CHAPTER 2: REVIEW OF LITERATURE

According to Abraham Lincon, “If we could first know where we are and where we tending, we could better judge what to do and how to do.” Review of related literature is an important pre-requisite for actual planning and execution of any research topic. The review of related studies means the view of the problem, which has been dealt and is related to the problem undertaken by the investigator.

Practically all human knowledge can be found in books and libraries, unlike other animals that must start a new with each generation, man builds on the accumulated and recorded knowledge as the past. His constant adding to the vast store of knowledge makes possible progress in all the areas of human endeavor, Best, J.W. In survey and experimental research, the review of the literature serves a variety of background functions, preparatory to the actual collection of data. In these research approaches the literature is reviewed to create the context from the past for the new study to be conducted with new subjects and newly gathered data. A literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the researcher up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area. Every piece of ongoing research needs to be connected with the work already done, to attain an overall relevance and purpose. The review of literature thus becomes a link between the research proposed and the studies already done. It tells the reader about aspects that have been already established or concluded by other authors, and also gives a chance to the reader to appreciate the evidence that has already been collected by previous research, and thus projects the current research work in the proper perspective.

The investigator consulted the related literature available, like journals, Encyclopedias of Research, surfed net, theses, dissertations etc. for
having maximum knowledge of the problem. From all these sources of information, the investigator was able to know that the problem in hand was interesting, significant and feasible.

Chu (2000) studied 95 academic libraries in the America to inspect how librarians were responding to e-journals. The author informed that the top five libraries cited reasons for acquiring e-journals/periodicals as: facility to provide isolated access; simultaneous utilize by more than one user; well timed access; searching capabilities which not found with print journals; and housing of such unique features as links to related items. From this study, it was appear that libraries took benefits from online journals. The study revealed also that e-journals provide users faster, more suitable 24×7 desktop access from hostel, cafe, home or campus.

Morse and Clinthworth (2000) evaluated the usage of biomedical journals in print and online at The Library of University of Southern California. They studied that users accessed the electronic/online journals more than ten times as often as the print mode. The preference of the users for online access was awesome, when users linked directly from databases to the full text articles.

Jeevan & Dhawan (2002) highlighted the troubles in the transition of traditional library to a digital library. The problems allied to combination of IT in libraries and information centres, in particular to important features such as Information Technology infrastructure planning, digital tools and concerned softwares, models for resource development, digital training needs, resource and development, content development, and copyright management, etc. The article also reflected on the changing roles of the libraries and librarians in the context of emerging digital library atmosphere.

Montgomery and King (2002) highlighted the impact of a library’s shift to electronic journals on library staff and budgets. The results suggested that
when all budget were considered, online journals found more cost effective on a per use basis. Storage space of bound journals is a major expenditure of library. The user survey showed that the library's digital collection was widely accepted and extensively used by all type of library users.

Sathe et al. (2002) in their study of print vs e-Journals at Eskind Biomedical Library indicated that fellows, students and residents preferred online journals and mostly faculty preferred traditional print journals. Faculty used print journals for reading articles contents; they employed online journals for printing articles and checking references. Users considered e-journals easier to locate and search than print journal, however, they reported that e-journals had higher quality text and figures as compare to print journals.

Bonthron et al. (2003) collated findings of research projects at the University of Edinburgh, to study the use of e-journals by faculty and students. The results indicated that university faculty incorporated e-journals usage into their research in different ways than students and that these differences might affect attitudes toward support services e.g. library web pages, virtual learning atmosphere, designed to encourage online journals usage. The findings confirmed that the differences in the working surrounding of the staff, researchers and students needed to be taken into practice for the issues why online journals would be used or not and which particular journal would prove admired.

Connaway and Lawrence (2003) made an assessment between all web libraries and traditional paper libraries. They studied 11 associations of research libraries and found that labour, cumulative space requirements, and material assets were probable to be less in an all electronic libraries than in traditional libraries.

King et al. (2003) studied the Pittsburgh, Tennessee and Drexel University and
found that although the staff's use of personal print subscriptions remained important, electronic individual subscription was used only infrequently. The likely boost in reading online journals from library collection was due, in part to turn down in individual subscriptions and enlarged electronic bibliographic searching coupled with the augmented availability of the library collections. They found researchers/ investigators or scientists to be more superior in their use of electronic journals than other faculty, but also found that changes were taking place within all faculty disciplines.

Manjunatha & Shivalingaiah (2003) studied the online resource sharing in educational libraries. They said that in the era of digital uprising and escalating cost of electronic/ online information, resource allocation is critical for successful execution of libraries. Increased accessibility of information in digital format and high costs of journal payment force the libraries to work together. Technological advancement offers a podium for digital resource sharing and offers much opportunity for librarians to become more technically sound and more informative. This paper attempted to identify the needs and factors influencing the online/ electronic resource sharing. The authors also present the requirements and strategies for successful resource distribution in educational libraries.

Tenopir et al. (2003) surveyed the Council on Library and Information Resources that analyzed more than two hundred research articles/ publications that focused on the use of electronic resources. They studied that use of online journals increased each year. Among staff, graduate, post graduate students and other professionals, higher use of online journals was accompanied by a reduction in visits to the physical library. Access to back volumes/ files and many journal titles was significant to many users. The majority readings would come from a relatively little percentage of the
collection, but the users would interpret from a greater selection of journal titles when they were made freely and easily accessible to them.

Tenopir (2003) studied the use and users of electronic library resources; the purpose of the study was to know how the community uses online or electronic resources and to study their approach about electronic and traditional or print resources in the library. He concluded that both types of users (faculty and students) used and liked online/electronic resources and most willingly adopted them as the sources were perceived as suitable, applicable, and time saving to their natural workflow. Author found that specialists in different subject disciplines had different usage patterns and penchants for print or online/electronic journals. There was no single right answer for services or system design for every subject discipline. The print was still used for various reading and was a piece of research in nearly every discipline. It was considered important in certain disciplines, particularly in the humanities. Print remained the most well-liked medium for print books, e-book use was still in the extremely premature stages. Most e-journal users still take print out the articles that were judged useful, so a print mode such as PDF was accepted. Subject specialists used hyperlinks to view allied articles, students' use of hyperlinks was a smaller amount. Browsing a little amount of core journals was important in both modes i.e. print or electronically, especially for the subject experts and for up to date awareness searching.

Vaughan (2003) examined the short period effects of the online journal's on the availability of the printed Chemistry journals at Duke University's Chemistry Library. He concluded that beginning of the Science Direct database during the starting years had nearly divided the use of print journals and as such reduce the use of the print collection had important implications for collection management in sci-tech libraries.
Dulaymi et al. (2004) discussed the increase of e-journals in educational libraries of Saudi Arabia since 1992. The study investigated the modifications in electronic or online journal and print journals collection and acquisitions in terms of quantity of titles, type of provisions and acquisition, budgets and costs among the years 1995 to 2000. In the findings of the study exposed that the percentage of online journal collections increased sharply in 1996 by 98%, which corresponded to a high increase in their budget.

Colvin (2004) experienced that many students were not familiar with e-journals. The students successfully recognized the importance and authenticity of the content; some were daunted by the technical nature of some of the articles. They were then helped to identify the pieces of information (author, source etc.) that could be entered in to different fields of a database, a concept with which they were familiar as IT students. It was explained how these could then be used to retrieve an electronic journal article.

Schonfeld (2004) studied 11 academic libraries of America and described the implications of the transition to online journals/periodicals and non-subscription library expenditures such as those required to select, accession, catalogue and provide ongoing access and services. He found that on a per-title basis, the non-subscription costs of the electronic format were consistently and substantially lower than those of print format.

Siebenberg et al. (2004) conducted a study on the title 'Print versus electronic journal use in three sci/tech disciplines: what's going on here?' The main finding of the study was that maximum traditional print journals were being used more than they were previous to the dawn of online journals. They concluded that although their users visit in the library affected and e-access very much increased, but the use of print journals did not stop. Even though their assumptions that electronic access and full text databases would reason
the use of paper to decrease, e-access in fact appeared to offer greater access to print. Possibly this was because the databases had made it easier to locate older articles not yet electronically in the full-text and to find the references to print only articles from place of work and residence computers. Many articles from supplements or particular issues were cited in the databases but were obtainable only in print mode. Relevant articles were not difficult now to identify from online searches.

Bar-Ilan and Fink (2005) reported the survey results on the use of printed and online or electronic journals in the academic science library. They found that the users had already exposed to online/electronic journals for a number of years; most of the scientific journals were accessible in electronic format while the print format was still available. The major findings were that more than 80% of the respondents frequently use and prefer an electronic/online format, irrespective of their rank or age. Most previous studies found an inverse relationship between e-journal usage and age. But these results, however, further indicate that by now users of all ages switched to the electronic format not only in terms of usage but of preference as well.

Bintliff (2005) conducted a study on the title 'Perspectives: teaching legal research and writing. The purpose of the study was to supply information that could be used for fast and accessible answers to the essential questions that were frequently asked from the librarians and those involved in education legal research and writing. The author concluded that the use of electronic journals could retrieve millions of documents. Print indexes or tables of contents provided context and hierarchy that allowed for a more true understanding of the word's use, and thus more competent searching. A lot of sophisticated researchers preferred print sources to research procedural issues for this reason: many of the most important terms for both civil and criminal
procedure i.e. jurisdiction, plaintiff, pleading were too general for electronic or online searches.

Vinod (2005) carried out a questionnaire based on users survey to find the use and usage of electronic journals of the INDEST-AICTE consortium by the faculty members, research scholars, post graduates and undergraduates at Indian Institute of Technology (IITK) Kharagpur, India. One of the major findings of the study was that “78 percent faculty members, 92 percent research scholars and 100 percent post graduate students of IITK were regularly accessing and using e-journals for their study”.

Brady et al. (2006) compared the rate of use between print and online/electronic journals in Chemistry, Engineering and Physics in Owen Science and Engineering Library, at Washington State University. There was an increase in online journals use in all the three disciplines, especially in Physics and they attributed this increase to the awareness of users with e-journals, the ease in using them with improved and consistent interfaces, enhanced quality of printouts and the increased conversion to electronic only versions of previously traditional print journals.

Heneefa and Sreelatha (2006) studied the use of online periodicals/journals by research scholars of Calicut University and found that more than 90 percent of them had access to e-journals from the INFONET and they spent approximately four hours per day searching and accessing e-journals. Features of journals like easy and speedy access to back volumes/files and hyperlinks attracted the researchers towards accessing online journals as well as the access to full length text browsing e-journals.

Kenney et al. (2006) studied the online journals archiving metes and bounds. The objectives of the study were to defend a library's long-term concentration in online journals, that individual libraries could not address the preservation
needs of electronic journals and periodicals on their own, that much scholarly electronic literature was not covered by archiving arrangements, and that while electronic journal archiving programs were becoming available, no comprehensive way out had emerged and huge parts of online literature go unprotected. They concluded that libraries and consortia should press publishers hard to enter into electronic journal archiving relationships with programs and to communicate all compulsory rights and responsibilities for digital archiving to them as division of their license negotiations. There should be population conformity that the similar rights were conveyed in all archiving arrangements. Research libraries should collectively have the same opinion not to sign new licenses or renew old ones for access to electronic or online journals unless these conditions were met.

Vakkari (2006) investigated subject differences of library users of the Finland Electronic Library and found that while the percentage of those using mainly online/electronic material had grown 7% in the Humanities and 17% in Social Sciences during the years 2000 to 2005, the growth in other disciplines varied between 38% and 53% respectively. While the difference between the humanities and social sciences and other disciplines in the year 2000 was about 10 to 20% in terms of digital users, it was in the year 2005 already 50-60% users. The faculties of Humanities were less frequent users, Social Scientists and Economists created a middle group and the Scientists were the most regular users.

Borrego et al. (2007) conducted a study on use and library users of online journals at Catalan University. The main purpose of the study was to enhancement the results obtained in earlier studies, which had provided extremely interesting common information on the use of the journal packages licensed by the Canadian Banner User Conference. However because these
previous studies had been based completely on the analysis of the web access data supplied by the publishers, they failed to give information on the characteristics of the library online users. Though they had been incorporated in library collections only recently, there was a high level of awareness of the collection of online or electronic journal titles among teaching and research staff, more than 95% of the respondents stating that they were alert and aware of the online journals package and collection offered by their institute library. The respondents who used online journals less, showed a lack of consciousness of the collections rather than a resistance to change. Therefore, these statistics could be clearly used to identify the groups in which more and better action could be taken with regard to training of users and marketing of electronic and online resources.

Borrego et al. (2007) obtained the results of a study on the use of electronic journals by the educational staff of the universities belonging to the consortium of educational libraries of Catalonia. The results of the study showed that a high amount of teaching and research staff is aware of the collection of electronic journals and that there was an increasing preference for the electronic to the detriment of the printed mode of journals. The collection of online journals is extremely appreciated and the majority of users expect to increase their use of them during the next few years.

Majumdar et al. (2008) conducted a study on access of online journals by the users of institute library with particular reference to UGC-Infonet. The intention of the study was the use of web resources expected to increase in future. The authors concluded that the students and teachers/staff who participated in this study were aware of internet resources and the majority of them used these resources in support of their research and teaching and they were expert at using these sources. Even though the majority of scholastic
community use internet resources, still most of the undergraduates, research scholars, and mentor's preferred print journals as well as online journals. This showed that the traditional print resources would continue to be essential components of the academic community. Many of the learners, research scholars and faculty members learnt about the internet resources either by trial and error methods or by the recommendation of friends as well as the library professionals. So it was compulsory that the academic library professionals should be hands-on in working with academic society to develop training programs aimed at allowed them to use internet resources and online journals of UGC-Infonet more effectively.

Murthy (2008) conducted a study concerning usage of UGC-Infonet resources and found that 'the trend of high use of e-resources by the Indian scholars helped in reducing information gaps between rural and municipal, privileged and less advantaged, accessible and unreachable frontiers within the Country. This has revolutionized the Indian institution of higher education campuses with a digital culture.

Yu and Breivold (2008) conducted a research on online resource management in libraries: research and practice. The objectives of the study were to convince the user/ reader that journal literature was a worthy goal, with an emphasis on how it met user needs, to demonstrate the extent to which this goal could be achieved with current tools and standards, to explain the challenges and limitations that prevented a library from achieving true one-stop shopping, to explore what would be needed to bring us closer to this ideal. At present libraries could provide one-stop shopping for print and online journals, including titles from aggregated databases, as well as some free titles. But this image often must be compromised as libraries think about benefits to users against staff time and resources required to deliver all
appropriate journal information to their readers. Meanwhile, providing access to individual articles, whether free or available for compensated download, remains the mainly challenging feature of the one-stop-shopping model. So, libraries could not make available complete one-stop shopping for all journal literature of importance to their users. But they could provide simplified access to some of it and work with vendors and standards organizations to facilitate access to the rest.

Kaur & Verma (2009) attempted to study the issues like use of online/electronic information resources, its impact on the collection of print and electronic journals its awareness among the users, and the places where the users are accessing these resources. A survey was conducted in the Thapar University, Patiala, in which total 504 users from the undergraduate, postgraduate, research scholar and staff/faculty members were selected and their response was obtained with the help of the questionnaire. The findings showed that users from all these categories were using electronic resources; the awareness about online resources encourages library users to use such resources to the maximum; and the users were using computer centre and hostels more for accessing the information. The impact of electronic resources was able to be seen from the decrease in number of printed traditional journals in comparison to the increase in number of electronic journals. The use of electronic journals has increased multiple. The old printed material was being quickly replaced by the electronic resources.

Kinman (2009) conducted a study on electronic metrics and library assessment in action. The purpose of the study was to examine five years electronic resources usage supplied by the vendor in conjunction with other library and institution measures. The author concluded that the constant data sets used in this study were time-consuming to create and maintain at the
database level in a medium-sized library. Additional research was needed to determine the validity of constant data sets.

Swain (2009) found in his study that the students expressed keen interest in the use of online journals, followed by e-books, e-newspapers, e-reports, and e-articles. Least concentration was shown towards the use of online or electronic theses and dissertations. The author in his study stated that the majority of the students were aware of EBSCO, and Emerald Management etc. On the other hand, the attentiveness of all other databases was not rather so encouraging. Further, it was revealed that the use of printed journals was slightly more compared to that of e-resources. Use of Web OPAC was also less than expected.

Kacherki & Thombare (2010) stated that the growth in the information technology have made extreme changes in the technique the information is collected, stored, retrieved, and distributed. E-journal is one of the products of information and communication technologies. The improvement in online journals during recent years has given librarians a powerful new resource to support learning and research. With accessibility of both modes of journals in the library, it has become compulsory to evaluate and calculate the effectiveness of electronic and print journals from users' and library's point of view. In this paper a case study is discussed done at SP Jain Institute of Management and Research to find out the information seeking model of the library readers. The paper also discussed advantages and disadvantages of online journals and suggested that the printed and e-journals are complimentary to each other.

Guruprasad & Nikam (2010) conducted a study entitled 'E-journals and their usage patterns amongst the Indian Aerospace Scientists and Engineers in Bengaluru'. A research survey was undertaken amongst the prestigious
aerospace organizations in Bengaluru. The sampling limit was restricted to preferred 16 organizations. Total 583 questionnaires found suitable for the study were selected. The analysis was based on the responses from the aerospace scientists and engineers. The major observations in the study included, 'aerospace engineering- electronic journals are tremendously significant to aerospace scientists or engineers and are a most important source of scientific and technical information and the use patterns of aerospace engineering in electronic journals amongst the 16 aerospace organizations are not uniform and hence show a heterogeneous nature in their use patterns. Also, the most preferred aerospace engineering electronic journals in the order of priority and usage (from the responses received) by this 'niche' aerospace engineering community are: Aerospace Science and Technology; Progress in Aerospace Sciences; Journal of Aerospace Engineering; IEEE Transactions on Electronics and Aerospace Systems; Web of Science; Online Journals: Aerospace; Journal of Turbo and Jet Engines; The Journal of Failure Analysis and Prevention (ASM International); European Space Bulletin–ESA; Informatics J-Gate, and International Journal of Satellite Communications and Networking.

Ming-der Wu. (2010) showed that these humanities graduate students cited considerably more print materials than electronic resources. Most of the documents cited were supplied by the university library. Only a small proportion of the documents were available in electronic format either from the university library or from the web or internet. The availability ratio of journals was higher than that of books. Students’ acceptance of online journals was higher than that of electronic books.

Robb and Hicks (2010) conducted the study on print vs electronic journals. The most important findings of the study were that the maximum journals
were used widely by the residency programs like Medicine, Radiology, Obstetrics and Gynecology, and Surgery. The journal required print subscription to obtain the online access. The authors concluded that the library professionals would continue to evaluate the decision to provide only electronic access for an important quantity of the journal collection. Marketing the decision to move to only online access to the library journal collection would provide more feedback regarding online versus print.

Sarasvady and Khatri (2010) conducted a study on the use of electronic resources for implementing library consortium. The aims of the study were: to evaluate the level of awareness with the collection of online journals holding, the scale of preference of the electronic or printed mode and the advantages and disadvantages of existing formats, the demographic features of the users of online journals i.e. discipline, age, and academic position and the outcome of these variables on use, the characteristics of use, the reasons for consulting the journals and the place of access, the degree of satisfaction with the coverage of the electronic journal collection. They concluded that the results of the study offered important information on the level of awareness and use of electronic journals in academic institutions, the characteristics of the users and their evaluation of the journal collection. In the last ten years there was a phenomenal increase of the electronic collections and the correlation between the availability and awareness was found among teaching and research users, where many of the participants were aware of the electronic journal collection available in their institutions. The young participants who used the online journals showed a high rank of awareness of the collections and willingness to resort for more electronic journals. Hence they believed that the data and the results would enable to target the users with respect to the age groups and disciplines for orientation.
Varaprasad & Madhusudhan (2010) examined the e-journal consortia and said that libraries have experienced many transformations along with time. Scenario has further changed with the information explosion and advent of Internet and telecommunications technologies. Information seeking has become much more complex due to ever increasing amount of data, in both printed and electronic forms, and no single library is self-sufficient to purchase all the books/e-books, journals/e-journals and other library documents within their library budgets. Library consortium is one of the solutions to overcome this problem. However, due to ever increasing prices of journals, vendor dominated market, lack of competition, and for other reasons, question of whether consortium approach, some of the experiences in accessing e-journals through this approach, a viable alternative for journal's price hike or not? This paper is a case study of CSIR e-journal Consortium and discusses need for consortia, types, advantages and disadvantages of a consortium, problems faced by the consortiums and possible solutions for some of these problems.

Baikady & Mudhol (2011) conducted a study entitled 'Web as a Learning Resource at the Medical College Libraries in Coastal Karnataka: Perception of Faculty and Students'. They opined that the Web resources have exploded in popularity and use and have lead to innovations in learning, teaching, clinical practice, and patient care. Availability of Web resources has changed what medical faculty and students actually read and use. However, little research has been done to find out medical faculty and students' perception about the Web resources in the medical college libraries. The main aim of this paper was to investigate the perception of Web as a learning resource by the faculty members and postgraduate students in medical college libraries of Coastal Karnataka. A questionnaire-based survey of six medical college libraries in
Coastal Karnataka was conducted. The results showed that respondents prefer using the Web more to the traditional library. They perceived that Web contains exhaustive knowledge and is easy to use.

Bhatia (2011) examined the use of electronic resources in degree college libraries in Chandigarh. She concluded that e-resources available in the library are playing a significant role in facilitating access to required information to the users in an easy and expeditious manner. The e-resources like CD-ROM databases, online journals, online books, OPACs and the internet are slowing replacing the importance and usage of print media. A study of 11 degree colleges in Chandigarh, which have students and teachers strength of over 30,000 was conducted. The sample selected for the study included 770 students which included 60 students and 10 teachers from each college. The objective of the study was to know the usage of e-resources and services by the users of degree college libraries, to find out the impediments encountered by the users while accessing and using the e-resources, and suggest measures to take full advantage of IT and make degree college libraries more digitally resourceful and for providing information services data from the users – teachers and students – to know the impact of e-resources. The author concluded by saying that the college library should play a pivotal role in facilitating the students and the teachers alike in the use of the internet, e-resources and other library information sources.

Moghaddaszadeh & Nikam (2011) conducted a study on the use of e-resources by the university library users of Iran and India. The objectives of the study were to find: The place from where University Library users access Internet; Their frequency of use of e-resources; The problems faced by the respondents while accessing the e-resources; and The benefits of using e-resources. They concluded that the field of library and information sciences has been studying
the impact of Internet/Web and e-resources on the academia. In this study an attempt was made to find out how do information literate research scholars and faculty members access e-resources for their work. The authors found that the demographic characteristics such as age and gender have same trend as seen in previous studies. There is not much change. There is a parallel dependency on the on-line and off-line databases. There is a significant difference in the frequency of use of facilities (F= 21.73; P< 0.001) for accessing information. A significance difference is observed in the use of e-books; e-journals, search engines and online-databases (F= 43.56; P< 0.001).

Natarajan (2011) conducted a study on exploring the E-Resources for Educational Use. In this study, the information seeking behavior of students, researchers and faculty in the e-environment were discussed in detail. He explored the Open Educational Resources (OER) created by different organizations are emphasized for open access. He concluded that the e-resources available in different formats helped and supported the researchers and faculty to carry out the research and for teaching in an efficient manner and quickly, as the e-copies were available in anytime and anywhere. The production and use of OER raised a number of issues including the open licensing. If materials were to be openly and freely shared, they must be licensed in a manner that promotes the desired objective. This article explored the different e-resources and mechanism of use and their impact to the library professionals also, with students and faculty.

Rattan (2011) conducted a study entitled 'A Voyage of Prints to e Prints'. The main findings of the study implied that the open access electronic sources provided the users an interface with which the user could access the documents from any source and any corner of the world through internet and World Wide Web. He concluded that the trend was slowly and gradually
gearing itself towards the paperless society i.e., from printed documents to electronic prints but the fact remains intact that the final output or product what the reader wanted was the hard copy document simply for the reason of joy of reading and less hazardous on health. Another fact also, couldn't be ignored that highly qualitative printed matter could be duplicated or replaced by electronic prints. Everyone could carry a portable video-voice text display device with him everywhere and anywhere.

Sudhakaran & Sivankutty (2011) conducted a study on Skills of New Genre Librarians: An Exploratory Survey of The Web 2.0 Skills of Library and Information Science Professionals in India. The objective of the study was to identify the awareness about web 2.0 and its allied technologies among the Indian Library Science Professionals To identify the range of influence the web 2.0 has made in improving their professional, communication and technological skills. To identify the role and attitude of library professionals in incorporating the web 2.0 services in their library websites. They concluded that Libraries and professionals have to be well sufficient to accept this change and should expand their services using technologies like web 2.0. As the need for information now is more user centered technologies like web 2.0 which acts a platform for collaboration, conversation and interaction has more to do in libraries. It's now high-time for library professionals to think about synchronizing these attractive features of web 2.0 in library services which in turn end's up with the ultimate aim 'user satisfaction'.

Thanuskodi (2011) argued that Information technology (IT) has thrown a new challenge to the libraries. The technology has shown a great impact on the services of the libraries. Libraries use IT for better services and satisfying diverse user needs. Libraries have transformed into digital and virtual libraries where books, journals, and magazines have changed into e-books, e-journals,
and e-zines. This has increased the global dissemination of information. Electronic resources (e-resources) are easily accessible in the remote areas. The e-resources solve storage problems and control the flood of information. Print sources are being digitized. There is a great need to study the use of e-resources and investigate the factors that are a hindrance to their use. The present study is an attempt to examine the usage of electronic resources at Dr T.P.M. Library, Madurai Kamaraj University. Study revealed that M.Phil. students respondents took the first position in their overall methods of searching e-resources, postgraduate student respondents the second position, PhD Scholar respondents the last position. The study confirmed that respondents were aware of the e-resources and various types of e-resources, e-database, and e-journals. The study recommended the improvement in the access facilities with high internet speed and subscription to more e-resources at Dr T.P.M. Library, Madurai Kamaraj University.

Thanuskodi & Ravi (2011) conducted a study on the Use of Digital Resources by Faculty and Research Scholars of Manonmaniam Sundaranar University, Tirunelveli. They said that the Sources of information available via the Internet are increasing exponentially, leading to steady increase in the use of Internet for education and research. Since past few years, free online information sources like ejournals, e-books, e-databases have increased considerably. Earlier, information and knowledge were passed by word of mouth or through manuscripts, and communication was a slow process. Today, it is passed from one individual to an infinite number of other users through a number of media and formats which makes rapid and widespread dissemination of information possible. The paper discussed utilization of digital resources by faculty and research scholars of Manonmaniam Sundaranar University, Tirunelveli. Results showed that 67.14 per cent of the
faculty was familiar with the use of digital resources, and majority of these members were using digital resources for research purpose. Study also revealed that majority of the faculty members was learning the required skills for the usage of digital resources through self-study.

Tyagi and Kumar (2011) conducted a study on measuring usage patterns of print & E-resources by scientists of pharmacopoeial libraries in northern India. The objectives of the study were to determine use and impact of electronic information resources on quality of research in pharmacopoeial libraries in Northern India, preferences of the scientists towards print and electronic information resources, pattern of using electronic information resources by scientists of pharmacopoeial libraries in Northern India. They concluded that scientific and technical problems had reached a level which required abundant, relevant and timely use of information. Information played an all-important role in scientific and technical activities. The work efficiency and productivity of scientists and the quality of work performed by them was affected significantly by the operation of the information system. Scientific and technical information had itself been recognized as a resource. In view of its role and importance as a resource, the issues relating to scientific and technical information were now finding a place of priority in the scientific and technological plans and programmes of several nations. Various scientific and technical libraries, documentation and information centres were being upgraded, improved and integrated to enhance their importance and role in the transfer of information. In this regard pharmacopoeial libraries of Northern India i.e. Indian Pharmacopoeia Commission (IPC), Pharmacopoeial Laboratory for Indian Medicine (PLIM) and Homoeopathic Pharmacopoeia Laboratory (HPL) had upgraded and improved their library & information centre at satisfaction level.

REVIEW OF RELATED LITERATURE
Aggarwal and Bhalla (2012) studied the teacher educator's preference for print and electronic resources of information. The methods and media of information storage and its dissemination had undergone a sea change meaning thereby, the traditional print media had been acquiring the shape of multimedia and hyper media as sources of information. This was applicable to most areas including education. Information seeking behavior of teachers and teacher educators has also transformed to a great extent. Earlier, teachers used to spend a lot of time in libraries, looking for books, journals, magazines and other print media to support their teaching and research. But, in the recent years, the focus had shifted from print to electronic resources. Internet has revolutionized the way teachers seek information. They spent time on the internet looking for e-books, e-journals and other relevant information sources.

Alison, Kiyingi & Baziraake (2012) studied the factors affecting the utilization of electronic health information resources in universities of Uganda. The article reports on a study done on electronic health information resources (e-resources) usage in three universities offering medical education in Uganda. One of the objectives of the study was to investigate the factors influencing utilization of e-resources, which this paper set out to examine. Data was gathered through interviews, questionnaires and citation analysis. Graduate students, teaching staff/researchers, heads of departments and librarians participated. The ATLAS.ti and Excel programs were used to analyze the qualitative and quantitative data respectively. The study revealed that utilization of e-resources was influenced by human and institutional factors. While usage was low, there was a significant relationship between usage and information literacy. Addressing factors that affect utilization of e-resources improves study, research, and ultimately patient care.
healthcare providers will make informed clinical decisions, quality of research and student grades will improve. It will guide curriculum development and/or revision in those fields and guide policy formation in setting up minimum standards for libraries in universities. E-resources are important in medical education because they support study and research. Addressing their utilization therefore improves library services, study, research and ultimately, healthcare.

Chandel & Saikia (2012) studied the challenges and opportunities of e-resources and declared that the advent of e-resources and their increased use have changed the library scenario from physical to virtual. Users’ preferences are now more for e-resources and virtual libraries with little attraction for physical libraries. In spite of innumerable advantages of e-resources, there are certain problems also relating to their acquisition, maintenance, management etc. which needs collaborative efforts of professionals and all other bodies associated with creation, distribution and use of these resources to establish the sound practices and the models. Researcher, in this paper, highlights the issues, emphasizing the need to develop or procure an ERMS which can integrate all these resources along with printed material to provide single window approach to all resources available locally as well as globally in a universal library.

Chaurasia and Chaurasia (2012) focused on the information seeking behavior of research scholars and P.G. students of Indian Institute of Technology Delhi. The purpose of the survey was to explore the use of information technology by the students and scholars of IIT Delhi for seeking information and particularly to know how they accessed E-Resources. The electronic journals were most preferred E-Resources by over 70% research scholars; electronic databases by 60% research scholars; whereas the electronic books were preferred by only
27% research scholars. It was found that electronic books were most preferred e-resource by over 65% P.G. students. While more than 60% P.G. students preferred electronic journals to seek information for their needs. The survey depicts that more than 60% research scholars and P.G. students responded that they required training for learning more about the E-Resources in order to wide access and make use of these E-Resources. In order to overcome the hindrances in accessing the E-Resources, the study recommends awareness programmes for the students and to provide training on E-Resources and retrieval skills.

Francis (2012) conducted a research concerning the evaluation of use of consortium of e-resources in agriculture in context of Kerala Agricultural University. The researcher was of the view that as digital information resources available online are increasing at an exponential rate, several practices have evolved for the economic and effective delivery of such information to the end users. In this context, consortia-based information services have gathered momentum world over during the last few years. Though, there are several library consortia in India, UGC Infonet is mainly meant for universities controlled by UGC and CeRA is meant for agricultural universities. This paper discusses utilisation of consortia-based digital information resources by the post graduate and doctoral students of the Kerala Agricultural University, Thrissur. Results show that cent percent of the students were familiar with the use of digital information resources available online and 87.14 per cent of them used CeRA. Eighty two per cent students were acquainted with CeRA and learned the required skills for the access and use of digital information resources through curriculum-based courses like 'library and information services', 'research methodology', etc. The students in general would like to strengthen the CeRA services by adding more resources and facilities.
Gaur & Tripathi (2012) argued that due to huge advances in information communication technologies (ICTs), there has been an astronomical growth of e-resources—e-journals, e-books, online databases and so on; libraries spend phenomenally on acquisition of these e-resources as these are very popularly used by the students and researchers. Unfortunately, this growth is accompanied by many threats. Digital content (of the e-resources) is fragile and not durable. Its accessibility and use by future generations depends on technology which very rapidly evolves and changes. Hence, ensuring access of e-resources for future generation of users is a big challenge for libraries. The present paper highlights various problems of digital content and elaborates how digital preservation is more demanding and challenging than preserving print copies of journals. It also gives a bird's eye view of various projects initiated for archiving digital content of scholarly journals.

Goria (2012) conducted a study entitled 'Role of consortia for effective use of e-resources in higher education: a practical approach in Indian libraries'. He stated that consortia based access of e-resources had been provided in most of the Indian libraries of higher education and research institutes during last decade. In consortium mode, users were able to access adequate desired scholarly e-journals in Indian libraries. The study provided brief overview of popular library consortiums of India. The study also described the techniques to increase utilization of the e-resources. Various emerging technologies i.e. RSS feeds, Google Reader, Delicious etc had demonstrated practically for effective utilization of e-resources with minimum efforts. Findings of this study highlighted emerging technologies and role of consortia for effective use of e-resources in Indian Libraries.

Hadagali et al. (2012) set out to investigate the use of e-resources by P.G. students of different universities of Karnataka. The purpose of the study was to
determine the knowledge and use of e-resources; users' skills in handling e-resources; to reveal the factors which influence the effective use of e-resources; problems faced by the respondents and to provide effective solutions to the problems encountered. The study found that the information content in e-resources is better than that of print versions; most of the users access e-resources to search bibliographical information. Lack of availability of personal computers and internet bandwidth were the two main problems faced by users. The study recommended formation of a consortium at the state level to add substantial e-resources to the existing collections in the university libraries.

Jayakanth, Minj & Dastidar (2012) conducted a case study on setting up of a open access digital repository. They concluded that setting up of institutional repositories has been gathering momentum in India and many academic and R&D establishments have made it mandatory to set up institutional repositories. The paper briefly details the work that has gone into setting up and configuring the digital repository of the Ministry of Earth Sciences. The repository has been set up using the free and open source software, GNU E-prints.org (http://eprints.org). Such a repository will not only help in the wider dissemination of the publications that emerge from the projects and programmes supported by the MOES, but it will also serve as an information management system for the ministry.

Ji, Michaels & Waterman (2012) examined the print vs. electronic readings in college courses: cost-efficiency and student learning. They reported surveys of 101 students in two undergraduate college courses about their usage of required readings accessed via a university-administered electronic reserve system. About two-thirds of respondents printed at least some readings, although nearly half of total page volume was read online. Most students who
printed incurred substantially lower total costs (in terms of both direct printing expense and time opportunity costs) than the projected price of a printed and bound course pack with all of the readings, or than they said they would have been willing to pay for such a course pack—thus suggesting that electronic provision is cost-efficient for most students. Respondents reported an overall preference for electronically supplied readings by a slight margin. The advantage of electronic reserves, however, was overwhelmingly perceived to be cost, but large majorities said they usually read more and learn more when printed readings are supplied. We interpret these findings to suggest that university and student incentives to employ electronically supplied readings may be misaligned.

Lal (2012) conducted a research on consortia based electronic information resource sharing in Department of Biotechnology Institutes in India. He stated that in the current era of information technology, the information needs of the users have increased considerably that no library individually can meet all the information requirements of the users. This has required the need for efficient association and collaboration between libraries and information centres for sharing their available resources and information through networking. The consortia approach can be considered as a major step towards library collaboration in sharing electronic resources. The paper described the DBT’s electronic resources consortium (DeLCON).

Millawithanachchi (2012) conducted a study entitled 'Electronic resource usage by postgraduates at the University of Colombo: Identifying the critical success factors'. The researcher argued that the e-resources have exploded in popularity and usage by helping users in retrieving, accurate, relevant and timely information as and when required for their learning and research needs. This case study was carried out at the University of Colombo to investigate the
critical success factors on e-resource usage of postgraduates. A questionnaire-based survey was employed to identify the factors on e-resource usage and multiple regression analysis was carried out to determine the relationship of these identified factors with overall e-resource usage. Factor analysis identified nine factors which affect on e-resource usage. Among the nine factors, postgraduates identified 'Technology' as the most critical factor in using e-resources. Library support, information literacy, computer competency, usefulness and user attitudes are identified as other factors for using e-resources for their learning activities.

Parmar (2012) attempted to highlight the present status of awareness and use of E-journals and CD-ROM database service among the faculty of Choudhary Charan Singh Haryana Agricultural University. She stated that e-journals were providing their significance in research and development activities. Various training programmes conducted time to time related to access and use of e-journals through CeRA as well as other sources. CeRA helped the information seeker to fulfill their information needs. This study helped the information professional to find out the possible problems, use of e-journals, search solutions and suggested the measure to enhance the use of e-journals.

Ramaiah (2012) studies the past, present and future of e-books and brought out some significant issues concerning them. Some of the areas that were fundamental for the development of e-books included: General issues related to digital books (electronic books, e-books), Issues related to e-book reader (hardware), personal digital assistants, etc., e-books user interfaces, e-book authoring tools and techniques, E-book publishing, e-publishing, and related issues, e-books pricing patterns–costing models, e-books licensing, Evaluation of e-books/e-book collections, Use and user studies of e-books in various types of libraries, e-books readers and e-reading habits, etc., Impact of

Ramaiah (2012) studied the user's perception about E-books in India. The paper aimed to study the users' understanding and acceptance of e-books in India. This study was carried out by conducting a survey using questionnaire as a tool to find out users' views on using e-books as compared to printed documents. This study was carried out during the period of January to March 2006 covering a wide range of ages, subject backgrounds, computer experience, occupations, and comfort in using computers in their daily life. The readers survey found that Indians are generally willing to use and read e-books though they continue to prefer and use printed publications. Generally, the users are aware of the advantages and limitations of each medium and will tailor their choice according to their needs. Of the total, slightly less than half of the users (41 %) are ready to pay the same or slightly lesser price as compared to printed publications, 24 per cent are half or quarter the price of printed publications.

Sreekumar (2012) studied the strategies on e-resources management for smart information systems. He opined that there has been a paradigm shift the world over, the way how information and knowledge is being generated, stored, accessed, disseminated and consumed. ICT is the game changer in this and it has propelled the growth of large numbers of electronic resources across the world. Organizations now spend a major portion of their budget for subscribing to electronic resources such as e-journals, e-books, bibliographic/full-text databases, online services and web portals. Switching over to the technology pedestal shall ensure the information systems an
exponential growth in the e-resource base, as well as faculty to outreach to a wider community at a 24x7 formula. Information systems could also explore numerous resource base enhancement innovations such as the UGC infonet, INDEST Consortium etc. and several open resource digital library technologies towards making the library vibrant, resourceful, accessible, and visible. As a measure of the impact on the scientific and research productivity, the increase in the overall scholarly intellectual capital of the institute could be matched against the improvement in research publications and the conferences, symposia, workshops etc. hosted by the organization. Quality improvement on the courses offered by the organization could also be considered.

Tyagi (2012) sought to study the user experience and perception of using different types of electronic information sources (EIS) by the scientists, pharmacopoeia associates and scientific assistants; to analyze the different purposes for which the EIS is used by the respondents and to access current user characteristics associated with use of online resources and databases at the Indian Pharmacopoeia Commission (IPC). The study is based on questionnaire method. A questionnaire was distributed among the scientists, pharmacopoeia associates and scientific assistants to collect desired data. Total 40 questionnaires were distributed to the selected sample for the current year, 37 valid samples were collected and analyzed. The result showed a growing interest in online journals among the users at IPC. The survey showed that majority of respondents marked that library possessed useful online journals and databases for the scientific community. The data scanned and preserved in document management software play an important role to access relevant information. Awareness among the users about the availability of online journals was found highly
satisfactory. Online journals were mostly used for research needs and similarly pharmacy and pharmacology discipline-based journals used widely. The EIS is better for accessing current and comprehensive information.

Vasanth and Anasuya (2012) conducted a research on consortia based e-resource subscription in Karnataka. The objectives of the study were to explore the status of connectivity to the national consortia's among the science libraries, to evaluate the existing consortia accessed by science libraries with respect to relevance, cost effectiveness, coverage of information sources and satisfaction of users and to understand the problems of science libraries in accessing e-resources under consortia. They suggested that educational and cultural infrastructure must change to meet the challenges; addressing them through new and creative educational techniques Library consortia could develop standardized customer service delivery programs. This would save the libraries from having to develop each program from scratch, and consortium members could derive benchmark data after the program had been implemented. Consortia could also provide training programs to assist libraries in the development of customer service programs and on techniques for staff to practice for good customer service delivery. In Karnataka there was no well defined legal procedure to interpret the licensing and copyright issues relevant to electronic information and access.

Nisha(2013) found that most of the users were aware of e-journals and they were not only using them for building and updating their knowledge but also for collecting relevant material for their study and research purposes as information could be acquired expeditiously through e-journals. The main aim of consulting these journals was for retrieving information regarding research, publishing research papers and manuscripts, assignments, presentations, seminars, and largely to updated their own knowledge.
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However, this study also revealed several inherent problems especially with the use of e-journals e.g. slow downloading as revealed by maximum IIT Delhi and Delhi University users. Other mechanical deficits like non-availability of a particular issue, lack of training and limited access to terminals were also present while using e-journals.

Prathap (2013) described the e-resource usage and research productivity. He stated that the best performing laboratories in the CSIR from the point of view of optimally accessing and using e-resources are identified using performance indicators derived from number of scientists in the laboratory, number of downloads during a prescribed window, number of publications during the same window and the total citations earned by these papers during a citation window of one year following the publication window.

Zell (2013) conducted a research on print vs electronic, and the digital revolution in Africa. He stated that there is a great deal of excitement nowadays about digital publishing on the African continent and, most recently, about e-book reading devices that may serve as a catalyst to foster a new culture of reading. The term 'digital revolution' keeps popping up in dozens of articles and news stories; it is a term that has perhaps been used rather too liberally, sometimes for projects that are anything but revolutionary. This article takes a critical look at the print vs digital debate in Africa, taking stock of the current position as it relates to electronic publishing and the use of electronic reading devices in (English-speaking) sub-Saharan Africa, and the rapidly changing publishing environment on the continent. It describes and critically examines a number of projects and initiatives that are concerned with digital printing and publishing, and provision of e-book reading devices. It should be added that the 'digital revolution' does of course apply right across all media, and it is not only book publishers that are struggling to adjust to the
different publishing landscape and trying to find the right balances. However, the implications of the new digital environment as it relates to newspaper publishing, publishing of scholarly journals, or magazines, are not examined in this article.

The above review of related literature signifies that a lot of studies have been conducted which have sought to compare journals. But only a very few studies have studied the transition pattern of users of these libraries. Therefore, the present research gains importance. The medical health science libraries are also facing this transition phase all over the world. In India, this transition has gained momentum now. The users are slowly becoming more and more dependent on e-resources. Print material is becoming outdated. However, there is need to study the transition from print to electronic resources in the present context.

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