CHAPTER 2

REVIEW OF LITERATURE
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2.1 Background

The present topic of research includes the study of ICT, digital resources, internet-based resources and services, and impact of internet on library resources and services. An attempt has been made in this chapter to review the literature keeping following research questions in mind:

1. How internet-based facilities and services are provided in libraries,

2. How internet has impacted the functions of library and users

3. How internet has impacted the quality of research and resource acquisition among users.

The investigator made an effort to collect literature related to the topic of research study and an in-depth review of the same. The literature has been collected by consulting several primary and secondary sources of information. Some of the sources consulted by the investigator are mentioned below.

a) Library and Information Science Abstracts (LISA);
b) Dissertation abstracts international UMI;
c) Emerald Full text database;
d) UGC-Infonet;
e) ERIC database and
f) Google scholar, Google prints etc.

Efforts were made to use available original articles/abstracts for the review. Besides, other information resources available on the internet have been used as the sources of information for the purpose.
For the convenience of research work, the literature review has been elaborated in the following sections and grouped under the broad subject headings. Since vast published literature is available on Impact of Internet on Libraries Use in Academic Environment, the presentation made here is only selective and does not cover all the studies with respect to the research theme.

1. ICT, teaching and learning,
2. Internet and libraries,
3. Electronic resources and collection development,
4. Internet and library services,
5. Networking and resource sharing

2.2 ICT, Teaching and Learning

Sahin, Baltaa and Erçan (2010) points that the technology is a very important, useful and indispensable part of the life, effective and appropriate usage of it still needs to be improved in education. The study presents the way university students gather their course project requirements during the project elicitation phase, how they access the internet and other resources, and their trends in the literature review using the internet. Furthermore, the diversity of internet resources which are used for homework and course project studies, and the reliability and accessibility of these resources have also been investigated and assessed. In addition, the results obtained from the study have been discussed and evaluated, the academic resources accessibility and usability in universities have been assessed and their importance discussed. The internet resources have been divided into sub categories according to their accessibility and reliability.

Mulimani and Gudumani (2008) stated that the impact of information technology on academic libraries and information centers have radically changed the earlier scenario. The higher education institutions have started subscribing to the electronic resources to meet the user requirements and expectations in academic environment. The aim of the survey was to understand the usage and
experience with internet and computer technology and their aptitudes and expectation about technological resources to identify the areas for improvement of sources and services.

Sax (2008) stated that the next wave of innovation in online education analyses the traditional way between the realm of books and reality and examine the ways in which this may be influenced by digital technologies and reviews possible alternatives to the structure of the traditional classroom for online education. It evaluates various educational structures and technologies in an attempt to respond to this challenge. Books not only contain information but also provide structure of learning; in fact the condition of our expectations what ‘knowledge’ would be The world of books has traditionally been opposed to that of ‘experience’, but digital technologies now provide new means of storing knowledge that transcend this dichotomy. This is a major change in the structure of knowledge, which will eventually transform our institutions of higher education. How the development of digital media was not simply driven by technology but a response to the exhaustion of literary traditions, as thinkers began to doubt whether there was anything more worth putting in print This perspective enables the study to go beyond the technological determinism that pervades much futuristc writing and suggest how we may innovate, particularly in education system, while retaining continuity with the past.

Husain (2006) revealed the use patterns of internet by the faculty members of four colleges of Kuwait University, i.e. Arts, Social Sciences, Sciences, and Engineering respectively. The purposes for use of the internet, its impact on teaching and research, and the problems faced while using the internet have been assessed. 491 potential participants were used for sample. A large majority have been using the computer and internet for more than five years. They use the internet mainly for e-mail, search engines, communication, research and publication. It has helped them to save time, find up-to-date information, and cooperate with their colleagues. However, the slow speed, lack of time, and lack of access from home are the major problems that have been
found. Most of them are interested in improving the internet use skills through formal training. Efforts are made by the Kuwait University to improve its IT infrastructure, provide distance access, and formal training in the use of internet resources.

Robert and Mohammed (2006) discussed the utilization of internet among 400 final year students of Ghana's oldest business school for academic research and learning. The study was executed by means of questionnaires distributed and personal interviews. The developing countries, especially in sub-Saharan Africa, are often rich in the resources of people and staffing, the promotion of information literacy is essentially dependent on using people differently. Authorities teaching in universities must as a matter of urgency, adopt mechanisms for creating better information skills and internet usage awareness among the students. The University of Ghana Business School should move towards the setting up of instructional labs. These labs should work in close association with the school library to ensure that students are properly trained on business, teaching and research use of internet. The study focused on business students at the disadvantaged end of the global digital divides which regards skills training rather than resourcing as a key issue in information usage.

Ureigho, Oroke and Ekruyota (2006) described internet as one of the greatest recent advancement in the world of information technology and has become a useful instrument that has brought about the process of making the world a global village. However, despite the added benefits of the internet to learning, teaching and research, to evaluate the impact of the internet, the questionnaires were administered to students and staffs in four institutions within the state. The result shows that the students and staff use the internet mainly for on-line chatting (24.89%) and e-mail (24.16%). The use of internet as a source of research materials ranked (23.21%). This study confines the significant improvement through proper enlightenment, formal training on the use of internet and the provision of effective internet services in institutions.
Scime (2005) study reveals the use of internet among the post graduate students in journalism and mass communication. The survey focused on college major demographics, patterns of internet use, self-confidence, content creation, how frequently students are evaluated, and information found on the internet and the methods they used. The study revealed some significant differences between students in the Humanities and Sciences faculties, although gender has proved to be a confounding variable. The study offers useful frequencies and distributions regarding the college students using the internet in for WWW, e-mail, P2P file sharing, and IM-ing or chat.

Gulati (2004) discussed the status of ICT usage with special reference to special libraries and the efforts made by various institutions to propagate e-information products and services. More focus has been given to the consortium efforts in India like JCCC-Consortium, AICTE-INDEST Consortium, CSIR E-journal consortia and UGC-Infonet. Further, study has highlighted the digitization efforts in India at NISCAIR New Delhi, IITM Kerala, C-DAC Pune. In addition to that, in corporate of major information systems in India such as NISSAT and major library networks like INFLIBNET, DELNET, and CALIBNET etc. The results show the challenges for library and information science professionals and an overview of initiatives taken by the government of India.

Huang (2004) the inventions of paper and printing technology in ancient China improved reading facilities and abilities tremendously, speeding up the progress of literate culture of humankind. However, the emergence and rapid development of the internet as a new medium is now having enormous impacts on our reading. The development and application of the internet in China is remarkable. According to the latest statistics from China Internet Network Information Center (CNNIC), there were already more than 20.83 million host computers and 59.10 million internet users by the end of December 2002. The two groups of data imply, quite a lot of reading is being done outside the library. How the internet has been used to encourage reading in China? Starting from
news online, digital journals and e-books the printed editions of which are the main categories of traditional publications, we can see substantial changes.

Rachel et al. (2004) finds out that the attitudes of public library staffs in the UK towards the use of internet involved a mixture of quantitative and qualitative research methods. The attitude measurement model and technology acceptance model have been employed in questionnaire. The quantitative results suggest that the attitudes towards use of internet are strongly related to usefulness, intention and actual usage. Whereas the analysis of quantitative results suggests that staffs are generally positive in their evaluations of the internet, although less number of staffs possess negative attitudes towards ICT.

Abdulla (2003) study revealed the internet use by the Arab students through online survey of 502 students at the American University in Cairo, Egypt describing the principal component factor of five motives i.e. information seeking, surveillance, and entertainment, personal utility and social interaction for using the internet. Several variables were investigated with respect to the five motives, including gender, year in school, type of internet connection, level of internet operational skills, internet exposure, internet affinity and internet satisfaction. Further, the study highlighted that the gender was a significant factor as males were more likely to use it for information. Internet affinity was significantly correlated between internet satisfaction and internet use motives of entertainment and surveillance. Internet exposure was positively correlated to personal utility, social interaction and entertainment.

Elsa (2003) in the results of a survey shows the students of the Schools of Philosophy and Literature and Sciences of National University of Mexico, the use of internet for reading practices of subjects in a higher educational level. The results regarding internet trends were based on four issues i.e., experience, uses, new practices and perception.
Lesley and Ellysa (2003) discussed that many higher education institutions now offer virtual delivery of academic programs via internet. The WWW cater to the needs of growing numbers of distance education students. The academic library can adequately address the needs, preferences and expectations of its remote patrons, however, it needs to understand the peculiarities and challenges of serving patrons in a distance mode system. Penn State University world campus (virtual campus) is one of the leading distance education institutions in the USA and its libraries are among those actively engaged in ascertaining the needs of remote library users and developing services and resources to meet these needs. A key finding is that the students are pleased with the quality and availability of library services, but do not fully partake of the vast array of services and collections.

Metzgera, Flanaguna and Zwarunb (2003) examined the dubious nature of online information and users' ability to evaluate. It appropriately prompted this research on college students' use of web-based information, their perceptions of information credibility and their online verification behaviours. Two studies were conducted to address these issues. Results of the first study show the college students rely very heavily on the web for both general and academic information that they expect this usage to increase over time. Results of the second study indicate the students find information to be more credible than do those from a more general adult population across several media and considering many different types of information. Nonetheless, students verify the information they find online significantly less. Implications are discussed in the light of current efforts of educators to improve internet literacy.

Zahra (2003) stated that the internet is the major media to promote the reading level in the world. It was opined that four factors are affecting the reading through internet special reference to situation in Iran. These factors like the level of access to internet, the cultural background and education of the readers, the language barriers, literacy of the readers to information technology and internet and the status of online publishing. The authors also describe the
adequate access and knowledge of using internet and necessary cultural background could influence the use of internet for reading purposes in a developing countries.

Hossein (2002) discussed that the impact on the bulk of teaching and learning has been minimal. Developments in paper or printing technologies have had far more influence, with the consequence that face-to-face discussion and paper resources still dominate public education. Audio-visual media have been treated more as an icing-on-the-cake than as something at the very heart of learning. In fact, there is debate in the instructional design literature about whether there are any unique attributes of media that can promote improved learning. Further, he explained the cost of technology decrease, many universities are finding ways to bring the benefits of the classroom into a distance-learning setting. Web-based teaching and learning call for a serious reconsideration of the effectiveness, especially in light of increased demand for education and the opportunities for increased student motivation by new technologies if integrated with knowledge-based design sites. The operational infrastructure for the effective delivery of a web-based learning programme is critical to its success. Yet all too often this element is overlooked or seen as incidental to the design and quality of the learning materials themselves. Other issues related to students include their psychological reactions to the new way of learning. They may have a fear of technology.

Irvine and Williams (2002) the study reveals that the impact of the internet in schools is studied from the perspective of teachers, who were responsible for equipping children with internet skills in Britain in 2002. It focuses on the experiences of junior school teachers responsible for the children’s development in all subjects. Teacher’s views were sought through questionnaires and interviews. The results suggest that most of them are very positive towards internet they felt that it would be a useful tool in education. However, a number of problems were highlighted, such as inadequate training, limited facilities and lack of government support. Concern was also expressed
over the dominance of the internet when other information resources, like books and CD ROMs may be more appropriate

Zhu and Zhou (2002) described that the internet has penetrated China at a rapid rate. However, there exist wide range of constraining forces, such as governmental control, inadequate infrastructure, economic affordability, cultural perceptions, and language barriers. The impact of access to the internet and other sources of information perceived credibility of the internet and conventional media and cognitive sophistication of Chinese audiences on the choice of rival value orientations such as Communism, Materialism, and Post-materialism. The survey was carried out with 2,600 adults in Beijing and Guangzhou in 2,000. The cognitive sophistication and access to Hong Kong-based television have a significant impact on the preference for particular value orientations. Analysis of the sample of internet users further reveals the importance of participation in online chatting. The findings bear important implications for the role of the internet in the political development of transitional societies.

Lisa et al (2001) survey indicates the use of ICT in 120 industrial and commercial libraries. 96% of the organizations responded that they use computers for some aspect of the library and information services. However, the ICT used for office and other applications including in rank order e.g., e-mail, word processing, spreadsheets, presentation packages and database management systems in their respective organisations. But the 91% of the sample used various internet facilities including e-mail, WWW, File Transfer Protocol and telnet. The results of the survey emphasises that the current state of the art of ICT use and future plans for automation.

Bjork and Turk (2000) discuss the impact of the internet on scientific publishing of scholarly articles and conference papers. The survey reveals that teachers in the 34-35 age groups use the internet more than younger and older groups. The majority i.e. 67% of respondents believe that the papers on the web
were easier to generate, and 59% of respondents have a view that reading is easier on internet than those of printed articles.

Pangannaya and Shyith (2000) stated that the emergence of internet have revolutionized the academic world. The net is paving way for a great leap in the field of higher education and research. An attempt has been made to investigate the use of internet resources by the academic community of Mysore University, using survey as the research tool. They explored the faculty-wise frequency and length of use of internet. The knowledge of search engines and prior skills in the use of internet are also examined. Factors, such as search results, usefulness and difficulties in browsing the net and the physical facilities providing satisfactory environment for using the internet service are also examined in the study.

Bao (1998) survey described the collection of data and enabled the Seton Hall University librarians, faculty and administrators to analyze the user satisfaction with information services provided through the internet. The 786 structured questionnaires were administered to faculties and students. About 80% of the respondents reported that they used the web on a daily or weekly basis. The results revealed valuable information about the internet users search strategies and their levels of satisfaction in using the web.

Joan and Craig (1998) the study on 4,000 academic staff members across 17 higher education institutions covering all major subject areas. The survey has been conducted through using structured questionnaire followed by interview scheduled to academics on their general and specific use of electronic information sources. The open ended questions were also included to allow respondents to express their views in more detail. Overall findings have shown that the academic communities have accepted that electronic information sources have had an impact on their work.
2.3 Internet and Libraries

Devi and Singh (2009) the study has been undertaken to assess the attitude of internet users, taking into account the use of internet by research scholars of Manipur University library, India. The major objectives were to identify if internet is not a substitute for the library and to find out the use of internet resources by research scholars for their research work. For this purpose they studied three schools of Manipur University, Viz. School of Science, Social Sciences and Humanities by using structured questionnaire and data collected from 82 research scholars. The study indicates research scholars were not fully satisfied with the internet facilities provided by Manipur University library. The findings of the study also revealed useful facts of using internet by research scholars.

Khan and Dominic (2009) study revealed that the internet use and its impact among the faculty members of Engineering Colleges of Moradabad. The growing internet and emerging network technologies have been revolutionizing the society by making information available to the people in a new way. Use of internet is increasing day by day as it is time saving, more informative and less expensive.

Bashir, Mahmood and Shafique (2008) explored the internet use behaviour of students of the undergraduate, graduate and post graduate students of the University of Punjab, Lahore, Pakistan. The results indicate that most of the students use this technology for course related reading and research needs and they use it at the university library’s digital lab unit as well as their departments and homes. A large number of them have learnt to use the internet tools by themselves, relying on assistance from friends without attending any formal training programs. Ease of work and time saving are the reasons of internet use among university students. The Google as a search engine and the Yahoo as an email service are the most popular among students. The study
recommends that the university authorities should arrange training programs for the students for internet use.

Bertot, McClure, and Jaeger (2008) revealed the public libraries have evolved into a primary source of internet access in many communities, generating wide-ranging impacts in the communities that public libraries serve. Based on the findings of the 2007 Public Libraries and the Internet study, the internet access delivered by public libraries affects their communities. This study explores the relationships among community impacts, community expectations, and public policies related to libraries. This emphasizes the effects of future internet platforms and applications and online communities on the community impacts i.e., assessing the users' perceptions of the impacts of public libraries internet access in their own lives and their communities.

Melchionda (2007) discuss the librarians' roles in exploring of literature and the context of the impact of the Internet on their working life. An analysis of the appropriate literature was carried out, which focused on the changing roles of librarians and information professionals. In the internet age librarians need to come with a working environment that is always more dematerialized with their users' new information habits. It is apparent that they should be able to find a correct balance between traditional roles and new roles in order to let their professional category survive and continue to be a crucial and vital part in the information society. The major themes and issues afforded by information professional since the spread of networked technologies within their working places are provided. It is neither supposed to raise technological issues nor to make an analysis of the latest services and resources for libraries, but rather to concentrate on the human aspects of these issues i.e., perceptions, attitudes, fears and passions towards the internet in the professional life.

Alemla and Adanu (2005) discuss the extent of use of the internet and its services at the University of Ghana library. This is a descriptive summary; the study was undertaken within a one-month period, at the Balfme library of the
University of Ghana. The findings of the study indicate among services, e-mail is the highest used, followed by the use for research. This is the interest of library and information management professionals, particularly those interested in information work in Africa.

Rajeev and Amritpal (2005) the study discussed the use of internet and related issues among the teachers and students of engineering colleges of Punjab, India. A questionnaire was distributed among 960 teachers and students of all the engineering colleges in Punjab. The response received was 84.20% and the study elaborates the various aspects of internet use such as, frequency of internet use, access points, purposes, services, types of information, problems faced by the users and satisfaction level of users with the internet facilities provided in the colleges. The result of the survey also provided the benefits of the internet over conventional documents. It was found that the internet had become a vital instrument for teaching, research and learning process. Some suggestions have been drawn to make the service more beneficial for the academic community of the engineering colleges.

Rao and Reddy (2005) stated the era of information explosion, the library and information professionals in academic libraries have a key role to play. They have to identify the shift in the paradigm and gear up to meet the new challenges by adopting super highway technology like the internet. They also discuss the advantages of the internet and its impact on academic libraries. The practical application of e-mail, internet and other electronic media has been dealt in brief. Need for use of computers in libraries has been stressed.

Carol (2004) suggested that academic libraries have the opportunity through their web pages to present to the university community recommended sites and appropriate techniques for searching the internet. But in the design and organization of home pages, academic libraries often provide inadequate navigational paths to sites that provide search engine selection and evaluation criteria. He has studied the home pages of 114 academic libraries that belong to
the Association of Research Libraries (ARL) to determine their paths to internet search engines.

Oduwole (2004) study examines the utilization of internet facilities and its impact on the research outputs of agricultural scientist at the University of Agriculture, Abeokuta, Nigeria during 2001-02 To elicit the necessary information 210 questionnaires were distributed to all academic and research staff of university. 70% respondents were available and found useful for the study The results from the analysis i.e 54% of the agricultural researchers at the university use the yahoo search engine and they spend an average one hour per day browsing the internet. The study also revealed that respondents use the internet to find research materials such as journals and conference proceedings, followed by sending and receiving of e-mails. The study concludes the use of internet for academic research by agricultural scientist has improved their research output

Rachel et al. (2004) explored the characteristics of public library staff, which affect the attitudes to use of internet, are considered based on the results of a Ph D. study The survey of more than 900 public library staff in England, which included an amended version of the technology acceptance model in conjunction with management interviews, focus groups with staff and a bulletin board was analysed and pertinent results were presented. The influence of gender, age, organisational variables, computer skills, ICT experience and subjective norms are explored. Key findings include the influence of current post and nature of job perceptions of the usefulness of internet; on the other hand the age and place of work affected perceptions of use of internet The recommendations include confidence-raising training, attention towards the needs of flexible workers and promotion of positive messages

Rebecca and Lorraine (2004) explore in the research project to determine the uniqueness of internet subject guides among association of research libraries and academic libraries. The authors examined the guides in four subject areas
viz philosophy, journalism and mass communication, astronomy and chemistry at the web sites of 112 libraries. For Collecting the data on number of links per guide, arrangement of resources, information about the resources, kinds of resources and a number of non-working links. As a result of examination of these guides, a number of questions emerged, which led to the creation of a survey mailed to the heads of reference services in each of the libraries. The authors discussed the results of their examinations of the survey and made recommendations for further research.

Sajjad and Vivian (2004) described the internet use and related issues among the health care professionals at the Health Sciences Centre of Kuwait University. A questionnaire was administered to 180 faculty members in HSC. The response rate was 76.6%. The extent and patterns of their use of internet for 12 applications were analysed. The current level of skills was examined and perceptions for improving them were explored. The impact of internet on professional and personal development was revealed and problems related to access and use were also investigated. It was confirmed that the internet had become a vital instrument for research, information and communication in the lives of these professionals. Respondents wished to be further empowered through rigorous training and the alleviation of problems that inhibited their internet use.

Hou (2003) discussed the impact of internet use in American elementary school libraries operations and to find the best way for use of internet tools in elementary school libraries. The study employed survey method to conduct the research. 50 administrators participated from 50 elementary school libraries, in Texas, U.S A. Analysis of data indicates that the impact of internet applied in the elementary school libraries, there was a significant impact of the internet usage in American elementary school libraries operations. The study highlights the elementary school libraries organizational leaders need to pay more attention to the impact of internet usage in their business and they also need to plan how best to utilize the internet into their elementary school libraries in future.
Jagboro (2003) state the internet is significant technological developments of the late 20th century. However, despite the added benefits of this tool to learning, teaching, and research, a number of problems still plague internet connectivity and usage in the Nigerian University system. The objective was to evaluate the level of utilization of the internet for academic research at the Obafemi Awolowo University, Ile-Ife, Nigeria. A response from postgraduate students spanning from art and science based programmes was collected. The results show that the use of the internet ranked 17.26% among the sources of research materials. However, respondents who use the internet ranked research materials 53.42% and e-mail 69.86%. The study noted that the use of the internet for academic research have been significantly increased through the provision of more access points at Departmental and Faculty levels.

Mohammad (2003) described the use of internet by university academics in Bangladesh, there are 0.2 million internet users out of a population of 140 million. The lack of academic research on internet usage of the prime objective of the study is to report the level of internet use for their information and communication needs. It also sought to find out whether differences exist among the various levels of academics in terms of their use of the internet. Six categories of information and communication needs were identified and a survey conducted among the lecturers of Rajshahi University. Findings were explored the internet use by academics is useful for some common needs and the academic rank of users is an important factor in determining the priority of needs. The study comes across some barriers to adequate use of internet resources. Suggestions have been given to increase the use of the internet to benefit the nation as a whole.

Moid (2003) identified the library services have been tremendously influenced by rapid technological innovations over the years. The internet has virtually provided a new dimension to every area of library services and operations. Document delivery remained no exception to these changes. Besides looking at various internet applications, the paper examines the electronic
document delivery (EDD) transmission systems using the internet, such as the ARIEL system of Research Libraries Information Network (RLIN), the North Carolina State University Digitized Document Transmission Project (DDTP) and the Ohio State University Network Fax Project. Discussed the results of a survey conducted to determine the availability of required hardware and software in the Gulf academic libraries to use the internet for EDD.

Mugwisi and Ocholla (2003) study examined the internet use and trends by academics and librarians at the Universities of Zimbabwe and Zululand with reference to the use of resources for teaching and research. A survey using a questionnaire was conducted among the study population at the two institutions. The result indicated high computer and internet skills among librarians from both institutions. The results also indicated that e-mail and web were used for work and personal use. The telnet, other library OPACs and electronic journals were used most for work purposes. The study also highlighted rather similar problems faced by the two institutions in terms of internet accessibility. Inadequate provision of computers and the existing connection to the internet and training in the use of internet resources and lack of awareness among academics and other potential users were also highlighted. Despite of these problems, the study revealed that there is a great potential for internet use and appreciation among academic librarians and users in the two institutions.

Momani (2003) report reveals the use of internet by the faculty members of applied science and technology in Jordon, to find out how and why they used the internet and what level of satisfaction they obtained from it. The findings indicated that the internet was widely used among faculty members in Jordan and its use was similar to that in any other developed country. The most widely used applications were of web for research and e-mail communication. The faculty members in Jordan found no discomfort in their use of the internet as a very useful tool for research and communication. The respondents indicated that lack of time, access, training, support from the university were the most important barriers for the effective use of the internet.
Daniel and Leigh (2002) a recent national survey identified that 80% of the students and faculty members stated that the internet has changed the way in which they use campus libraries. The preliminary findings of the survey of more than 3,200 students and faculty members at universities and liberal arts colleges, conducted by the Digital Library Federation (DLF) and the research firm Oursell, Inc. The main purpose of the inquiry was to learn how the internet is affecting the work of students and scholars and what consequences internet use will have on campus libraries. Analysis of findings indicates the respondents’ patterns of information use and their perceptions of libraries are not monolithic. Faculty and students in business and law view and use information differently than do those in the arts and humanities, the needs of engineers and physical scientists differ from those of both these groups. Patterns of information use and perceptions also vary by type of institutions, faculty and students.

Rao and Babu (2001) stated the transition of traditional library collections into digital or virtual collections presented the librarian with new opportunities. The internet, web environment and associated sophisticated tools have been given to librarian; a new dynamic role has to be played to serve the new information based society in better ways than hitherto. Because, of the powerful features of Web i.e. distributed, heterogeneous, collaborative, multimedia, multi-protocol, hypermedia-oriented architecture WWW has revolutionized the way people access information and has opened up new possibilities in the areas such as digital libraries, virtual libraries, scientific information retrieval and dissemination. Not only the world is becoming interconnected, but also the use of internet and web has changed the fundamental roles, paradigms, and organizational culture of libraries and librarians as well.

Mannmart (2001) the study observed, how internet has an impact on the schools of library and Information science in Thailand, focusing on how it has been used and leading to change in teaching learning process, curriculum and the programs. 146 questionnaires were served to the academic staff in 16 schools of library and information science. Results of the study show that the library and
information science schools in Thailand are keeping up with the changes in ICT. Their programs have been changed, especially since 1997. The data also indicates the correlation between the name of the programs and the number of courses and credits in information technology and internet in the curricula. Internet is already used in the library and information science curriculum, in teaching learning process and its contents are taught as a part of subject contents in library and information courses, especially in information service, information resources and information storage and retrieval areas. However, the use of internet in teaching learning process of academic staff shows significant correlation with their age, knowledge, skill and experience in using computers and the internet.

Eleanor et al. (2000) described the results of the study the most critical strategic issue affecting the future of public libraries is the potential impact of the internet. The authors developed a segmentation model of the American market for information services and resources based on the market's use of the public library and its use of internet. They focused on the following segments: 1) people who use the public library and who have access to the internet and use it, 2) people who use the public library and who have access to the internet but do not use it; 3) people who use the public library and who do not have access to the internet, 4) people who do not use the public library and who have access to the internet and use it, 5) people who do not use the public library and who have access to the internet but do not use it and 6) people who do not use the public library and who do not have access to the internet. They made a national telephone survey to describe thebehaviours of the people in each segment of the model as related to their use or non-use of the public library and their use or non-use of the internet. It describes why people are currently using the public library and the internet, identifies areas were libraries and the internet are competing and the areas in which they are complementary; identifies the criteria people use to decide when to use either the public library or the internet and reasons to
chose not to use the public library and not to use the internet. Longitudinal research will support the public library planning and policy development.

Moore (2000) study highlighted the current and future applications and implications of internet toward the libraries. The virtual library are considered, the impact of internet on library holdings and online access including search engine performance are noted and collection development has been pointed out. The security issues, including pornography and copyright are described and finally the future implications of the internet for libraries, location of access, discussion groups are discussed.

Charles and Chris (1999) stated the emerging trends in internet access by K-12 teachers, students and college freshmen that forecasts coming challenges for college and university librarians, computer administrators and faculty. These students increasingly utilize the internet to do research on their own initiative, as they enter in higher education. Their library use is changing in ways that require new strategies to integrate traditional resources with internet research. Many solutions for present and future challenges will be implemented by computer administrators in consultation with professionals who were traditionally associated with the academic library. The coming internet generation will require the input of librarians, faculty, and fellow students in an ongoing project that seems best realized through enhanced university online catalogs and internet server software. Another suggestion made by the Duke students to assist them in online research was ‘all books in full text format should be available on the web’.

Colin (1998) critically examined the value of the internet in LIS profession by examining its role in three areas, the impact on academic and scholarly publishing and dissemination of information, the contribution to reference work and the impact on recreational reading. Summarised that the internet will be most useful in the publication and distribution of scholarly electronic journals and reviews, recent trends in internet published electronic
periodicals, the problems requiring solution, particularly those relating to bibliographic description. Commercial publishers are taking a keen interest in these developments, but it remains to be seen how the academic community will react. The design of electronic periodicals, screen layouts and display features will need to be improved to facilitate skimming and browsing and hypertext linking facilities are retained. Nevertheless the issues of authority, accuracy and currency of information remain to be solved.

Mathews (1997) examines the survey of 15 UK academic libraries staff for internet training. Research encompasses an extensive literature search, considers the development of the internet in the academic environment and training in academic libraries. Study focused the analysis of internal training methods and external training courses and discusses the implementation of formal evaluation procedures.

Ormes and Charles (1997) explore the internet connectivity to public library that took place in the UK and USA. The data produced from these comprehensive surveys gives the first opportunity to develop a transatlantic picture of internet activity in public libraries. It is now possible to assess whether the same patterns of usage or non usage are appearing in both countries, whether there are similar trends or differences in the development of services and whether both library services are encountering the same barriers which are preventing or limiting public library internet connectivity. This provides an interesting opportunity to draw the conclusions about public library internet connectivity across the different cultures in which they operate.

Moorthy and Karisiddappa (1996) revealed the various facilities available over internet. The usefulness of internet in the library and information centre environment also is described. Accessing the web-based information, electronic journals and scholarly publishing on the internet and the status of internet and other library networks in India are dealt briefly. The concept of electronic commerce and the role of internet are also dealt.
Alison and Winship (1996) study examines the current applications of internet technology and networked information in academic libraries. Highlighting these applications may encourage the creative use of the internet in other sectors of the library and information world. The common concept of the internet is an information resource, bringing a wide range of material around the world to a local machine. This view of the net tends to assume this information is free and therefore is probably limited in scope. It is more accurate to view the internet as a low cost means of communication and in this capacity it is heavily used by academic libraries to reach a variety of priced services. Another area of growing importance for academic libraries is that of electronic journals. In addition to these specialist services, academic librarians also make use of the internet information that is available to all users. Much of bibliographical and price information can be found from online bookstores and web sites for professional organizations and publishers.

McKenna (1994) study highlighted the internet impact on libraries have internet services and resources influenced the library resources and services. New opportunities and benefits include, leadership opportunities, cost savings and time savings, question answering services, international interlibrary loans, document delivery services, online transactions, government information, information sharing and other impacts. They also suggested certain recommendations like librarians need to take an active role during formulation of national policy and legislation to ensure that libraries receive adequate funding to be major players in the national information infrastructure. The services and resources of the internet need to be created and organized by librarians. Library administrators need to include staff training and practice time in any budget for internet connectivity and take an active role in new legislation being proposed concerning intellectual property and copyright in an electronic environment. Librarians need to play a significant influence on the evolution of internet services and need to be prepared to share their ideas with administrators and project planners.
2.4 Electronic Resources and Collection Development

Maharana, Sethi and Behera (2010) described that the internet and electronic resources have become most popular sources of information for the researchers, scholars, teachers, professionals and students. The study has been designed to find out the necessity and the usage of internet and e-resources by the students undertaking the master’s course in Business Administration, at Sambalpur University, Orissa, India. A questionnaire was monitored among 120 MBA students, out of which 91 responded to represent 75.83% The research result reveals that the majority of the students 1/3 of them have a long experience of using internet for 2-4 years and all are more or less aware of the applications of internet technology More than half of the students surveyed in the study strongly feel that management study will be severely affected without the use of internet and e-resources.

Kumar and Kumar (2008) study focused on electronic information sources becoming more and more popular, since they provide multimedia information, full-text searching, reference linking and flexibility in searching and browsing. The study was to determine how academic communities in various professional colleges use the electronic information sources for their work-related purposes. A survey of 300 students and faculties indicate the use of electronic information in support of their study and teaching. The majority of students and faculty felt that the electronic information sources provide faster and reliable information, still they prefer to use print as well as electronic information sources.

Deb and Kar (2005) describe a case study of TERI and how the electronic library has developed and created to provide access to online resources, online e-journals, electronic documents and virtual resources. The virtual libraries i.e. internet sources together have now crystallized to more or less to a full-fledged EL, that can be browsed as well as searched. A physical electronic library has been created to address the access to all local area network (LAN) connected
systems that provide CD-ROM access and journals and books available for
download for all time free access to in-house users. The usage has become
handier for the researchers and has helped in saving their valuable time. Library
management has also become easier. The future plan is to make the whole
resources dynamic in nature. The future of libraries seems to have no escape
from that of becoming the EL

Ghosh (2002) pointed out the internet resources and its use since past few
years. Free online information sources like e-journals, e-books, e-databases have
increased considerably. The traditional library systems are going to transform
into digital library systems and different projects like Gutenberg e-book project,
Virginia Tech. Digital Library Project, University of California Digital Library
project etc. have been undertaken. The author has started to compile the links of
such freely available online information sources on the internet at URL
http://www.geocities.com/ghosh_tbd and described the same. The study also
focused the impact on collection development, budget and technical processing
of the Library and Information centre

Miller (2000) described the use of electronic resources in academic
libraries and how collection has to be developed in an electronic environment.
Over the past twenty years, academic collection development specialists have
dealt with dramatic changes, a decrease in purchasing of print resources and
more importance has been given to acquire the electronic resources. The
collection managers have rethought their efforts and revised criteria for the
selection of materials in new formats while also maintaining traditional
collections

Ray and Day (1998) examine the use of electronic resources and how
students felt about various issues surrounding electronic resources, a survey
method was tool for the study 91% response has been received that they access
information through computer network via university, and also access to internet
from work place than their home. The most popular e-resources used are 37.5%
of the sample population used electronic journals as an information tool.
Robert (1998) discusses the reasons to include internet-based resources in a science and technology library collection. In addition to the normal collection development criteria for print materials, the additional factors that are unique to electronic resources are examined. These include, additional hardware and software requirements, user access regulation, funding the cost of internet materials, user education and assistance, stability of internet location, long term access, product licensing, cataloguing of internet materials, and delays in access due to heavy internet traffic factors in collection development of library and information centres.

Yin Zhang (1998) explored the internet-based electronic resources are growing dramatically; however, there have not been empirical studies evaluating the impact of e-sources as a whole, on formal scholarly communication. This study tries to investigate how much e-sources have been used in formal scholarly communication in the area of library and information science (LIS) during the period 1994 to 1996. Citation-based indicators are proposed used for the impact measurement. Compared with the impact of print sources and e-sources on formal scholarly communication in LIS is small, as measured by e-sources cited, and does not increase significantly by year even though there is observable growth of the impact across the years. It is found that journal format is related to the rate of citing e-sources, i.e. e-journal articles are more likely to cite e-sources than are print journal articles. The finding suggests that, citing e-sources may depend on authors rather than the journal format in which the authors choose to publish.

2.5 Internet and Library Services

Patra (2006) explained the e-journal services and impact to the scientists at the Central Glass and Ceramic Research Institute, Kolkata, India. The development of e-journal services and providing training to the staff as well as library users and managing services of the e-journals were the most important issues in the study. E-journals have added enormous resources to journal
literature and decreased the demand for photocopy services as well as document delivery of single articles.

Asemi (2005) study described information search habits of five faculty users through internet at Medical University Isfahan (MUI), Iran. Results reveal the respondents are using the internet frequently because; all faculties have provided the connection for internet. The researchers of MUI are getting quality information through the internet, 55% of respondents search for scientific information using internet because the university library has provided access to various databases and online journals for all students and staff. They use the internet for accessing online journals, downloading software or text, chatting, discussion, e-mail services and finding related references. It has observed that the Google and Yahoo search engines are more widely used compared to other search engines. 31% of respondents believed that quality information is available on the internet and remaining 35% of the study population use print and online form of information for updating their subject knowledge.

Jay and Sheila (2005) study investigate the impact of the internet on reference services in public libraries in England in 2003. A questionnaire was used for sample of the public library authorities, use of electronic reference sources, and the nature of public library web sites. Thirty responses were received in response rate of 60%. The librarian’s attitude towards digital reference service considering aspects such as improved access and increased efficiency was predominantly positive. Patrons could access more electronic reference sources within the library than they could remotely. The majority of public libraries had web sites, most commonly offering access to the library catalogue and community databases. The study identifies the need for public library managers to assess the changing role of professionals and semi-professionals in delivering reference services, and to provide appropriate training.
Mohamed (2005) discusses use of internet and e-mail among Sudanese librarians in a survey report. The objective is to assess how internet is used, especially for e-mail based library services in Sudan. The major patterns of internet use were chat sessions; checking e-mails and surfing professional sites. The majority of the sample did not utilize email for library services as such. The low use of internet resources for library services was due to inadequate access and inadequate time that can be devoted to internet activity, rather than a matter of lacking skills. More studies are needed to highlight the nature of internet training needs, and user attitudes that influence the current patterns of internet use.

Murray (2005) examined the impact of greater access to electronic information, both free and fee-based on reference enquiries. The methodology used was an extensive literature review and interviews with reference services from librarians both in Australia and overseas. The assumption that greater internet access and use are equally on a decline in public and state library reference enquiries is not proven. The trends and scenario towards usage of electronic information in state and public library reference services, increasing and paying special attention and emphasis to the Australian environment.

Oghenevwogaga and Blessings (2005) explored the impact of internet, how students are increasingly using internet to support instruction and research needs in addition to heavy e-mail usage. The extension of this research suggests more positive impact from the internet in almost every aspect of academic life. A questionnaire was used to survey a sample of students about their internet practices. Study suggests that the impact of the ICTs and internet service for e-mail and other research activities related to the role of studying in their respective area, that access is a key problem, which must be scaled well so that students and faculty have improved access. This situation should continue to be monitored and the study suggests that more and more university affiliates will need improvement in access to internet resources.
Roswitha (2005) explained libraries are introducing e-services, either by converting existing services into e-services, or by developing and implementing entirely new services for search, delivery and use of information. Such new or converted services include online delivery, portals, personalized services, online teaching modules, online reference, digitised collections and electronic publishing. In most cases, the new services require special funding and management. The further planning and libraries need to assess the impact of new services on users, staff and the library’s organisation. Other side, there might be negative consequences like information overflow, problems in using new services. It focused the impact of new services like user and staff surveys, focus groups, time measurement, analysis of use data and observation studies.

Ireneus and Julita (2004) study explore the purpose to use internet by the students of the University of Dares Salaam, to determine if students were using the internet for academic purposes. The study also investigated the level of students’ access to the internet, as well as the problems faced for using internet. The website has specific information on faculties, institutes, and departments, including training programmes. The OPAC has been installed at the Main Campus and UCLAS libraries, replacing the manual card catalogues. The study revealed that the level of student’s access to the internet was low, the major reason was time of the study, computers with internet facilities were inadequate. The study also highlighted that the internet access was not being used effectively, they used it mainly for communication with friends and relatives more than for academic purposes. The cause of this was found to be lack of skills required for effective use of the internet. The study recommends the provision of more computers with internet facilities, increasing internet access speed, as well as providing more chances of training in internet use.

Arte et al (2003) discussed the online searching and request for journal articles with desktop delivery options to view full-text versions on-screen or to download and print 'just-when-you-like'. The web-based document delivery service is presently being investigated across disciplines, often with a strong
technological emphasis. The study has discussed a managerial and organizational approach by placing the document delivery service in the context of the Italian Research Libraries (IRL) and focusing on opinions of the librarians concerning the document delivery developments with web-based technology. They have also focused for description and maintenance of the Internet Delivery System (IDS) project and examine organizational and individual approaches to librarian assignment.

Bertot (2003) explores that the internet is no longer a technology with which libraries are experimenting rather it is an integral part of library service that can take many forms, an extension of library collections and resources through licensed or digitized content. The gateway service through public access workstations or a means through which the customers can interact with the library through such services as digital reference. The internet requires a re-conceptualization of the information creation, dissemination and consumption processes. Moreover, there is a need to examine ability to engage in the assessment of network-based information services. The challenges in the networked information resources and service environment, meeting these challenges requires libraries to consider a variety of issues and strategies.

Crawford (2003) identified the usage of electronic information services (EIS) by staff and students at Glasgow Caledonian University (GCU) and Leeds Metropolitan University (LMU) November 2001 to March 2002. The study used the qualitative and quantitative methodologies and the questionnaires have been employed for data collection. The volume of electronic citations in students course work and the possibility of developing routine performance indicators were also examined. The inter alia, that paramedics are the heaviest users of EIS and that paramedicine is the subject area where EIS are most integrated into the curriculum. Attitudes towards the internet are extremely varied. Mode of attendance and workplace usage are important factors.
Hildebrand (2003) explored the results of a survey of Australian public library web sites, which reveals that very few libraries have gone beyond establishing web sites that provide information about their static library resources and services. Few have been made attempts to deliver a high level of interactive library service to online clients. Study examines some of the issues that public libraries need to consider in order to rethink the way that the web can be better used to provide interactive, real time online services. The issues include commitment of staff and financial resources to online services, developing and maintaining web technology skills, reclaiming the web from IT departments and individual effort versus collaborative online resources and services.

Tan (2003) revealed the WWW brought the closer extent among the library and patrons. Internet has served as a useful platform to allow reference services to perform far beyond the library walls. The reference service today is no longer being restricted by the library opening hours and the scope of information resources, now includes both print and electronic formats. Internet has allowed reference service to embark on a new service level, with new deliverables and new expectations from patrons.

Abdul (2002) reviewed the 13 libraries by extent of internet utilization in Jordanian university libraries, to discuss the use, benefits, services and applications that effects on acquisitions. Study also focused on libraries organizational structure, administration, cost and services; problems and solutions. They employ it for technical functions, information services, and web pages. Librarians perceive an internet as a supplement to libraries collections, as a substitute for databases on CD-ROMs.

Fatima (2002) study investigates the impact of the internet on reference services, the user to access internet and training in usage of the library resources. An electronic survey was done using the web and e-mail. The questionnaire consist multiple choice answers with an open-ended question at the end of each section inviting further comments from the heads of reference services at large.
libraries and the directors at smaller libraries of the 36 higher education institutions in South Africa. Out of 90 potential respondents, 26 responded, representing 19 institutions and yielding a low response rate of 29%. The results show that all responding libraries have internet access to the users. User internet training tended to be on a one-to-one basis at the point of use. The majority of librarians have attended formal internet training programmes, they provided electronic reference via e-mail and the library web site, but these are characterised by low usage. Finally, libraries tended to offer both end user and intermediary searching to online databases. The study concluded that the libraries lacked adequate computer facilities and consequently cannot provide optimal internet access to students. The survey recommends that the bandwidth and number of computer facilities should be increased in libraries, web tutorials and virtual classrooms can reach more students.

Syed (2002) stated the e-mail survey of seven Arabian Gulf university libraries was conducted in order to ascertain to which type of web-based services they offer to users. The study specifically focused at the provision of access to the web-based services such as catalogues, search engines, forms, etc. through the respective library web sites. Findings highlighted that almost all libraries are offering web-based services to users in one way or the other. This study also discusses the ways to improve and reinforce the provision of such web-based services, including effective methods of creating awareness, orientation and necessary training to create a positive environment for change. The results of the study may be helpful especially to librarians of the Arabian Gulf libraries in enhancing or developing quality web-based services.

Yoo-Seong (2002) discussed the survey of 143 international business students. The results were analyzed using descriptive statistics as well as inferential statistics such as t-tests and correlation. A significant portion of international business students has no prior experience with electronic library services in their home countries. Moreover, about a half of international business students goes to libraries other than the business and economics issues, partly
because they provide better environment for study. Although electronic resources are available without the constraint of location, providing reference services for those who do not use the business and economics library becomes a challenge. Virtual reference is an excellent tool, but most international business students do not see it as an important library service. Based on the results, implications for information literacy and virtual reference service are discussed.

Hamid et al. (2000) study examines the status and use of internet in university libraries of Pakistan. A questionnaire was distributed among the university libraries including the degree granting institutions. The study indicated that half of the university libraries in Pakistan have access to the internet and it has become an essential part of library services. The Internet is also being heavily used for performing various library functions such as reference work, classification and cataloguing, document delivery service, subscription to online journals etc. The study also discusses the problems that are preventing wider use of the internet in the higher educational institutions in Pakistan.

Kaba and Shaheen (2000) described the integration of internet has affected the functions of the library, particularly in reference services, integration has led to the utilisation of new tools and methods for providing information to the library users. It investigates the effect of the internet on reference services in Malaysian academic libraries, finds out how the integration of the internet has affected reference professionals and services. There were 40 library professionals working in the reference department of nine Malaysian academic libraries which have been participated in the study. Respondents felt that the internet has contributed positively to reference work and has enhanced their effectiveness and efficiency. However, a majority of them disagreed that the internet should completely replace traditional reference tools. Respondents also gave their opinion that reference librarians should possess good computing and internet use skills for providing effective reference services.
Mark (2000) explained the reference librarians must interact daily with internet-based technologies. Communicating with others through listservs and e-mail, avoiding information overload, answering reference questions with both print and electronic sources and dealing with patron’s perceptions of the authoritative nature of web-based information are many of the ways in which most reference librarians must navigate the depths of cyberspace. Use qualitative survey data to find patterns and themes among librarians with regard to their attitudes toward reference services and related professional activities. It includes a selection of categorized survey responses and suggestions for further research.

Thomas (2000) explores the results of public library service via internet by USA, Government agencies of more than 2,000 Federal library and information centers located throughout the world. An effort has been made to describe services without attributing values to particular site characteristics. The study provides a brief snapshot in time of a complex and rapidly evolving world. While not definitive in scope, it will provide a baseline for anyone who may wish to revisit some of these sites in future to determine how services may have been expanded, reduced and refined.

Al-Najran (1998) study highlighted the internet adoption and use by 598 students in Kuwait University. The adopters of the internet at Kuwait University were more likely to be males. Students who had more than average computing skills and some of them have problems with English and found to have more technical skills with greater access to the Internet for its advantages. Analysis indicated that gratification factors play an important role in Internet service and time spent. It has been found that Internet applications and gratification were better predictions of time spent online than background and demographic characteristics.

Ann (1998) discussed the British acquisitions librarian’s are not significantly utilizing the Internet as the major conclusion. However, they are satisfied with the existing systems, but there is scope for making greater use of
the internet. Research has been conducted in 1996 that involved the staff's from six academic libraries and one publisher to evaluate the impact of electronic publishing and the internet on acquisitions work. With the ever changing internet, results can quickly become out-of-date. This study presents librarians views on facilities and states their ideas to improve those facilities and indications are also given of how librarians could benefit from making greater use of the existing internet.

2.6 Networking and Resource Sharing

Umesha and Shivalingaiah (2008) study explores the networked tools and services proved to be an indispensable part of our everyday lives. We get access to a wide variety of bibliographic, full-text and multimedia databases through the intranets, extranets and the Internet. ICT is available in different settings e.g., workplace, home, library, and internet cafes to facilitate our access to such online services as e-banking, e-government, e-learning, and e-entertainment. Different types of information sources accessible through the internet are ever increasing. Billions of documents including text, pictures, sound, and video are readily available for both scholarly and every-day users. More developed tools and methods are needed to find, filter, organize and summarize electronic information services. It is important to review current developments in networking and internet operation and use. It has focused the issues of internet tools, services, resources available, growth and development of electronic information.

Gary and Graeme (2003) discussed the results of research that the provision of public internet access has been viewed by governments as a key step towards encouraging uptake among people who do not have access to information communication technologies. It's an important means to building an equitable information society. The Victorian Public Library network has led Australia in providing this access free of cost. However, little substantial data is available about the users of this public access, little is known of what they use.
the access for, nor how well it meets their needs. This study explores the demographic characteristics of public library, internet users and the extent to which public access internet provision meets the needs of those users. The role of public access and the policy implications of this data are discussed.

Paul (2002) reviewed the major aspect of the relationship between the librarian and the user as the confidentiality of transactions and the librarians’ commitment to preserving the user’s privacy. Results from Loughborough University Privacy in the Digital Library Project suggest that users have very strong trust that their privacy is safe with librarians. However, the results also suggest the librarians are not well organized to protect user privacy against possible instructions from commerce, government or other sources. There is a need for libraries to develop policy that emphasizes human values in the technological context.

Jonathan and Tony (2000) explore the policies and practices of public libraries in UK to provide the access to internet services. Results of a survey scopes on the privacy, anonymity and confidentiality in public libraries are reported. 96% of respondents indicated that they had internet facilities for the public. Majority of respondents indicated that they had policy documents on provision of and access to electronic and print materials. The majority of libraries 71% imposed some form of control on public access computers and a less majority 56% of staffs were using computers. The reliability and effectiveness of software currently available for filtering and blocking was a major cause for concern amongst respondents. The imposition of control software appeared to be a concern about access to sexually explicit material. The issues of privacy, anonymity and confidentiality have been lesser concern in public library system than control of public access to inappropriate material on the internet.
To conclude, this chapter reviews the literature related to internet and its use in academic libraries and the research carried out at national and international levels as far as the three disciplines like humanities, social sciences and sciences users are concerned. The review clearly indicates the void in nature of user research in the country as well as in the other countries also. The piecemeal studies have been mostly local studies of a particular aspect of user behaviour. The majority of even the piecemeal studies are done by research scholars of academic communities.

The next chapter deals with in-depth review of Impact of internet on library resources and services.