CHAPTER – II
REVIEW OF LITERATURE

2.1 Introduction

The review of relevant literature starts with a compilation of bibliography on the subject of study. According to Bruce, “The review forms an important chapter in a thesis where its purpose is to provide the background for justification of the research undertaken.” The review of literature is a critical look at the existing research that has relevance and significance to the work that is being carried out. A detailed review of literature depends upon the account of scholars and researchers. It also allows a researcher to refine the research question based on the experiences of others. This chapter presents a review of related literature on the topic taken up for investigation.

Review of related literature is conducted to enable the researcher to get a clear understanding about the specific field of study. The considerable amount of literature is available through publication type, publishing habits of university faculties, authorship pattern, application of Information Communication Technology (ICT) in university libraries, professional development and continuing education needs of university faculty members, Digital library services, Library sources and Resource sharing. A survey of literature from India and that such studies are given due importance by the researchers in library and information science. An attempt is made in this chapter to present a survey of literature available in India and abroad.
The studies are further grouped in a chronological sequence. Totally 65 studies have been reviewed and it is categorized with the following heading according to the nature of the research.

1. General studies on publications
2. Studies on information and Resource sharing
3. Studies on E-resources
4. Studies of Information and communication technology
5. Studies on Internet and Digital Library

The Review of Literature analysis is the key focus of any Research. The research on publishing habits has attracted the attention of various scholars, researchers, information scientists, and library personnel throughout the world. They have contributed various terms of research outputs and analysis of these research findings enables the researcher to identify the research gap. This type of identification enables the researchers to concentrate on a new research. Hence, review of a few works deserves due attention on the part of the present study.

2.2. General Studies on Publications

There are 13 studies that have been reported in this category and all the studies are focused in general on publications in nature, the studies are described below one by one.

The Study Information needs and publishing habits of geoscientists - A case study done by ROshan RAINA (1998)\(^1\) focused that solo research was predominant, journals refereed for writing for more publication in mother country, and stated that institutions
like INSDOC, CSIR are not providing for their field. Maximum articles are published in journals only. Less importance is given for foreign publications.

The Study Publishing Habits of Chemistry Faculties in College Libraries in Trichy City: A case study done by MOORTHY (2001)² focused that three author research was predominant in chemistry research. The chemistry faculties got the latest information through maintaining relations with learned societies, associations and their news letters, magazines. CSIR & INSDOC provide information to the faculties. Chemistry faculty members communicate their research findings mainly through Journals, secondly through Conference proceedings. Most of the contributions have appeared in the Indian Publications, secondly to Institutions and third to Foreign Publications.

Pluzhenskaia, Marina (2007)³ “Publication and Citation Analysis of Disciplinary Connections of LIS Faculty in Accredited Schools”. This study was Multidisciplinary of LIS faculty is one of the prominent trends in LIS education. The 37% of faculty members in ALA accredited programs hold advanced degrees in disciplines other than LIS. The role these migrants is little known in the field of study play in LIS research and education. This study strives to fill in this gap by analyzing publications and citation patterns of LIS faculty using citation analysis as a primary method and the Thomson Scientific Web of Knowledge as a main data source. The findings lead to the conclusion that LIS schools' faculty members with non-LIS doctorates do maintain stronger connections with other disciplines than their colleagues with LIS doctorates. They publish more often in journals from other disciplines and get
cited more often by scholars from other field of study. At the same time, faculty with non-LIS doctorates is active in LIS research as well. Significant fractions of their works are published in LIS journals and they get cited often in LIS scholarly periodicals. Thirty six percent of faculty with non-LIS doctorates hold a Master's degree in LIS. They maintain less strong connections with other disciplines than those faculties who hold neither a doctorate nor a Master's degree in LIS. Faculty with LIS doctorates also maintain connections with other disciplines. A faculty with non-LIS doctorates, but they publish in non-LIS periodicals and receive citations from scholars in other disciplines.

The field of LIS has connection with a wide variety of disciplines. Disciplines of doctorates of LIS educators represent a wide variety of knowledge domains with prevalence of professional fields, social sciences, humanities, and computer science. Faculty members with either LIS or non-LIS doctorates receive citations from all major knowledge domains. This might signify "exporting" qualities of LIS as a discipline. The presence of faculty with non-LIS doctorates has a noticeable impact on the level of multidisciplinary of the schools' research production. The ratio between faculty with LIS and non-LIS doctorates is a less significant factor than the actual number of faculty members with non-LIS doctorates in regard to multi disciplinarily of school publications and citations to them.

Daniel (2010)4 “Next generation university publishing: A perspective from California”. This article reflects on the opportunities which exist in universities think strategically about their publishers. It is prepared by an academic administrator who has oversight responsibility for a university press and is based on a year-long planning process launched in November 2009 to help the University of California Press to identify
strategic and business options. More observations on series than a careful crafted theory of academic publishing or route map for university-based publishing, it is offered in the hope that it may be useful informations informed by other institutional strategies. It is a personal reflection as opposed to a formal report or set of recommendations. The University of California Press, founded in 1893. This article reflects upon experience derived from a year-long planning process launched in November 2009 to grapple with these manifold challenges and identify strategic and business options for the UC Press.

A review of the Publishing Strategies in Transformation by Johannes Fournier (2001), DFG Scientific Library Service and Information Systems. The international relevance is emphasized strongly by humanities scholars and social scientists. The international relevance is only partially relevant for 55% of these respondents, compared to just 6% of the life scientists, 8% of the natural scientists and 23% of the engineers. Only 50% of the social and behavioural scientists address their work mainly to an international audience, compared to 38% in the humanities.

Jebaraj, Franklin David (2001) presented a paper at the LIST 2004: National Conference on Library Resource Management in Digital Era, Trichy and discussed about the electronic journals available for LIS professional worldwide. Technology History of e-journals, Journal publishing industry and its technical transition and so on. This work contains information about the e-journals with electronic newsletter, covers topics on advancing knowledge and research in the areas of academic and special librarianship new tools and techniques, events, announcements, interesting internet sites, new database
products and services. Major publishers like Blackwell, Elsevier, Academic Press, Oxford University Press have announced their commitment to provide e-journals.

Mapping of the Publication Pattern in IASLIC Bulletin: A Decade’s Analysis (2000-2009) by Jayashree Panda, Basudev Mohanty, Jyothshna Sahoo (2011)\(^7\). This paper presents bibliometric analysis of all the contributions (205 articles) included in 10 volumes (Vol 45-54) of IASLIC Bulletin published during 2000-2009. The average number of articles published per volume is 20.5, average numbers of reference per article is 10.41, the percentage of multi authored papers is 51.71 and that of single authored paper is 48.29. All the articles have been categorized in to 32 domains and the subject field bibliometrics has topped the list with 13.17% of publications followed by internet and web resources with 8.29%. The analysis also revealed that majority of the contributors i.e, 19.4% are from the state of West Bengal whereas Maximum number of contributors (13) are from Aligarh Muslim University followed by Jadavpur University (11).

Prasanna Raj and Dominic (2013)\(^8\) “Publication Growth of Open Access Management Journals: A Bibliometric Study”. This article describes about the bibliometric study of publication growth of open access journals in Management subject. The data retrieved from Open – Jgate database for the period 2000-2011 has been done with a view to measure the growth of literature over these years. The literature has been analyzed to ascertain forms of publication, authorship pattern and authorship distribution to find out the distribution of articles in journals. The research output of 10 management subject journals which comes to 2709 publications has been taken as a base to measure
the above mentioned parameters. The year wise distribution of publication in the year 2011, there are 412 (15.21%) research articles were published and it is the highest all the years. In the year 2000, 3.21% articles were published and it is the lowest all the year. from this it is clear that the number of publications are being increased every year. The year wise pattern of department wise distribution of publications. The management discipline there are 6 departments and the HR has 843 articles with 50.57%. It is the highest among all the categories, In Environmental discipline, there are 5 departments and chemistry subject had 752 articles (68.36%). It is the highest among all the categories(General, Ecology, Psychology, Energy).the year-wise in departments the articles are gradually increased.

Mandhirasalam (2014)⁹ presented a paper at the National Conference on Research Trends and New Paradigms in Library and Information Science. This paper is scientometric analysis of Research Publication Productivity of Faculty of Coimbatore Institute of Technology (CIT), Coimbatore. Data has been downloaded from Web of Science database from1999 to 2013. Among the 228 papers published in the span of 15 years. Highest number of 44 papers were published in the year 2013. Total Global Citation Score(GCS) of CIT publications are 1094 and the average citation per paper is 4.78. Total number of citations were received by the papers were 5404 and the citing articles were 958. The h-index of CIT is 14. The study reveals that CIT has notably contributed to the research in Science, Engineering and Technology and the publications of faculty have increased significantly during the last five years.
Literature on Public Finance (1986-2010) : A bibliometric analysis based on EBSCO database” thesis done by Lalitha Bai (2013)\(^\text{10}\). The growth of literature of nine economic journals as a whole did not show any specific pattern. There was no steady growth in terms of productivity throughout the period of study. Though there was no steady growth rate, from 2004 onwards there was a slight upward trend. There was an increase in the number of publications from 2001 onwards. The percentages of output in 1986 were 4.01 which rose to 4.56 percentages in 2010 Out of 11110 publications during 1986 to 2010 the percentage of single author contributions were 43.51 percentages. (4834 contributions) 40.95 percent belong to co-authors. The total numbers of articles contributed by two authors were 4550 which had 40.95 percentages. The three authored contributions were 13.26. There were 2.05 percentages of four authored contributions and the five authored contributions were much less to 0.23 percentages. The nine Economic Journals selected for study contained 11110 publications and 282466 citations. The average rate of citation per article (C/A) was 25.42.

Priya Girap, Ganesh Surwase, Anil Sagar, Kademani and Vijai Kumar. (2009)\(^\text{11}\) “Publication Productivity of the Technical Physics and Prototype Engineering Division at Bhabha Atomic Research Centre”. This scientometric study analyses the publications of technical physics and prototype Engineering Division at Bhabha Atomic Research Centre. There were 704 research papers published during 1986-2006 scattered in diverse domains like crystals(192), thin films(173), glasses and ceramics (102), instrumentation (66) and miscellaneous (171). The highest number of publications (80) were in the year 2006. The average number of publications per year was 33.52.
collaboration trend was multi authored publications. There were more than 94% multi authored publications.

**Gupta, Garg, Kumbar and Sangam (2003)**, “Performance of Indian Universities in Science and Technology Research: A case study of Five State Universities at Karnataka”. The study examined the performance of five state universities of Karnataka (Mysore, Bangalore, Karnataka, Mangalore, Gulbarga) in seven broad subject fields (Physics, Chemistry, Engineering and Technology, Clinical Medicine, Biomedical Research, Biology and Earth & Space sciences) of science and technology in terms of contribution made in science citation index and its impact during the period of 1996-2000. The study revealed that Mysore University had the maximum output in terms of number of publications, while Gulbarga university produced the least number of research articles. The proportion of papers in high quality journals were maximum in Gulbarga’s output followed by Bangalore and Mysore Universities. The study also revealed that there was no direct relationship between the scientific publication output of these 5 universities and their proportional impact on the professional community, both at the overall level as well at the broad subject level.

**Gupta, Bose and Avinash KshitijVijaikumar (2009)** “Science and Technology Profile of Publications output of India and Germany during 1996-2006: A Comparative Study”. The paper analyses the publication share and growth of India and Germany in terms of Science and Technology publications output. It compares the similarities in their research profile with top 15 countries of the world (USA, UK, Japan, Germany, China, France, Canada, Italy, Russia, Spain, Australia, India, Netherlands,
South Korea, Sweden). It also analyses the strength of India and Germany in terms of publication output and the share of International collaborative publications in different field of Science and Technology, as reflected in their cumulative publications output during 1996-2006 as reflected in the co-authored papers between the scientists of the two countries. The major fields of interest common to both India and Germany were medicine, chemistry, physics, biochemistry, genetics and molecular biology, engineering and materials science. In addition, agricultural and biological science is another area of strength in India but not Germany.

2.3 Sources of information and Resource Sharing

There are 11 studies have been reported in this category and all the studies were focused the source of information and resource sharing, the studies are described below.

Reference sources collection in university libraries of Karnataka: a study, Adithya Kumari. and Talawar (2011) studies the reference sources collection, i.e., handbooks & manuals, bibliographies, dictionaries, encyclopedias, biographies, directories, yearbooks & almanacs, geographical sources, indexing & abstracting sources in seven university libraries of Karnataka. Among seven universities included for the study, the Mangalore University Library has rich collection of reference sources. Among the reference collections, dictionaries and encyclopedias are more in number as against geographical sources of information and directories in university libraries. The study also gives a comparative analysis of reference collections in university libraries with number of users. Finds that there is a need to strengthen the collection of almanacs, maps and atlases, gazetteers, indexing, abstracting and statistical sources in all the university
libraries under study particularly, the handbooks and yearbooks collections in Bangalore University Library and statistical sources in Karnataka University Library. Almanacs and abstracting sources collection in Kannada University Library has to be initiated.

Library management research in Indian Universities by Gupta, Dinesh and Bhardwaj, Kavita (2010)\textsuperscript{15}Through a study of literature and databases, finds that library and information professionals in India have been involved in research in the area of library management for more than three decades with 167 research works leading to doctoral degrees so far. The paper analyses these 167 research works on various parameters and concludes that there is a rising interest in research in the area of library management.

Ganesan (1983)\textsuperscript{16} in his article entitled, “Resource Sharing among University Colleges and Special Libraries in India” explained the importance of bibliographic services such as union catalogues, directories, periodical indexes, subject bibliographies, databanks, etc., for ILL loan. He concluded that UGC should play more active role in the exercises of its coordinating function.

Vijaya Kumar, Nagarajan and Sivasami, (2004)\textsuperscript{17} presented a paper at the National Conference on Library Resource Management in Digital Era, This paper deals with Resource Sharing of Electronic resources such as access to full text publications. E-journal, Bibliographic Information service, Library Catalogue, Document delivery and OPAC. It also gives objectives of electronic resource sharing and infrastructure facilities of resource sharing for the benefit of network users.
Alexander Abraham (1992) described the “Resource sharing in University Libraries: A Myth or Reality” identified the factors for successful resource sharing and the impediments. He stressed the need for an ILL Code in India.

Gowda, Bhandi and Vaman (2003) presented a paper at the National Conference on Change Management in Library and Information Centres. This paper is mainly focused on the issues like: Change in the organization of Information, Content management, the newer technology adopted to meet the changed of newer demands of organization and also stated the quality service from these professionals. The consortia approach is the latest development of the resource sharing, made the change management much more complex. The modern management approach to the library resource management would definitely help the libraries to cope up with changes of the information explosion.

Konnur (1992) explained the resource sharing activities in University Libraries of USA and UK and traced the efforts made in India. He emphasized the need for resource sharing in view of the inadequate financial support.

Mahajan (1992) explained the importance of resource sharing and networking of university libraries in India in the context of increased journal subscription prices, devaluation of rupee and decreasing information resources, etc. He explained the present networking activity in India such as NICNET, I-NET, ERNET, SIRNET, INFLIBNET, etc.
Panda (1993) \(^{22}\) in his Ph.D. thesis entitled “Multi-type library resource sharing and networks with special reference to University libraries of Orissa” surveyed the resource sharing activities in the university libraries of Orissa and found that resource sharing activities were in a rudimentary form due to lack of funds as well as non availability of technology.

Ganesan and Varatha Rajan (2003) \(^{23}\) “Managing Digital Information and Services – A case study” at IGM Library, University of Hyderabad. Advancement in information technology is changing every aspect of human life. Internet based information services and user needs has increased significantly in the recent years. With the invention of digital media, publishing industry has taken the major role has shaken, the traditional method of library activity. They have started publishing the books , journals in digital form through the Internet, and no longer dependent on booksellers and libraries for the distribution of their products. Traditional structure is slowly coming down and the restructuring is taking place vigorously. Some of the Universities and institutions has under gone tremendous change in digital services. This paper gives more emphasis on digital information and services. The study also discussed about the experience of managing the digital resources and services in library.

Sivaraj, Mohammed Esmail and Kanakaraj, (2008) \(^{24}\) In developing countries most libraries, including academic libraries face financial and resource constraints in building up adequate collections of information sources and therefore are not able to fully satisfy the information needs of the various categories of users. One strategy is resource sharing in a networking system. This has been practiced since the 1930s in developed
countries. In recent years libraries in India have focused on interlibrary loan, shared
cataloguing, online references, shared circulation and online Due to the high cost of
serials, academic library networks in a consortia mode offer subscriptions to more
journals to the participating libraries at a relatively lower cost. This paper discusses three
models of networking and network design for engineering college libraries in Tamil
Nadu.

2.4 Studies on E-Resources

There are 15 studies that have been reported in this category and all the studies are focused in
general on E-Resources in nature. The studies are described below one by one.

**Senthur Velmurugan (2013)**, Use of Electronic Journals among Education
Faculty Members in Virudhunagar District: A survey. This study reports the result of
survey conducted at education faculty members in Virudhunagar district to determine the
extent to which user are aware and make use of e-journals. The study also examines the
search pattern of e-journals. A questionnaire was distributed among the faculty members
to collect desired data. A total of 250 questionnaires were distributed to the selected
sample of library users; 228 valid samples were collected. The studies found that majority
(84.51%) of the male users were aware about the e-journals. 69.77% of the female
respondents were about the availability of e-journals, the analysis revealed that most of
the respondents (32.46%) use e-journals for writing papers. It could be noted that
majority of the male respondents (34.54%) have less than 2 hours of access to internet,
whereas majority of the female respondents (26.74%) have 2-3 hours of access to internet.

A study revealed that research is the key factor for the development of knowledge in all the disciplines. Universities are the centers of research. Libraries play important role in providing information E-resources are claiming its importance in the research activities. The use of e-resources can be improved by providing proper training programs to the researchers, Gowda, Vasappa and Shivalingaiah (2007)\textsuperscript{26}.

E- Journals are easily searchable, interactive accessible, inexpensive flexible and speedy. There are same demerits also need machine to read, less weight age, perishable citation ignorance by search engine. Despite the series of disadvantages or dements posed by the world of e-journals, they are must for modern teaching being world. These problems may over come in due course of time with more technological development and economic enhancement of the Indian users and providers. This e-journals should be popularized in the academic culture of India, Malik, Satish Kumar (2007)\textsuperscript{27}.

Parisutharaj and Kanthimathi (2004)\textsuperscript{28} “E- Journal acceptance and usage statistics at NIT Library”. A case study NIT faculty members and students were surveyed, to determine the usage and acceptance of e-journals. A majority of the respondents are used e-journals at least at fortnight. Most of the respondents supported adding electronic access to print journal subscription. But fewer respondents supported cancelling print subscription and relying on the electronic subscriptions. Respondents strongly supported having access to journal back runs (archives) older than four years and believed that the libraries had a good balance of print and e-resources. The results of an
extensive survey of the senior academic staff of the NITT (Deemed University) and students on their usage of electronic journals and databases are presented. The major findings are that the use of e-resources is already widespread among responded and more than 50% found the electronic resources indispensable. Disparities were found between the usage patterns in the different disciplines. The findings can be used to improve effectiveness of the electronic systems and identify areas of improvement, ranging from user interface and functionality to documentation and product training.

E-books have become the vital part of human life in 21\textsuperscript{st} Century. The technology advances today make it possible to think in terms of storing all the knowledge of the human race in digital forms Electronic book culture will grow very fast in academic libraries in India, Tholkappian and Chandran (2007)\textsuperscript{29}.

Selvakumar (2003)\textsuperscript{30}, E-books: Technology Envisages New Era for Library Users. The study is focused in introducing electronic books, often called e-books concept in the modern library. To start with the definition of e-books, the requirements of hardware and software for implementing it is elucidated. The merits and demerits of e-books are compared with existing standard hard copy books. The potential applications of e-books for different users and information centers are enumerated. Further, the present work revealed the new techniques and cyber policies. In addition, the number of remedies related to access, preservation, ownership, copyright etc., of e-book is elaborately discussed.

Kiran Kumar and Mallinath Kumbar (2012)\textsuperscript{31} “E-Information search pattern by the faculty of Autonomous Engineering Institutions in Karnataka: A survey”. The
survey was carried at autonomous engineering institutions affiliated to Visvesvaraya Technological University in Karanataka to examine the factors affect the optimum utilization of electronic information resources and search pattern. The study mainly focused on the use of different types of electronic information resources by the faculty, experience of using e-resources, problems faced, preferred search engines and search methods and skills required for better utilization of electronic information resources. For this purpose the authors prepared a well structured questionnaire as a tool for data collection and the collected questionnaire has been analyzed and presented with useful percentage analysis and suitable tables for presentation of data. It is clear from the study that majority 75.14%(1684) of the faculty members use electronic information resources for their academic and research activities. The authors concluded with the results highlighting the major finding is the most used electronic information resource is e-teaching material 1636(97.15%), followed by 1621(96.26%) e-journals and 1388(82.42%) e-books. The most preferred web browser is Internet Explorer 1325(78.68%) and Google 1602 (95.13%) is most preferred search engine. Majority of 924 (67.895) faculty wanted to improve electronic resources used skills be attending workshops and seminars.

E-resource are accessed by the faculty research scholars and students the user’s expectations from the libraries have increased manifold in the internet environment, Parthiban et al. (2008) ³².

Sankaranarayanan, Nagarajan, and Sathiyamurthy (2013)³³, “Utilization of E-Resources by the Faculty Members of constituent colleges of Tamilnadu Agricultural University”. The study aims at analyzing the use of e-resources by the faculty Members
of Agricultural Colleges in Tamilnadu. The investigator was able to find out that most of the faculty members of Agricultural colleges preferred Electronic Journals as the first source of information for their teaching and research. This study revealed that majority of the Faculty members are using e-resources more than once in a week.

Few fisheries institutes have good information centre and resources. Self sufficiency remains only imaginative, because of insufficient funds and information explosion. The study aims to developed a library consortium for the fisheries institute in Kerela. At present there is no such consortium, and an initiation for it would mutually benefit for the participating institutions. It will add values to the existing information infrastructure of the technical education in Kerela, Jacob, Ancy and Sornam, Ally (2011)\textsuperscript{34}.

**Dhanavandan and Tamizhchelvan (2013)\textsuperscript{35}** “Availability and Allocation of E-Resources” by UGC Infonet Consortia with special reference to Universities in Tamilnadu. This paper is mainly aimed to analyze the UGC Infonet consortium in India and its e-resources access provision to especially in Tamil Nadu Universities. The UGC Infonet Consortia has provided more number of packages to the twenty five Universities in Tamil Nadu. Especially the state government universities has subscribed maximum packages from consortia particularly Madurai Kamaraj University in the first position. The Springer link package is subscribed by more number of universities not only in Tamilnadu but also India. Apart from the UGC Consortium, some of the Universities are members in the MANLIBNET and DELNET consortium in Tamilnadu. Some of the
private universities have subscribed e-journals and online databases in Tamilnadu for their strengthening research activities.

**Joel Cummings (2003)**³⁶ This study compared two lists of full-text content available in Academic Search Elite. EBSCO provided the lists to the University College of the Fraser Valley. In this study, focus was placed on the accuracy of the claims of full-text content, because the staff and library users at University College of the Fraser Valley (UCFV, British Columbia) depend upon this database as part of the library journal collections. Interlibrary loan staff routinely used a printed list of Academic Search Elite to check whether the journal was available at UCFV in electronic form; therefore, an accurate supplemental list or lists of the library’s electronic journals were essential for cost-conscious interlibrary loan staff. The result of the study was that there were inaccuracies in the coverage of fifty-seven percent of the journals sampled.

**Sivagamasundari, Vadivukkarasi, and Vanathi (2013)**³⁷ (2013) “Use and impact of E-Resources at Annamalai University: A case study”. The study highlights the preference and importance of online resources among the teachers and research scholars. The study shows that the use of e-resources is very common among the teachers and research scholars of Annamalai University and majority of the teachers and research scholars are dependent on e-resources to get the desired and relevant informations. But practical use of e-resources is not up to the worth in comparison to investments made in acquiring these resources, secondly infrastructure and training programs should also be revised as per requirements. It is observed that the availability of e-resources on the campus is almost sufficient for all the existing disciplines but the infrastructure to use
these resources is not adequate and can hinder the ability to meet the requirements of users.

**Vikas Singh (2013)** “Use of E-Resources by the Faculty Members and Research Scholars of department of Computer Science and Mathematics of Jamia Millia Islamia University, Delhi: A study. The article highlights the problems encountered while accessing the e-resources followed by the result of the study which shows that 40(100%) respondents were using e-resources. they were using internet, online databases and E-Journals whereas few of them were using e-books to access the information. The outcome of the analysis has been given for all the faculty members and research scholars from both the departments are aware about E-Resources service being provided by the library. The study shows that the two electronic journals J-STOR and Science Direct are maximum used by the users. The researchers suggested Librarians should conduct E-resources orientation programme for maximum utilization and more e-journals should be subscribed.

**Rajendra Prasath and Muthusamy (2014)**, “Faculty Attitude to Electronic Information Resources in Engineering College Library in Chennai – A Study”. This paper was presented at the National Conference on Research Trends and New Paradigms in Library and Information Science. The advancement of e-resources during recent years has given librarians a powerful new resource to support learning and research. This survey is to highlight the faculty members attitude to electronic information resources in Engineering College Library in Chennai. By analyzed the data with that of available materials in electronic form and faculty attitude in engineering colleges. This study also
examined the search pattern, for the frequency of using e-resources and the level of satisfaction. A total of 150 questionnaires were distributed to the selected sample of Library users 138 valid samples were collected. The studies found that the most of the faculty members (28.26%) use e-resources for research work and 76.81 % of the respondents are satisfied with e-resources.

2.5 Studies on Information and Communication Technology

There are 13 studies have been reported in this category and all the studies were focused in general on ICT in nature, the studies are described below one by one.

ICT Training for LIS Professionals Working in Engineering Institutions in Chennai: A Study by Sivakumaren, Jeyaprakash, Geetha and Gopalakrishnan (2011)40. This paper examines the ICT training methods, level of training, and preferred time for the training. The study was carried out among LIS professionals in Engineering Institutions in and around Chennai. The questionnaire method was used to collect the data from LIS professionals working in the above educational institutions. It is found that majority of the respondents were interested to attend lecture series, tours to other institutions and web-based tutorials to develop knowledge and skills in Information and Communication Technologies (ICTs). The respondents were preferred to attend workshops, conference/seminars in updating their knowledge and skills on ICT. It further shows that majority of respondents were interested to attend ICT training programmes after working hours.

Information and Communication Technologies (ICTs) have become central to education and training in Library and Information Science/Service (LIS) because of the
great influence of these technologies on the professional world. This study on Kenya is part of a larger doctoral research project that aims to map and audit the types, nature and diffusion of ICTs in LIS education and training programmers in Africa. The findings indicate that all LIS schools in Kenya have embraced the use of ICTs, but there are major variations in terms of application. All but one LIS School offers a wide range of relevant ICT courses, many of them as core modules. However, not all of them offer, or able to offer, practical hands-on experience for their students. In teaching and learning, only a few LIS schools use ICTs to deliver lectures, the majority still favouring age-old methods of face-to-face classroom teaching. In research, the lack of ICT facilities have resulted in partial and minimal use of ICTs, especially since academic staff have to pay (individually, from private funds) to access the Internet. For the same reasons electronic publishing of research results on the Internet is low, Minishi-Majanja, and Ocholla, (2003)41.

The university libraries of Nigeria do not have adequate ICT facilities. The Government should increase funding to Nigerian University in order to implement the National Information and Communication Technology Policy. Academic staff of The Universities should be provided with PCS and Laptop, Womboh, Benki Womboh and Abba, Tukur (2008)42.

The growth of IT and ICT has had a profound influence on higher education. Student can pursue scientific educational and research goal using the Internet. LIS has programs have reviewed their curricular in light of the needs of society and the manual. LIS can preserve and improve its identity by applying IT and ICT and can educate
libraries who can prove their benefit to the society by being in step with changes and
advances in technology economy, society and culture, Rahman Ebrahim (2009)\textsuperscript{43}.

The evaluation and analysis of the use of ICT among the faculty members of
health care institutions of Pondicherry. The data analyzed the use of ICT tools and
electronic health services by the respondents. It is analysed that ICT tools like multi-
media projectors, Internet communication equipment, VCD were very low level usage
where as CD-Rom, Overhead Projector, LCD, Laptop and digital Camera are most
preferred ICT tools by the respondents. Towards the performance of library services
rendered by the institutions were poor for information retrieval, Kavitha, Esmail
Mohamed and Nagarajan (2011)\textsuperscript{44}.

Reddy, Nagi, Ali, Yakub (2006)\textsuperscript{45} discussed Indira Gandhi Memorial Library,
University of Hyderabad has computerized all its in-house operations and provides
information technology based services over the network to the students and faculty
members. This paper attempts to evaluate the services provided by the library in the IT
environment and also finds out the user satisfaction based on a questionnaire survey; Two
hundred fifty questionnaires were distributed to students and research scholars in the
university out of which 181 responses were received. The data analyzed indicates that
students and research scholars are satisfied with the library services.

Girersh Kumar (2013)\textsuperscript{46} in his article entitled, “Knowledge Management
Electronic Theses and Dissertation in Libraries: Perils and Solution in India perspective”
explained that ICT is a great facilitator for Knowledge Management. ICT enables to
create digital repositories for sharing knowledge transcending many of the existing
limitations. Digital repositories are one of the main components of knowledge management in libraries. This article highlights the major challenges in creating a digital repository of electronic thesis and dissertations (ETD) for Universities. He suggest solution for the constraints identified and ETD initiatives, conclude that the Library Professionals should take up the problems by solving the constraints, bases on research in this area of knowledge management in Libraries.

**Surianarayanan and Nagarajan (2001)**\(^47\), "Application of Information and Communication Technologies in Modern Academic Libraries with special Reference to College Libraries in India". The study explained that, the modern users especially in colleges are the students and the staff: they require the latest, up to date and accurate informations for their studies, research and reference purpose. It must possible only with the help of the application of ICT.

**Manoj Kumar Sinha (2012)**\(^48\), "Status of ICT infrastructure for computerization of college library services in the State of Assam: An evaluative study of college libraries of Barak Valley, south Assam" The study is based on the preliminary survey of selected college libraries of Barak Valley of South Assam which have been Affiliated to Assam Central University, Silchar. The college libraries has taken initiative for developing information infrastructure for ICT application in library and information activities, Internet facilities, Collection development of printed as well as electronic resources, online databases and access to the e-journals available under UGC-Infonet Digital Library consortium and DELCOM programme by the library end users. The author concluded with the role of INFLIBNET and other corporate sectors for helping college
libraries for developing the adequate ICT infrastructure of the college libraries of Barak Valley for accessing to electronic resources available under N-List programme of AICTE – INFLIBNET and providing effective and efficient computerized library services to the faculty members and students.

Seeran, Shanmugamoorthy and Kathirvel (2012)⁴⁹. E- Resources Use Pattern of Users at Annapoorana Medical College, Salem. This research aimed at investigating the impact of Information and Communication Technology (ICT) on users study habits. This study examines the time spent for searching e-resources by the users and purpose of e-resources. To identify preference of using search engine and users satisfaction level of using e-resources. the researchers received 420 samples from Faculty, Research Scholars and students at Annapoorana Medical College. The study revealed that the users spent more than two hours for searching e-resources. (36.67%) 37.86% of the respondents used e-resources for preparation paper for seminar and conferences. Google is the most widely used search engine (33.57%) and satisfaction level of using ICT based resources and services revealed the fact that the majority of respondents were very much satisfied(57.14%) in using the e-resources.

Arlene Cohen (2002)⁵⁰ discussed the growing use of technology, such as document scanners, telecommunication capabilities and electronic document delivery using the Internet, to drastically reduce the time to deliver documents and the cost for this service. He also discusses low-technology projects fostering resource sharing throughout the region and directions for future growth.
Information Communication Technology Applications in the University Libraries of Uttar Pradesh: An Analysis, Ph.d Thesis report submitted by Shalmankhan (2012) at Karunya University. Investigator identifies 32 libraries with various stages of ICT applications and library automation. Among these 4 libraries are from Central Universities, 6 are from Private Universities, 8 libraries are Deemed Universities, 14 are from State Government Universities. The study found that all the university libraries (100%) responded that main objective of ICT applications is to modernize the library. Majority of the university libraries (87.5%) were responded that ICT applications were improved prestige & visibility of library and also improve the quality of the existing services. Another objective stated by the (84.37%) university libraries rendered effective services to the users. The study also revealed that majority of the university libraries (34.37%) responded that allocation of budget is good, (21.87%) of the libraries stated that budget allocation is satisfactory and only (9.37%) libraries stated that budget allocation is not satisfactory, and 12.5 per cent stated that it is very good.

Shyama Rajaram (2009) in his article entitled, “Application of E-Learning in creative writing” explained the importance for Library professionals to understand the concept and trends in e-learning in different subjects. Such an understanding is necessary to provide effective services to the users. The paper makes an attempt to bring out various aspects of application of e-learning in creative writing. The paper discusses the strengths and limitations of e-learning and the various tools used for e-learning in creative writing. Haiku, e write life, kids on the net, one word.com., Virtual writer, WriterPro e-learing in creative writing websites were also discussed.
2.6 Studies on Internet and Digital Library

There are 13 studies have been reported in this category and all the studies are focused in general on Internet and Digital Library, the studies are described below one by one.

The current state of internet access and its usage in Rajshahi University, the second largest public University in Bangladesh although the university community is deriving some benefits from internet access, the study revealed that nearly half of the responsible authorities of the various sectors are not satisfied with the existing facilities owing to several constraints. On the basis of the prevailing situation, this articles suggested for future directions for better internet access in the common interest of the university community, Roknuzzam (2006) 53.

The 91% of the social scientists found internet as an important tool of research. Internet is a medium that offers rich possibilities to enhance serious research and teaching by diverse sociologists. Internet indeed has become a communication medium for enhancing teaching, research and professional development for social scientist in the open distance heaving environment, Kaanungo, Neena Talwar(2007) 54.

Internet is a vast ocean of information pertaining to almost all subjects majority of users use internet as one of their source of information card are satisfied with the information available on internet. One of the major factors that have limited the expansion of internet in the country is the poor infrastructure. The use of internet by the users in post graduates of Mysore University campus the internet is useful to them to satisfy their daily information requirements, Mulla, and Chandrashakara (2007) 55.

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The respondent use the internet and 50% use at workplace and other at home or cyber café. Use of internet is for research purpose. 50% of user are in favour that internet influence the traditional documents and dependency on internet has increased, Khan, Mohammad Haroon and Waris, Rao Ashher Kamal (2008) 56.

The majority of the Management faculty members in the North Maharashtra University, Jalgaon access various electronic information resources related to research and most frequently accessed digital information resources by the faculty are internet resources. Users are aware of the major internet tool and resources but do not fully use the internet tools and resources related to their research. Lack of orientation/training in the use of internet affect the proper use of internet, Mendhe, Ravindra, Agarwal, Preeti and Takusade, Pratibha (2008) 57.

Jose-Marie Griffiths and Donald King (1984) 58 described a framework for library networking that can be used for decision-making by individual libraries, group of cooperating libraries or centralized services. The framework consisted of six interdependent dimensions including: functions to be performed, type of access to information, types of materials handled, products and services to be offered, networking configurations and communications means. An economic model based on the framework can be used to determine the levels within each of these dimensions that should be accomplished by the individual libraries, group of libraries or a centralized service.

Yan quan liu and Jin zhang (2001) 59 This paper investigates how information resources are shared electronically between libraries at the national level in China. It examines the digital library project related issues for both information policy and
information-technology. Issues pertaining to information policy include co-operation and collaboration between information service providers, collection development, intellectual property protection, management and administration on the digital library projects, and public information services (user clients). Issues pertaining of information technology include use of UNICODE, metadata, interface standards (Z39_50) and others. Using a combination of system analysis and program evaluation methods, the current practice of developing a national digital library infrastructure is investigated, issues regarding national information counter measures toward these digital library projects are studied, and suggestions for developing further nation's counter measures in the digital library project are presented. Successful and/or failure experience is shared and compared with the US Digital Asia Library project.

Venkatachalam, Chinnasamy and Krishnamurthi (2008) This paper discussed the present scenario of Management Institute's Libraries affiliated to Bharathiyar University, Coimbatore. There are total 95 Management institutes and includes 69 under Graduate and 26 Post Graduate Management institutes. The institutes follow the same syllabus. Again, all the libraries have to the extent possess similar resources and subscribe to almost similar periodicals. Procurement capacities of these libraries are limited due to budget constraints. This proposal may be considered as a pilot project for building Library Consortium for Management Institutes. The proposal folio has been inspired from the INDEST, IIM and FORSA consortium but intended for libraries of Management Institutes of Bharathiyar University, Coimbatore.
Prangya Das and Bijay Ku. Choudhury (2011)61 “Digital Library Initiatives in Engineering Colleges of Bhubaneswar City: An evaluative study. Digital Library has become the most popular sources of information for students, research scholars and faculty members. Universities and Institutes of higher learning support the needs and aspirations of students and scholars. The study was designed to find out how many engineering colleges in Bhubaneswar and status of user satisfaction. Major findings of the studies were 42.85% colleges have partially automated whereas 28.57% colleges have fully automated as well as in planning stage. 71.43% of engineering colleges has no institutional repository.

Baladhanyathum (2013)62, “Information Access Pattern Through UGC-Infonet Digital Library Consortium by the Users of Dr. T.P.M. Library in Madurai Kamaraj University : A case study”. 86.67% of the respondents were aware about the UGC-Infonet Journals. 36.67% of the respondents were aware about the infonet journals through library professionals. More than two fifths of the users access the infonet journals daily. 78.33% of the respondents attended the orientation programme for use of infonet journals. 31.67% of the respondents access the infonet journals for their research work. Majority of the respondents were satisfied with use of infonet journals rendered by the Dr. T.P.M. Library.

Thilakar, Uma Maheswari, Anitha Mohan, and Kaliselvan (2003)63. “Digital Libraries are the removing the walls between people and Knowledge Vision, Research and Opportunities. This study deals about the digital libraries, the integration of access and deliveries besides the scope for its development along with the technical framework.
The digitization of information resources would enhance the usage as well as sharing information in short time through the digital libraries. Digital Libraries have revolutionized in library and information systems.

Oduwole, Adebambo (2013)64, “Establishing a Digital Repository in Nigerian Universities: Strategies and Challenges” The article traced the digitization effort and Institutional Repositories (IRs) in Nigeria in the mid – eighties to the University of Jos. Issues such as high cost of digitization, intellectual property issues or copyright militating against the digitizing information resources were discussed. The survey offers ways out through the development of a digitization policy as well as training of librarians and information professionals in Nigeria in project management, metadata, digitization principles and practice.

Franklin David Jebaraj and Ramesh Babu (2014)65. “Digital Library Initiatives and Resources”. Information and Communication Technologies have brought significant changes in all round development of the society through transmission of informations. In India, a number of digital library initiatives and digitization programmes have been initiated across the country. Most of the digital library initiatives are government funded. The Ministry of Communication and Information Technology has also established the Digital library of India. This article discussed various problems, challenges and issues involved in design and development of digital libraries all over the world, focused on the Indian context. This paper highlights the digital library resources available in the market, technology behind the initiatives and the skill set requirement and use of digital resources.
2.7 Inferences on the Review

From the foregoing review of literature, the following inferences could be drawn:

1. The early research on Publication and Publishing habits studies were done by individual authors and also with joint authors of late the research tends to be on publishing habits of University faculty members.

2. Most of the studies have been done in India and few studies are conducted in Foreign Countries.

3. There is a shift from analyzing the research output from macro level to micro level on publishing habits.

4. All form of literature and Learning Centre helped the University Faculty members in their publication purpose like Information and Resource Sharing, E-resources, Information and Communication Technology, Internet and Digital Library, etc have been covered.

5. It was found that, no study has been done on publishing habits of the faculties in Tamilnadu State Universities.

Therefore the investigator has chosen this research topic and has done the research work.
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