This employed the use of tables and the description of the findings and highlighted in the tables. It was revealed at the end of the study that a very limited number of IT facilities exist in the territory institutions libraries in Akure thereby limiting it's impact. IT lessens the work of the staff, the library's online Journals supplement the available journals in the library, and IT makes research easier for the users. Recommendations are also given to ameliorate the present situation. Some of these include the provision of adequate funds for the procurements and maintenance of information technology facilities, the provision of a constant power supply, and meeting the training needs of both staff and users of these libraries.

Sheikhshhoaei, Fatemeh (2011) pointed out to study the determinant factors in the acceptance of information technology (IT) by librarians in the libraries of engineering faculties of public universities in Tehren. The technology acceptance model (TAM) is used as the research framework and the applicability of this model on the research population is studied. The constructs of TAM include it's perceived usefulness, perceived ease of use attitude toward use, and the intension to use IT.
These are the independent variables that affect the dependent variable of IT use. The first six hypotheses of the research have been based on interrelationships between each pair of variables in the TAM. The applicability of the TAM model on the population of librarians is the seventh hypothesis. The survey method was applied for collection of data, using a questionnaire. The studied population include 160 librarians and the questionnaire was sent to all of them. The research findings indicate that all independent variables in the framework of TAM affect the acceptance of IT, but the final results ($R = 0.033$ for model) indicate that the applicability of the TAM model to study this group is weak. There is a lack of research of the acceptance of IT using the TAM model in Iranian organizations and libraries, as well as in libraries and in library science around the world.

Hahn, Jim and Morales, Alaina (2011) presents the results of a project that investigated how students use a library developed mobile app to locate books in the library. The study employed a methodology of formative evaluation so that the development of the mobile app would be informed by user preferences for next generation way, finding systems. A key finding is the importance gathering ongoing user feedback for designing useful and sued mobile academic library applications. Elements and data points to include in future mobile interfaces are discussed.

Vijaykumar A and Vijayan S.Sudhi (2011) coated that information is an indispensable for human development as air is essential for the survival of all living organisms on earth, including human beings. The pace of change brought about by new information technologies has a key effect on the way. People live, work, and play worldwide. The increasing role played by information technology in the development of library services for an active reaction to the challenges of the information service providing. The paper attempts to discuss the fast development of information technology and its application in the library services. Today libraries are
equipped to accomplish the newly information technology based services. Information technology enabled services fulfill the information needs of the users at the right time tin the right place to the right person.

Kabani, Khatoun and Matlabi Dariush (2012). This study explores the use of information technology in the twelve libraries of Tabriz University. The research method is descriptive survey, using data needed collected through questionnaires distributed to the people responsible for the libraries. Results shows that the most popular hardware includes computer, tape recorders, television, and opaque projectors, popular internet applications include search engines, email, blogs, news groups, conference chat rooms and discussion groups. Library services include document delivery, selective dissemination of information, electronic message boards, online catalogues, and current awareness services. Obstacles to using information technology include: cost, lack of familiarity with resources, not enough trained staff, lack of support from officials, not enough knowledge of English, hardware and software problems, and lack of electronic resources.

Muhammad Iijaz Mairaj and Widad Mustafa El-Hadi (2012) represented a paper under the title, "Application of information and communication technologies in libraries in Pakistan". They conducted a survey of medical libraries of Pakistan during November 2009–January 2010. The list of medical libraries was prepared by using Online Directory of Pakistan Medical and Dental Council Recognized Medical Institutions. A structured questionnaire was prepared to acquire needed data. These questionnaires were sent to the head of all medical libraries (n=24) by e-mail or delivered in person. The data collected from 22 (91.7 %) libraries were analyzed by the principal author quantitatively for closed ended questions and qualitatively for open ended questions using a thematic approach. Present study was an attempt to examine the status of ICT application in medical libraries in Lahore. It also explored
the problems that medical libraries in Lahore were facing with respect of ICT application. Finding showed that medical libraries in Lahore were at preliminary stage of automation. Very few medical libraries were equipped with a medical literature, both offline and online. Libraries of said jurisdiction were facing financial problem and they were not in position to develop e collection in the library. Automated resource sharing among libraries can help to address this problem. However, the results show that medical libraries in Lahore, though possessing limited financial resources, were nonetheless working in isolation. An integrated library system (ILS) is an important tool for developing a resource sharing network. The results revealed that the medical libraries were using various kinds of software rather than on ILS for possible resource sharing, more ever the study highlighted lack of training opportunities for medical libraries in enhance their ICT skills. Most of the medical libraries in Lahore had internet access but not a single library was using it for creating websites and offering remote services.

Akussah, Asante and Sarkodee (2015) investigated the relationship between the impact of electronic resources and usage in academic libraries. They noticed that impact of electronic resources indicated a significant positive relationship with usage among the users. Study concluded that e-resources are having positive impact on the users.

**Conclusion:**

The study based on the Information technology and Information and Communication Technology application in academic libraries including university and college libraries, few found on public libraries particularly at International level. One of the authors suggested that the library and information science course should include advancements of technology. Various studies at National and International level based on the attitude of librarians toward Information Technology and also
related to the impact of electronic media on libraries and Information centers. The study also assessed the Information technology adoption in university libraries and also conducted survey to seek the level of Information and computer technology knowledge and literacy among the library staff. Few studies suggest that there is need to improve the status to match with ever increasing demand for better librarian services at academic libraries including college and university libraries.
References:


34. Farahi, Mina Tavassoli, Gandhi, R.T.D. Ramesh (2011) Adoption of information technologies in medical libraries in Karnataka, India and Iran: A comparative study international journal of library and information science 3 (2) 38–45.


36. INFLIBNET (2012). www.inflibnet.ac.in

||..87..||


43. Kumar, Rajender (2016) Use of E-resources by the Medical Students of M.M. University, Ambala: A Case Study. DESIDOC Journal of Library & Information Technology. 36(6).


65. Gemani, Paul; Merrick, Helen & Willson, Michele A. (2006), Scholarly Communities, e-research literacy and the academic librarian, Electronic Library 24 (6), 734–746.


93. Aina A.J. (2010). Information and communication technology resource support availability, utilization and proficiency skills among


