Chapter 2

Review of Literature
2.1 Introduction

The reviewed literature is an important component of any research study, which gives necessary input to the investigator to structure the research study on the chosen topic. Review of related studies further avoids the duplication work that has already been done in that area. It also helps the researcher to study the different aspects of the problem. It enables the researcher to identify the unknown areas, in order to create a new pathway for research. It sets a study in the right direction, which would keep abreast of the latest developments of the subject. The review of the related literature has been collected from various forms such as books, journals articles, thesis, reports, and websites.

The present chapter provides the comprehensive review of literature of survey-based research on “Resource Sharing and Networking: BTISNet Libraries in India” which enumerate the utility, usage and its perception, satisfaction, feeling and general opinion about the Resource sharing and Networking. Therefore, the literature is reviewed by studies on networking based library services, library networks, cooperative library services, and Consortia approach, as well as Bioinformatics research within BTISNet.

Traditionally the library resources are shared using the inter-library service and accessibility of resources necessarily required a physical visit of the user to the library. The concept of networking of libraries using the ICT has diminished the geographical boundaries and the resources are made accessible through the on-line databases. The traditional concept of resource sharing has reshaped in the form of consortia where the on-line resources are shared among the libraries for providing greater accessibility to the users. Therefore, the literature has been reviewed by focusing all these aspects.

Review of literature is a study of literature available on the problem selected by the researcher and to review the relevant literature that has been reported earlier in any form of literature. Review of the literature suggests new planning approach for the investigations. In the words of Busha & Harter, (1980)\textsuperscript{1} ‘Literature review is a critical summary of different facets of research problem as reported in existing sources’. Further, they state that literature search on literature review is an attempt to
identify, locate and synthesize completed research reports, articles, books and other materials about the specific problems of a research topic.

2.2 Library Resource Sharing and Networking

Juneja, (1986) in “Networking and Libraries” describes the development of networking in India with special emphasis on project INDONET. It also deals with an email system to be provided on INDONET. All these efforts will lead to flexible and reliable modern computer network offering users many services.

Kaul, (1999) in his document “Library Resource Sharing and Networking” highlights the growth of library automation since its start to the late nineties; the various components used in each developmental phase and also state the importance of networking in resource sharing.

Vyas, (1998) Library Automation and Networking in India: Problems and Prospects Abstract: Library Automation and Networking in India during the last decade. Automation and the networking of academic libraries are still in their formative stages. The reasons for, prerequisites of, and benefits of networking are given. Networking systems at the national and local levels are described, as are the salient features of INFLIBNET, which has been functioning since 1998.

Satyanarayana, (2003) “A Manual of Library Automation and Networking” Librarians and Information professionals are confronted today by the rapidly changing environment. The major aspects to this change are new technologies and the potential for new service which they bring. At the same time, library users and their demands are also changing. They are now coming with new expectations and insist on high-quality service. On the other

Potdar, & Joshi, (1997) in “Library Networking: a Proposal for Amravati University Region” explains the concept, need and objectives of networking, enumerates components of library networks proposes a library network for this university region for sharing resources and improving services.

local area network and wide area network and networking options. It desires to share the database of Andhra University Library with databases of other libraries.

Francis, (1997)⁶ in his paper “Regional Information Networks: necessary thrust area for INFLIBNET to establish integrated information system in India.” Evaluates INFLIBNET program based on activities and achievements and suggests necessary deviation in future plan of action. It stresses the need for integrated and 36 total development of libraries and information sector in the country by concentrating on the establishment of regional networks for resource sharing.

Existing literature i.e. from the research works (Ph. D theses), the research papers presented in the Seminars/Conferences and the research articles published in the journals. Besides these research contributions as reviewed above, the researcher further has also attempted to take a review of existing literature published in some of the basic books pertaining to the components related the present research.

The review of the literature it can be interpreted that no attempts have been made by the researchers so far to contribute on the present research topic undertaken by the researcher. So, the investigation presents the first attempt and it would be an original and significant contribution to the literature on the concerned subject. It is revealed through review literature that the area of present study is unexplored and no study related to this topic has been done.

2.3 Resource Sharing in Libraries

Charlotte (2001)⁷ studied the background and values of resource sharing in engineering libraries and also provides an understanding of the collections, e–resources access, user requirements, and resource sharing essential to meet the information needs of library Users.

Robert (2003)⁸ revealed the use of global interlibrary loan to meet the needs of today's academic and scholar through library networking and resource sharing program.

Volmer (2005)⁹ describes the library consortia are significant tools to information resource sharing and can add to increase the quality of academic education.
Peter (2006) explained the collaborative, user-initiated, and interlibrary loan service for all eight universities in Hong Kong and described detail the introduction of a service that will be of interest and impact to many other libraries facing shrinking budgets and the need to share resources in an efficient way.

Gail (2007) highlighted the innovations in resource sharing in the US library community with an international perception. Tom (2007) discovered that Ohio LINK contributes to its users' educational activities through access to and use of the documents and information resources which it delivers. It provides a set of priorities and initiatives for consideration.

Roxanne (2007) describes the developments in Australian libraries and the national interlibrary loan and document delivery systems, in particular, the outcomes of the Local Inter-lending and Document Delivery Administration Systems (LIDDAS) project.

Sirous (2008) presented the success factors of resource sharing (RS) and cooperation in Iranian Academic Libraries (IAL). Anne (2008) describes the need for rethinking resource sharing to offer both library users and non-library users options to obtain the material they seek from both libraries and commercial sources.

Kingsley (2010) studied the challenges facing Nigerian University Libraries with respect to information and communication technology application and utilization for resource sharing, as well as to areas of library operations to which information and communication technology can be applied and utilized for resource sharing. It concludes by volunteering solutions for viable information and communication technologies based cooperation among university libraries in Nigeria.

Sangeeta (2010) highlighted that DELNET fulfils a vital role in enabling resource sharing in India and is expanding its role rapidly. Rekha (2011) reported the development of the Indian National Union Catalogue for Scientific Serials (NUCSSI). It was found that NUCSSI database is enhanced with the online access and enables easy and improved access to locate a particular journal and its availability in various libraries free of cost.
2.4 Resource Sharing at International level

Woodward, Hazel and Cliff, McKnight (1995)\textsuperscript{19} after summary of the electronic journals, discussed the issues relating to access to and bibliographical control of e-journals from a local and national perspective. The added purpose of the paper was to assist the librarians in implementing and enhancing the access mechanisms of e-journals. They identified 3 types of e-journals as online, CD-ROM and networked journals. They further argued that for facilitating access to e-journals there are three levels of access need to be considered by library and information services. The first was access to information about what titles are available and other bibliographic details. The second level suggested an access to information about the articles within individual journal issues: what is being published by whom? The third level was about access to the actual text of the journal: how can access be made quick and easy for the end user?

Vishwanathan, Rama, Walter, Wilkins, and Jevec, Thomas (1997)\textsuperscript{20} developed a computer-assisted instructional program for giving special assistance in finding and using electronic information sources for the users at University of Illinois at Chicago(UIC). The program was designed mainly for the remote users of the libraries providing more network access to resources. During the study, the sixteen-lesson course was distributed to the faculty, staff and students of the sample size 450. During the study, the pre and post-tests were conducted to access the participant’s prior knowledge and subsequent knowledge gain. The survey results showed that participants built on their familiarity with an e-mail to broaden their internet expertise. The well-developed instructional material serves as an ongoing resource for new users and past participants also. Instead of typical classroom instruction of one hour, the online medium allowed the library to reach a large number of users. The pre-course survey revealed that 60% users intended to use the internet for research and work while the post-course survey showed an increase in personal use as the course increases the comfort and familiarity level of the participants.

Alexei, Oulanov, and Pajarillo, Edmund (2001)\textsuperscript{21} conducted a survey on evaluating the usability of CUNY + a wide area network database (City University of New York). The survey used questionnaire technique five-point Likert scale. The
survey results found that 70% users denote positive opinion in using the database while only 10% disagreed. 60% interested in using the system again and 10% were not. General satisfaction about the database was denoted by 60% users. The paper emphasizes the relevance of the user and user participation in any system planning design.

Gorman, G E and Cullen, Rowena (2002) provided a new approach to the modelling of networks where the libraries enter through the network library model, moved forward through the cooperative library model and ends in an advanced knowledge environment model. The research paper traced out three stages of development of networks as “Initial stage” which is equivalent to the Network Library Model where the libraries are self-sufficient and provide full services to users without relying on other libraries. Here the printed documents, CD-ROMs, and dial-up connections are the main resources and the resources are discovered through the OPAC mainly describing bibliographic data about the printed resources and the library staffs gives the face to face service. Further, the next stage is explained as “Intermediately”, equivalent to Cooperative Library Model where the library provides access to more off-line e-resources. Further, the locale and networked resources are included in OPAC.

The catalogue can be accessed remotely and use of e-mail delivery can be traced. Library provides e-guide which is used by the users for accessing the system. The next stage described is “Advanced”, equivalent to Knowledge Environment Model, where the libraries provide full remote access to resources, most of the material is in e-format, dedicated internet links are used. The metadata is used comprehensively for the bibliographic description of resources. The access is provided full on-line and remotely. On-site access not necessarily human and full computer-assisted support for information discovery is provided. In these models, the library is viewed as one player in the information transfer process along with the internet, community information services.

The research paper indicated that no network in the Asian region has achieved the advanced stage of Knowledge Environment Model. Further, the paper mentioned that The China Academic Library and Information System (CALIS) are
moving towards the advanced stage. CALIS is a nationwide academic library consortium that links the services across 27 provinces and cities in China.

Nfila, Reason Baathuli and Darko-amoe, Kwasi (2002)\(^{23}\) traced out the development of Library Consortia by conducting a literature review from the period 1960-2000. After tracing the historical review, the paper highlighted the scenario in 2000. The paper discussed the new purchasing environment created due to electronic publishing, types of consortia as well. The researchers mentioned that the consortia have increased the levels of library services and convenience for the patrons of large libraries. The library consortia cause the shifting from peripheral and limited sharing of resources to an integrated system-wide and formalized resource sharing. Further, the researchers added that this has been possible due to the developments in electronic access.

Vanbuskirk, Mary and Krym, Naomi (2003)\(^{24}\) mentioned that access to electronic media is the way of future in the paper, where the efforts were done for tracing out the history of Canada Institute of Scientific and Technical Information in resource sharing. Further the paper included present scenario faced by the libraries such as declining in the budget and ever-increasing budgetary pressures faced by the information consumer. The paper has discussed the accessibility to the resources in Canadian Universities offered through the consortia approach. The activities of the major cooperative venture in Canada “scholar portal project at OCUL” which is funded by Ontario Innovation Infrastructure and Ontario Universities to expand the access to electronic and printed resources were also highlighted. The DSP (Depository service Program of Communications in Canada) provides access to federal government information. It provides this information through a network of more than 790 libraries in Canada and 147 institutions around the world. The program is administered by Communication Canada.

White, Pam and Twomey, Cherly (2006)\(^{25}\), studied the interlibrary network and document supply service of National Health Service (NHS) in the UK. The study did a comparative analysis of the same with the service models in five countries as USA, Italy, Australia, Iceland and Canada. They identified the issues related with the interlibrary network and document supply. The study shows interesting findings where the researchers mentioned that automation of library system should improve
the user experience, but does not necessarily replace the need for involvement of the library services and the staff. Complementary collections are necessary for widest and most effective access to information. Access to electronic resources does not alleviate for remote document supply.

Korobili, Stella, Tilikidou, Irene and Delistavrou, Antonia (2006) examine the use of library resources, focusing on e-resources by the members of the faculty of the higher educational institute in Thessaloniki, Greece. The study conducted a census survey using a structured questionnaire. The frequency of use of resources mainly e-resources examine the impact of demographic or situational characteristics are examined. The researcher found that the majority of faculty members use printed resources, but they also use e-resources frequently. They found that use of e-resources is higher in the school of Business Administration and Economics, among those who hold Ph.D. degree and younger faculty members. Further, they added that the use of e-resources is positively indicated by the researchers as the convenience of access. The study also examined the computer anxiety rating scale which indicated that the less anxious the faculty feels about PC’s, the frequent users they become.

Hammond, Ellen (2009) discussed how the new thinking is required about the access services provided by the large academic libraries in the United States in the scenario of Internationalization of higher education. It provided an overview of the agreements (MOU) concluded by East Asia library staff at Yale University, USA to secure access, for Yale affiliates to the University of Tokyo and Waseda University Libraries, Tokyo, Japan. The researchers argued that due to an increasing trend of going abroad for research among the faculty and students, the need for the services that support their users globally provided by the library professional has also increased. Further, they added that “global access”, should refer not just to retrieve information on-line but also to the myriad institutions beyond national borders that provide access to information sources and services. To provide worldwide accessibility/entry in other libraries is another role of the library science professionals in today’s scenario of internationalization of education.
2.5 Library Network – International

Since this study relates to Indian bioinformatics research, the investigator consulted various sources for getting an understanding of the subject and related problems and developments in the field in India. The contributions by, Enger, Brown, Ratledge, Bourgaize, Smith, Barnum, Primrose, Baxevanis, Attwood, Chirikjian, were found to be worth consulting and mentioning.

Resource sharing among library and information centers has been acquiring increasing significance. The factors like information explosion, inflation, and resource crunch, variety of forms and channels of multidisciplinary and complex subjects have made all concerned to realize the limitations of individual libraries and information centers in fulfilling the varied information needs of increasing number of users.

The professional organizations like International Federation of Library Associations and Institutions (IFLA), Association of College and Research Libraries (ACRL) in America and Association of Information Management (Aslib) in United Kingdom etc. The success stories of library network in the developed countries such as the Online Computer Library Centre (OCLC), the Washington Library Network (WLN) in USA and the British Library Automated Information Service (BLAISE) and Joint Academic Network (JANNET) in UK, are some of the important examples. Almost all nations have given due importance and attention to resource sharing and networking among the libraries and are establishing their networks.

Since the present study is related to the group of libraries in the specific subject discipline in the Indian subcontinent, only selected literature concerning countries other than the USA and the UK has been reviewed. However, the investigator could consult the works of various prominent authors like Allen Kent, Ross Atkinson, M.B. Line, Richard De Gennaro, Bant Harlow, emphasizing for resource sharing and distributed collection development in networked environment.
2.6 Library Network - India

Review of literature by Indian authors on resource sharing and networking indicates that, in India also, various aspects of resource sharing and networking have got adequate attention. It is revealed that the organized efforts in this direction have started in the 1980s. The working Group of the Planning Commission headed by Dr. N. Seshagiri recommended for the need for modernization of library services and informatics during the Seventh Five Year Plan, 1985-90. An overview of the development of library networks in India by S.S.Murthy provides detailed account of the establishment of various metropolitan networks in the country. Description about Calcutta Library Network (CALIBNET), Delhi Library Network (now Developing Library Network) (DELNET), Bombay Library Network (BONET), Ahmedabad Library Network (ADNET) and Madras Library Network (MALIBNET), are available. Brief account of Pune Library Network (PUNENET), Bangalore Library Network (BALNET), Mysore Library Network (MYLIBNET), etc. are available giving an indication that many such networks will come up at other cities in the country.

The two books by H.K. Kaul i.e. “Library Networks: an Indian Experience” (1992) and “Library resource sharing and networks” (1999) provide detailed account about concept of resource sharing and networks in India. Sufficient literature is available in various sources about Information Library Network (INFLIBNET): a national network of the University Grants Commission. The sufficient amount of literature about countrywide networks like Education and Research Network (ERNET), National Knowledge Network (NKN) etc is available. Literature about similar subject-specific networks is discernible in proceedings of national and regional seminars and conferences.

Raina, Roshan Lal(1997), proposed a model for establishing a network among the IIM libraries for sharing the resources through his thesis titled “Library Resource sharing and Networking: an approach to management schools in India.” The research work is a comparative study of IIM’s in India.

Rao, Siriginidi (2001) illustrated the challenges for the networking of libraries and information centers in India. The paper mentioned the changes that libraries and information centers need to undergo and also highlighted the role of
ICT in transforming traditional libraries and information center into a digital mode. The paper also discussed the government policies that led to the development of national information infrastructure. The paper mentioned that the working group of the planning commission recommended the need for networking and modernization of library and information centers in India during the seventh five-year plan (1985-90).

The paper further mentioned that the libraries and information centers should set the objectives which include the availability of computerized services to users, promotion of resource sharing among member libraries, the development of a network of libraries and the coordination of efforts for suitable collection development for reducing unnecessary duplication.

Mishra, Sanjay (2001)\textsuperscript{53}, conducted a survey of local library networks in India for studying the factors affecting local library networks. A survey of participating libraries of four local networks (ADINET, CALIBNET, DELNET and PUNENET) in India was conducted using a survey method. The study revealed that organizational factors such as planning, governance, funding, communication and administration are related to each other. The study surveyed 131 libraries. The questionnaire included items related to computerization and networking, organizational factors, and general data. The study considered six organizational factors as planning, governance; funding, communication administration and success and they were measured using a Likert 5 point scale. The response for these factors indicating moderate level. Researchers indicated that raising the levels of these factors will assist in developing local area networks. The researcher concluded that the local area networks in India are in an elementary stage, further he added only DELNET is functioning in the true sense as a network. The researcher suggested few active steps for the development of local area networks in India as follows:

Proper long-term, strategic and short-term planning with specific agenda of action, the network service center should be located in one of the member libraries, constant up gradation of hardware and software for successful delivery of information within the network, nominal fees from the member institutions and training for professionals.
Pandian, Paul, Jambhekar Ashok and Karisiddappa, C R (2002) mentioned that there have been many cooperative efforts up to 2002 among the Indian Libraries for resource sharing, but it is hard to find one successful program that could use as a benchmark to replicate in other libraries. Further, they added that main factors affect such efforts are more human and attitudinal than technological or economical. Researchers designed a framework for the internet model based on a consortia approach for facilitating information access and use by providing a single web-enabled window to the information users for the participating institutions (IIM”s) in the consortia program not only to their resources but the other institutions resources also. The purpose of the model was to bridge the gap between information resource rich and information deficient libraries and enhance the information use shared access and optimum utilization of information resources at an affordable cost. Thus the paper proposed a model for IIM consortia for sharing the on-line resources among IIM libraries and concluded with the fact that with the advent of the internet World Wide Web, it has been possible to provide instantaneous access to the resources available not only within the organizations but other institutions that participating in the consortia program.

Cholin, V S, and Karsiddappa C R argued (2002) that for meeting the genuine needs of users, libraries need to take an active part and provide access to on-line resources. The paper has discussed the role of OCLC (Online Computer Library Centre) and the services offered by OCLC in different packages.

Chikkamallaiah, Neela and Usha(2002) discussed the efforts for accessing the on-line resources through the formation of IIM consortium and Raina Roshan Lal (2005) illustrated sharing of online resources among the IIM”s at the INDEST Consortium of the MHRD. The IIM”s are sharing 7 on-line databases at a consortium price.

Sridhar, M S (2002) discussed the case study of sharing of on-line resources among the ISRO libraries where the effort has been made by using the consortia approach. Efforts were also put in to implement uniform library management software to enable remote networked access of holdings of about a dozen libraries within the organization. The online resources such as Ulrich+, Aerospace,
Compendex and BIP databases are shared. Additional shared resources through the consortia were the 22 on-line journals related to aerospace, IEEE journals.

Singh, Ibohal, Singh, Khomdon and Singh, Joteen (2004)\(^5^8\), in a study assessed the attitude of the users towards UGC-INFLIBNET services at Manipur University Library, India under INFLIBNET program. The researcher used survey research method for collecting the primary data using stratified sampling technique. The purpose of the study was to ascertain the requirements of the users and access their attitude towards INFLIBNET services of Manipur University Library.

The study received 68% response. The researcher found that there are fewer users (51.96%) who are aware of the INFLIBNET services of the Manipur University Library. Further among the various INFLIBNET services, Internet access, and E-mail are mostly used by the users. Use of OPAC was negligible due to lack of awareness among the users. Whereas “downloading of e-resources” is used remarkably by the researchers (82.61%). The users had the attitude towards the internet that its speed was felt poor. The teacher community carried the attitude towards the INFLIBNET services that it enables library automation and allows greater access to information sources.

Sinha, Manoj Kumar (2004)\(^5^9\), studied the scenario of automation and networking of Libraries of North Eastern region of India. The researcher has evaluated the automation and networking services in 12 libraries that had financial assistance under INFLIBNET program. The researcher used survey research method including the questionnaire technique. The survey findings mainly cover various aspects of library automation and networking, multimedia application and use of CDROM databases, OPAC and internet services like in-house operations such as acquisition, circulation, retro-conversion, serial control, information retrieval and dissemination, bibliographical services, on-line search of databases, OPAC, web OPAC.

Survey result shows that out of 15 libraries only 26.7% libraries are fully computerized whereas 33.3% libraries are partially computerized and in 33.3% libraries computerization was initiated. Only 6.7% libraries were willing to start computerization. Further, out of 15 libraries, 40% libraries have started computerized acquisition of reading materials and serial control started in 60% and
library administration has started in 66%, whereas computerized cataloguing started in 80% libraries. The OPAC service was available in 60% libraries, interlibrary loan in 33.3% libraries. Results of the survey showed that out of 15 libraries, the users of 40% libraries are assessing all services being offered by the INFLIBNET center.

Ramesha, Kumar B D and Kanamadi Satish (2004)\textsuperscript{60}, evaluated IT-based services on the basis of user requirements and satisfaction. The study was conducted in the University Libraries in the Karnataka state. In this study, the researcher used the survey research method followed by two different sets of questionnaires one for users and another for the providers of service- for the Librarians. In the findings of the study, researchers noted that out of 7 universities, only 3 have full-time librarians and further the existing staff strength, both professional and others, is highly inadequate compared to magnitude of the work.

These libraries have traditional and modern infrastructure and IT facilities and network facilities are available in most of the university libraries. Most of them were participating in the one/another network system for sharing the resources. The researchers also traced out the awareness level of the users regarding the computerization activities of the library. The results of the study showed that the lack of manpower is the basic cause of declining of the quality of library and information services. Further the study indicated that the university libraries are lacking in the programs of users awareness and publicity. The researcher revealed the need for the library professionals to update new skills by considering the changing environment in the respondent libraries.

Cholin, Veernna s (2004)\textsuperscript{61}, in another paper took an outline of the implementation of information technology in different university libraries in India. The paper has discussed the role of INFLIBNET Centre and overall development of University libraries across the country with special emphasis on efforts through UGC-Infonet E-journals Consortium. The paper has also related the availability of e-journals in western universities with Indian Universities. The paper found out the problem faced by the University Libraries in meeting the user requirements even after spending more than 75-80% library budget on journal subscription. The paper concluded that the libraries could increase buying power and access to resources
through qualitative resource sharing for effective document delivery service among the universities.

Singh, Anil and Gautam, J N (2004)\(^6\) presented a summary of the electronic databases developed in India or on Indian topics. The paper emphasised various electronic databases in India as Indian databases on science and technology established by NISSAT (National Information System on Science and technology, SAARC social sciences and humanities database, National Institute of Science and Information Resources (NISCAIR) databases, National Union Catalogue of scientific serials in India (NUCSSI) database, DELNET databases, INFLIBNET databases, other databases such as Library and information science databases, statistical databases. Researchers claimed that the role of information science professional is to tap the unique items of useful information, the nuggets of knowledge and to extract the search pattern in the raw data. Further, it was concluded that the intermediary role of library science professionals in accessing, structuring, evaluating and refining has improved.

Srivastva, Mehandra and Kanauja, Laleta (2004)\(^6\), conducted a study for investigating the present situation of library automation, CD-ROM database services, internet and on-line facilities, reprographic services in Agricultural University libraries in India. The survey also highlighted the conventional documentation and information services namely bibliographic service, current awareness service, abstracting and indexing and newspaper clipping services in agricultural Universities in India. The study used questionnaire technique for data collection and data collected from 30 agricultural University Libraries in India. Findings showed that 100%.

Researchers recommended that all the libraries should provide agricultural newspaper clippings service. The further suggestion given for implementing OPAC in the library for better access to information and CD-ROM database service should be provided by all the respondent libraries and automate their library functions and services. The researchers finished that in the new millennium, each library in India must go on the electronic internet for better information services for meeting the future challenges.
Patel, Yatrik, Vijaykumar J K and Murthy T A V (2005) provided an overview of INFLIBNET’s institutional repository and archive-India which is developed for Indian academic and research community to archive their scholarly work by using D-space digital library system and accessibility is provided through the internet.

Madhusudhan, Margam (2007) evaluated the use of the internet as an information source by the researchers in the field of science and technology in University of Delhi, India. The study was conducted on the sample of 51 research scholars in the Central Science Library in the University of Delhi. The study used questionnaire observation and interview technique. The researcher used the stratified random sampling method for data collection. The study received 81% response. The findings of the research revealed that 66% respondents were using e-journals and databases and handsome figure of 70% use the internet. During the paper, the researcher stated a need for creating awareness among the research scholars about using the internet services more efficiently.

Manthas Rajiv and Kaur, Amritpal (2008) studied the use of internet services and resources in the engineering colleges of Punjab and Haryana (India). The study used survey research method and data was collected using the questionnaire technique with 80.8% response rate. A total sample of 625 teachers and 903 undergraduate was focused. Random sampling method was used for the data collection (least 5, 3 teachers, and 2 students) from the respondent colleges.

Results showed that all the respondents make frequent use of the Internet because they have access either at the college or at home. The survey revealed that the majority of the respondents, i.e. 65.6%, access the Internet from college or their workplace. More than 75% of the respondent’s use the Internet services mainly for educational and research purposes. Google and Yahoo search engines are found to be more widely used than other search engines. More than 70% of the respondents impression that the Internet is useful, informative, easy to use, inexpensive and time-saving.
Sinha, Manoj Kumar (2008) identified various issues relating to access and bibliographic control of e-journals, access management problems, policy issues and development of e-journals consortium approach to subscribing scholarly peer reviewed journals for their library users in network environment. The paper has set a brief account of various consortium efforts in India. The paper has concluded that in India and South Asia or developing countries, a number of e-journals are less and printed version of e-journals is available. Further they added that e-journals are very much costly and also the shortage of the funds provided by UGC to the institutions, therefore the national institutions like IIM’s, IIT’s and universities are involved in consortia approach for providing access to number of e-journals and databases to the user community.

Aher, D W, Matsagar, M B and Wagh V G (2009), studied the impact of electronic resources on the libraries and their users in Nashik City. The study has targeted total 480 sample population using stratified random sampling method using questionnaire technique for data collection. The respondents included were teachers, librarians and students from various colleges in Nashik city. The study found that percentage of students visiting the library for electronic resources such as CD’s, e-books and e-journals is ¼ of the population who visit for reading books and journals. Further, the researchers mentioned that the overall opinion of the user population is that the electronic media's help them in understanding their subjects collecting relevant information with a faster access as compared to the information in print form.

Desale, Sanjay, Londhe, N L and Patil S K (2009), evaluated JCCC@UGCINFONET and the document supply service at the University of Pune. The paper had taken a brief review of JCCC@UGC INFONET and the document supply service provided by the University library; problems come across while using the JCCC@UGC INFONET interface and the administrative interface in providing ILL service. The researchers discussed the new service initiated by INFLIBNET and evaluate the JCCC software from both the user's and administrative point-of-view.

Kaul, Sangeeta (2009) conducted a survey of DELNET libraries for assessing the usage of DELNET services. The study results show that there were total 90% respondents indicating the dedicated internet facility in their libraries and
in 97% organizations, faculty have direct access to the internet from their own desk. Awareness of DELNET services was indicated by 92% of member libraries. Photocopying of journal articles and supply is the most popular service of DELNET. The study has found that 86% member libraries are benefited from the union catalog and above 90% libraries are satisfied with the ILL/DD service of the DELNET.

Ghosh, Maitraiee(2009),\textsuperscript{71} studied the digital setup and attitudes towards access and sharing of selected engineering libraries in Maharashtra, India. The researcher surveyed the forty-nine libraries and studied the current status of the libraries. The paper focused financial, technical and structural factors of the libraries. The focus is on librarians’ perceptions on the formation of state-level consortia; ICT infrastructure; users’ needs; collection development policies and the services provided by engineering libraries to the community. The purpose is to explore the possibilities of forming regional consortia for enhancing the access to information and knowledge through cooperation for the benefit of the engineering communities.

The engineering libraries from diverse backgrounds such as central government-funded, autonomous deemed universities, fully state government funded colleges, partially state-funded colleges with autonomous status and unaided colleges. The study examined the data using various heads as library collection, information sharing infrastructure, use of on-line resources, and librarian’s observation on the current levels of cooperation, consortia relationships and obstacles towards cooperation.

Research conclusions showed that 66.5% libraries have online journals and bibliographic databases through INDEST. 10.5% libraries are subscribing to online resources independently. 16.5% libraries have only offline A.V. resources. Above 50% of the libraries have memberships to INDEST and are receiving e-journals and bibliographic databases at discounted price. 56% of libraries have started some digital library initiatives. Out of 49 respondents, 13 indicated that they had engaged in at least one cooperative activity with other libraries.

In a nutshell, the networking related services created multiple choices of accessibility to the users. The way of improvement is the successful application of it in the libraries. Automated library functions, on-line access to full-text databases, Web OPAC, Digital Library, remote access are few major highlights of it, whereas
benchmarking is mapping out the milestones of future development. It is an ongoing process of improvement. It is the process of understanding the user requirements and application of it for the future improvement.

**Summary**

The review of the literature reveals that most of the studies mentioned above are based on “library survey: -Primary data collected from the BTISNet librarians in India, user feedback etc. These studies are based on relatively large sets of data collected from a BTISNet Centres attached with libraries such as Research institute and agricultural, veterinary universities in a particular state. The focus of these studies is related to the use Resource sharing, networking, and impact of IT including the study of the network-based services in these libraries. The present study is one of the series of such study discussed above.

**References:**

Education and Research of INFLIBNET on I.T Application in academic libraries, Patiala. 102-103.


34. Primrose,(2001)S.B, Molecular Biotechnology, 2nd ed., Panima Publishing Corporation, New Delhi,


65. Madhusudhan, Margam (2007), Internet use by research scholars in University of Delhi, India, Library Hi Tech News, Vol.24, No.8, pp. 36-42.


