CHAPTER - 2
REVIEW OF LITERATURE

1.0 Introduction
Review of literature is an important activity for any kind of research. A literature review is a body of text that aims to review the critical points of current knowledge on a particular topic. A literature review discusses published information in a particular subject area, and sometimes information in a particular subject area within a certain time period. There are number of reasons for spending time and effort on a review of the literature before embarking on a research project. These reasons are as under:

- to identify gaps in the literature.
- to avoid reinventing the wheel (at the very least this will save time and it can stop researchers from making the same mistakes as others).
- to carry on from where others have already reached (reviewing the field allows researcher to build on the platform of existing knowledge and ideas).
- to identify other people working in the same fields (a researcher network is a valuable resource).
- to increase researcher breadth of knowledge of his subject area.
- to identify seminal works in its area.
- to provide the intellectual context for researcher own work, enabling researcher to position its project relative to other work.
- to identify opposing views.
- to identify information and ideas that may be relevant to project.
- to identify methods that could be relevant to the project.

2.0 Review of Literature on Use of E-Journals
The review of literature for this study has been discussed under the following areas:

i. Use of e-journal in natural sciences
ii. Use of e-journals in social sciences and humanities and
iii. Use of e-journals in universities and institutions.
2.1 Use of E-Journals in Natural Sciences

The information seeking behaviour of astronomers, chemists, mathematicians, and physicists at the University of Oklahoma was assessed using an electronically distributed questionnaire. All of the scientists surveyed relied greatly on the journal literature to support their research and creative activities. The mathematicians surveyed indicated an additional reliance on monographs, preprints, and attendance at conferences and personal communication to support their research activities. Similarly, all scientists responding scanned the latest issues of journals to keep abreast of current developments in their fields, with the mathematicians again reporting attendance at conferences and personal communication. Despite an expression by the scientists for more electronic services, the majority preferred access to journal articles in a print, rather than an electronic, form (Brown 929-943).

Nikam and Kumar (125-130) examine the behaviour of research scholars and faculty members of select departments at the University of Mysore like environmental science, sericulture science, zoology and genetics form the sample. Structured questionnaire with 5 point scale was used and the mean and SD values were calculated using SPSS. The findings of the study revealed that users use both print and electronic sources of information. Majority of the respondents had learnt to use e-journals effectively from 'friends/colleagues'. The respondents 'look for quality controlled scientific and scholarly journals'. Respondents identify relevant electronic articles by 'browsing through recent issues' (mean=3.39) followed by “searching full-text databases from publishers or aggregator”.

Gupta (213-230) analysed the use of electronic journals from the INFONET consortium by faculty and research scholars of physics and chemistry at Kurukshetra University, India. The paper was based on the results of a questionnaire distributed to all the teachers and research scholars of the two departments. The main findings were that the respondents were more attracted towards e-journals than print journals. However, they depend more on open-source materials than those available via INFONET. Respondents also identified the need for training in using e-resources and retrieving information from them from time-to-time (Gupta 213-230).
Another study by Baljinder and Verma (611-622) find out the usage of electronic journals and how the users were used the services and the place where the information was accessed. Also, the users were asked to give their preferences between an electronic and print journal format. The questionnaire method was used for collecting the data from the users (i.e. undergraduate, postgraduate, research scholar and faculty), categories-wise. It was found that usage of e-journals was increasing; this was due to awareness among the users about the library e-resources and services. Owing to an easy access available at various places in the institute, users were accessing these resources at hostels and departments more as compared to the library.

The use of e-journals by the health care professionals of HMPCME and that of print journals which can be availed at the behest of library at Pramukhswami Medical College (PSMC), Karamsad, Gujarat-India was conducted by Trivedi and Joshi. From this survey it was found that most of the research scholars i.e. (Doctors, Physicians, Medical officers, Interns, Post Graduate students, Residents) were referring to e-journals, as well as print journals from their departmental library as well as computer center in the central library. The main aim of consulting these journals was for retrieving information regarding research, dissertation, presentations, seminars, lectures, treatment protocols for unusual cases and journal clubs etc and largely to update their own knowledge. However, this study also reveal several inherent problems especially with the use of e-journals e.g. computer illiteracy, lack of computer training, inability of retrieving particular/relevant health based information via various advanced databases like MD-Consult, EBSCO, ProQuest, Science Direct etc. Other mechanical deficits like slow downloading, slow connectivity, and subjective strain to eyes were also present while using e-journals.

A study was conducted to review the past, present and future trends of electronic journals (e-journals) in general, and more specifically, chemistry and biochemistry journals. The author discussed various issues involved in e-journals and their subscription models and provides some professional tools and figures. The growth, characteristics, and distribution patterns of e-journals, aggregators leading e-journal packages, and pricing options were also examined. A feasibility
study for the acquisition of a core collection of electronic journals in chemistry and biochemistry by the City University of New York (CUNY) libraries (Gandhi 21-32) were examined.

This paper describes the current state of electronic journal usage among Japanese medical researchers, and discusses the subsequent effect on users' decision whether to read articles on paper or on screen; from what types of full text source they obtain the articles. The names of 2,033 medical researchers affiliated with 80 medical schools in Japan were extracted and the researchers were surveyed. The questionnaire included questions on various aspects such as demographic features; preference of researcher with regard to print journals and electronic journals, search method used to obtain the most recently read articles; the types of methods used to search for articles; awareness and use of "open access" sites. The major findings were: 70% of the most recently read articles were electronic journal articles; 80% of the electronic journal articles were provided by academic libraries, while 60% of print journal articles were from private subscription journals; search engines were not used, but PubMed was used primarily to search either print or electronic journal articles; in general, open access methods were not recognized by researchers as one possible route for obtaining the articles although PubMed Central constituted about 10% of the most recently read electronic journal articles; no significant differences relating to article usage patterns were observed among age groups, however, large differences were found among fields of research (Kurata 59-90).

The article reports the results of a survey on the use of printed and electronic journals in a science library and found that more than 80% of the respondents frequently use and prefer an electronic format, irrespective of their rank or age. Most previous studies found an inverse relationship between e-journal usage and age, but these results indicate that by now users of all ages switched to the electronic format not only in terms of usage but of preference as well (Bar and Fink 363-376).

A survey by the members of the American Astronomical Society was conducted to identify how astronomers used journals and what features and formats they preferred. While every work field was distinct, the patterns of use by astronomers may provide a glimpse of what to expect of journal patterns and use by other scientists. Astronomers, like other scientists, continue to invest
a large amount of their time in reading articles and place a high level of importance on journal articles. They used a wide variety of formats and means to get access to materials that were essential to their work in teaching, service, and research. They selected access means that were convenient - whether those means be print, electronic, or both (Tenopir 786-802).

The main focus of the research done by B. Kaur (95-109) was to discover the users' awareness, usage and impact on the e-resources in Engineering and Technology Institutions in India. The study about e-resources was carried out in four prestigious institutions of India, IIT, Delhi; IIT, Roorkee; TU, Patiala; and PEC, Chandigarh. Questionnaire method was used to examine and collecting the data from students as well as faculty. The results demonstrated that an academic library can become user centered in the electronic environment. Users had accepted the e-medium and now they were using e-resources. The use of e-journals had increased manifold. The printed material is being quickly replaced by the electronic medium.

Moghaddam and Talawar (15-29) investigate the use of scholarly electronic journals at the Indian Institute of Science, a random sample of the main cohort was selected and 700 copies of the questionnaire were distributed among 40 departments of IISc; 397 completed and valid questionnaires (56.7 per cent) were received. The result showed a growing interest in electronic journals among the users at IISc. Electronic journals were mostly used for research needs and PDF was the most preferred format. The fact that users have free access to electronic journals at all hours from their own computers seems to be the most appealing feature.

Istanbul University faculty were surveyed to examine their use of electronic journals. The majority of respondents supported the transition from print to e-only. This support was particularly provided from the faculty in the field of natural sciences. About three-fifths of the respondents reported that the major barrier to use of e-journals was the lack of subscriptions in their field (Dilek-Kayaoglu 239-247).

Borrego and Urbano (243-258) analyse the behaviour of the users of a package of electronic journals using the data of consumption per IP address. The paper analyses the data of consumption at the University of Barcelona of 31 electronic journals of the American Chemical
Society (ACS) in 2003. Data of sessions, articles downloaded and abstracts viewed were analysed. Most of the consumption was concentrated at a few IP addresses, and most of the users made little use of the information available. There was found to be a greater dispersion of the consumption of electronic information than of information on paper. Finally, it was determined that the number of abstracts viewed is a good predictor of the number of regular users of a journal.

To determine the extent to which research scholars at Central Science Library, University of Delhi were aware and make use of e-journals, a survey was conducted by Ali and Nisha (53-60) designed to collect basic information about the level of use of electronic journals as well as other factors contributing to and associated with their use. The findings clearly reveal that more than 60 per cent of users in the Central Science Library are using e-journals weekly for the purpose of research. Printed journals were consulted by the majority of users compared with e-journals. Keyword was the most popular search method for searching e-journals among research scholars, whereas the date of publication carries the least percentage among all the options. It was also found that slow downloading of PDF files was the major problem that would discourage users while using e-journals.

Chrzastowski examines e-journal use in the USA at the Academic Chemistry Library, University of Illinois at Urbana-Champaign. The University of Illinois at Urbana-Champaign (UIUC) Chemistry Library, an early adopter of electronic journals, began collecting e-use data biannually in 2000. Longitudinal e-journal use data show that users were also early adopters who migrated completely from print to e-journals within six years. During this decade, e-journal use exploded as the Chemistry Library purchased additional content and e-access became the user-preferred format. After years of growth in collection size and use, e-use nudged up less than 2 per cent between 2006 and 2008; however, use jumped again in 2010, increasing 9.3 per cent between 2008 and 2010. Over 1.8 million chemistry and science article views or downloads are projected to be accessed by UIUC users in 2010 based on data gathered so far this year. Over 1.8 million chemistry and science views or PDF downloads per year indicate that the library has moved beyond user acceptance to a new model.
2.2 Use of E-Journals in Social Sciences and Humanities

Disciplinary differences in the use of electronic journals by academic staff and students was explored by Bonthron and he also tried to find out whether library services need to differentiate between staff and students when planning support services for electronic journals. Interviews were conducted with 35 staff (in-depth study) and over 500 students (cross sectional survey). Results indicated that academic staff incorporate electronic journal usage into their working patterns in different ways than students and that these differences may affect attitudes towards support services (library Web pages, Virtual Learning Environments) designed to promote electronic journal usage.

Another paper on the use of UGC-Infonet e-journals by research scholars and students was written by Mashusudhan (369-386). The main aim was to identify the needs and requirements of users in general and to know the use of UGC-Infonet Library and Information Science e-journals in the University of Delhi by research scholars and students of DLIS in particular. A survey was conducted through a questionnaire circulated among 40 research scholars (PhD and MPhil) and 28 students (MLISc) studying in the DLIS, University of Delhi, Delhi. The study showed that e-journals perform an increasingly important role in research at DLIS. Not only current e-journals are required, but research scholars and students need to be provided the use of significant electronic back runs as well. There is an ever increasing demand for subscriptions of more e-journal titles in LIS.

The study aims to identify the acceptance of e-resources in the National Social Science Documentation Centre (NASSDOC) library in New Delhi, India and determine their usage, performance, degree of user satisfaction, and barriers faced in the access of e-resources. It also attempt to find out the users' views about computer literacy among the social scientists. The data were collected from the entire population of social scientists at NASSDOC through a questionnaire accompanied by personal interview. The major findings of the study indicate that respondents were aware of the e-resources (such as e-books, e-journals, e-encyclopedias, e-theses, CD-ROM databases, e-mail, internet and the OPAC). Large numbers of research scholars and faculty members were using these e-resources for their research work. Many faculty members strongly agreed with the necessity for computer and internet literacy to access
information. A majority of users were satisfied with the e-resources available at the NASSDOC library (Haridasan and Khan 117-133).

In a paper Wu and Chen (641-652) investigate graduate students’ perceptions of electronic resources, their search behaviour, and their usage patterns. Interviews were conducted in a research-oriented university, and participants included 18 graduate students from three disciplines: humanities, social sciences, and science and technology. Graduate students were frequent users of electronic resources, particularly during the thesis-writing period. Graduate students of science and technology perceive electronic resources to be considerably more important to their research and studies than students of other disciplines do. Few students used the meta search tool to retrieve heterogeneous electronic resources in the library. Very few students used alert services to obtain updated information.

Another study conducted by Wu and Chen (457-472) to find out the usage pattern of e-resources by humanities graduate students. In this study 20 humanities graduate students were participated. Following an analysis of the citations in their theses, list-checking and follow-up interviews were conducted. The results 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 internet. The availability ratio of journals was higher than that of books. Students' acceptance of e-journals was higher than that of e-books.

Tahir, Mahmood, and Shafique (122-136) assessed the use of electronic information resources and facilities by humanities scholars at the University of the Punjab, Lahore, Pakistan. A questionnaire survey of faculty from arts and humanities departments at the University of the Punjab was conducted. The results show that the humanists still stick to the printed information sources but they focused good attention to electronic resources. Most of them had access to computer and internet at office and home. They were regular users of a variety of electronic technologies. Although they faced many problems, the humanists perceive that modern technology made their work easier. Keeping in view the positive trend of humanists towards modern technology, author suggested that the universities and libraries should give more funding
to provide electronic resources and facilities in the arts and humanities discipline. Special training programmes for humanists should be organized.

2.3 Use of E-Journals in Universities and Institutions

Libraries have greatly expanded their monetary and infrastructure investments in electronic journals. In addition, libraries had dramatically expanded their e-journal holdings through consortia agreements, publisher licenses, and aggregator subscriptions. User studies show a marked increase in the use of e-journals and a growing reliance on online journals for scholarship and instruction. The increased availability and usage of electronic journals has presented libraries with critical management, bibliographic control, and access problems. Mischo et al. (29-59) explore e-resource management and bibliographic control mechanisms and access solutions, and examines the evolving relationship between e-resource management systems, the online catalog, local link resolvers, and full-text e-journal repositories. To address these interoperability issues, the University of Illinois at Urbana-Champaign (UIUC) Library has developed several management and access tools. The Online Research Resources (ORR) combines a relational database, a searchable A-to-Z list, and elements of an electronic resources management system. The Journal and Article Locator (JAL) utilizes metasearch technologies over the ORR, the local OPAC, the local link resolver server, and the CrossRef metadata database to provide unified access to both electronic and print journal holdings and full-text articles.

The growth and diversity of electronic journals (e-journals) in the past five years has led many to predict the extinction of print journals and that a new paradigm is sweeping scholarship. Some others, however, believe that future electronic scholarly journals will be different from their print antecedents and fill a different niche, and will be necessary for the growth of knowledge. This paper considers the future of e-journals in the light of the use and perception of graduate student end-users, and their expectations of future e-journals. Some results from a recent user study presenting significant implications for the design of future e-journals are reported. The results show a significantly high acceptance of e-journals by this category of users. Generally, e-journals are expected to be different from print journals, with novel forms of functionality not possible in their print counterparts (Liew, Foo and Chunnupati 302-315).
Borrego et al. (243-249) highlights the major importance that researchers assign to scholarly journals as the main source of scientific information. Most stated that they used electronic journals either exclusively or in any case more than print journals, a preference that is higher among younger scholars. With regard to frequency of reading, four out of ten researchers state that they read journals virtually every day, while nine out of ten report that they do so at least once a week. Scholars claim that the obstacles they face when trying to download an article are related to the lack of subscriptions. However, the availability study showed that most of the articles cited in their publications are available at least at one of the CBUC libraries.

Borrego et al (67-75) presented the results of a survey on the use of electronic journals by the academic staff of the universities belonging to the Consortium of Academic Libraries of Catalonia (CBUC). The results show that a high proportion of teaching and research staff are aware of the collection of electronic journals and that there is an increasing preference for the electronic to the detriment of the printed format. The collection of electronic journals is highly valued and most users expect to increase their use of them during the next few years. The results also confirm the importance of discipline and age as explanatory factors of the use of electronic journals.

The purpose of this paper was to expand on previous quantitative and qualitative research into the use of electronic information resources and its impact on the information behaviour of academics at Catalan universities. A focus group was set up, comprising seven members of the staff of five Catalan academic libraries. Participants confirmed the increase in the amount of journal reading among academics, due to the increase in the number of electronic journals available and the improvement in the tools for locating and accessing this information, especially off-campus access. Librarians were well aware of the importance of internet search engines as the first information source for academics (Olle and Borrego 45-54).

Raza and Upashyay (170-179) examine the usage of e-journals by the researchers at Aligarh Muslim University. The survey reveal that all the researchers were aware of e-journals in AMU. From this survey, the investigator find out that many research scholars were consulting e-
journals from their departmental labs and computer centers, not only for research purposes but also to update their own knowledge. However, the study also revealed several problems, including lack of training and slow downloading. The researchers’ feelings about the need for print journals as well as electronic journals were also discussed.

A structured questionnaire was designed to elicit the opinions of the users examines academics attitude towards e-journal use. Responses were gathered from 542 faculty members of five universities. The results showed that the characteristics that affect the choice of e-format over print in order of preference are ‘faster access’, ‘available from desktop’, ‘convenience’, ‘remote access’, ‘timeliness’, ‘available at all times’, ‘hyperlinks’, ‘multi-user access’, ‘currency of information’, ‘inclusion of audio–video material’, ‘interactivity’ and ‘animation of graphics’. The characteristics that affect the choice of print format over electronic in order of priority are ‘physical comfort’, ‘portability’, ‘ability to underline’, ‘familiarity with format’ and ‘ability to browse’. A majority of the teachers use e-journals for ‘research’, ‘teaching’, ‘writing reports’, ‘current awareness’, ‘background research’ and ‘internal/external presentations’. The problems faced in accessing e-journals were ‘access difficulties’, ‘discomfort of reading from computer screen’, ‘lack of IT knowledge/skill’, ‘information overload’ etc. A majority of the teachers want future e-journals to have features such as ‘full text index of every article’, ‘searching capability across a wide range of journal articles’, ‘searching capability within an article, display relationship between a wide range of works’ and ‘links to multimedia files’, etc. (Amritpal Kaur 182-193).

Nisha and Ali (57-64) examined the use of e-journals by the users of IIT Delhi and Delhi University. Survey research was conducted to access e-journal use among IIT Delhi and Delhi University users. A stratified random sample method was used for selection of respondents. The survey was conducted through a structured questionnaire taking a random sample of 300 users (PG and PhD) from different disciplines of IIT Delhi and Delhi University libraries and the response rate was 66.66 per cent. This 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 can 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 update their own knowledge. However, this study also reveal 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.

To study the use of electronic journals by doctoral research scholars of Goa University, Goa (India), a survey was conducted. The main aim was to know the use of e-journals for research work and to highlight the problems in accessing e-journals, degree of utilization, and influence of e-journals on research work. The study found that e-journals had become vital part of information for research work. Most of the respondents were accessing e-journals from the Department Computer Labs for their research work and e-journals meet the instant desire of users to have an access to information. Springer and Kluwer was the leading publisher. Boolean Search was the most popular advance search technique. The study reveal that there was a need for user orientation for efficient searching of e-journals. The most common problem faced by the respondents was that there was difficulty in accessing full text and many of the respondents were not satisfied with the internet facilities available in Goa University (Chirra and Madhusudhan 12-15).

To determine the use of e-resources, users' skills in handling e-resources, and the purpose of their use a survey was conducted. Further, the paper highlighted the problems faced by research scholars in accessing e-resources, their opinions on feature of e-resources, and their views on usefulness of e-resources compared to that of conventional sources. The paper concludes that electronic resources had become an integral part of the information needs of research scholars at Kurukshetra University. Further, it find that e-resources can be good substitutes for conventional resources, if the access is fast, and more computer terminals are installed to provide fast access to e-resources (Madhusudhan 492-506).

Mirza and Mahmood (123-131) attempt to evaluate the effectiveness of electronic resources and services in Pakistani university libraries on the basis of users' satisfaction. A survey method was
employed to conduct the research by using convenience sampling, eight university libraries; four each from Islamabad and Lahore including two from the public sector and two from the private sector having IT applications, were included in the users survey. A semi structured questionnaire was designed to collect data, while a five-point Likert Scale from 1 (Dissatisfied) to 5 (Extremely satisfied) was used to measure the satisfaction level of the respondent. The study concluded that Pakistani university libraries were offering effective electronic resources and services to their users.

Boukacem and Schopdel (121-126) investigate the usage of electronic journals in 68 French universities members of the COUPERIN consortium. The study was based on statistical data on usage, libraries and journal packages collected by the EPEF project from different sources (publishers, Ministry, survey results), from 2001 to 2005. The article provided information about local metrics for eight packages (serials), e.g. usage trends, requests per package and user, costs per request and user, as related to the scientific specialty of the university (STM; SS&H, multidisciplinary etc.). Whenever possible and reasonable, the data were compared with results from UK and US research. The paradoxical situation of SS&H was discussed. This was the first study on usage statistics in French universities and probably one of the first based on a nation-wide survey.

This article reports the results of a survey of Texas A&M University faculty use of electronic journals to determine their acceptance of the journals. Three hundred and fifty faculties were selected. The survey instrument included questions concerning the preferred format of journals (paper versus electronic); the reasons faculty were or were not using e-journals; and faculty concerns about e-journals. Faculty were also asked about other journal format choices for library collections and individual subscriptions. The findings suggest Texas A&M faculty were cautiously optimistic about electronic journals but unwilling to forego print journals (Tenner and Yang 1-14).

An extensive survey of the senior academic staff of the Israeli universities was conducted to find out the use of electronic journals and databases. The finding reveal that the use of electronic sources was already widespread among the respondents and more than 50% found the electronic
services indispensable. Disparities were also found between the usage patterns in the different disciplines (Bar, Peritz and Wilman 346-361).

Olorunsola and Adeleke (588-598) report on research that examined the issues of e-journal subscription, subscription models and the future of print version of journals in Nigerian universities. A survey was used to collect data from the selected 30 universities that covered the six geopolitical zones of Nigeria. The study revealed that Nigerian universities subscribe to e-journals, i.e. full-text journals only. They employ acceptable models for subscriptions, however, they use consortium more than any other model. Most libraries want to retain print format.

Borrelli, Galbraith and Brady (26-33) examined the use of geology journals at Washington State University (WSU), before and after electronic access was provided, to determine if the use of the print collection increased as in the previous studies at WSU of three other science disciplines. The number and source of articles cited by WSU geologists from 1998 to 2004 was also examined to determine the impact of electronic access on citation patterns. In light of inflation and package deals, librarians need to understand how faculty use journals.

This study examined the users of electronic journals published in a hosting system called EJUM (Electronic Journal of the University of Malaya) and their perceived satisfaction with the electronic journals as well as their preferred features in electronic journals and problems faced when using them. The Malaysian Journal of Computer Science (MICS), Malaysian Journal of Library & Information Science (MJLIS) and Journal of Problem Based Learning (JPBL) are being hosted by EJUM. Users seem to use the electronic journals to mainly support research and teaching needs. About 50% of respondents rated the journals as "good", 20.6% rated "fair". Respondents seem to find out about the journals mainly serendipitously as they were browsing the Internet or "found out from a conference paper" or "saw information about it in an article". Keywords (28.9%) and title (24.3%) searches were chosen by a third of respondents respectively. The majority of respondents (70%) indicated preferring retrieving articles in PDF or HTML. About 41.8% of respondents access the electronic journals while making searches on Google or Yahoo. The next most selected option was "from specific journal hosting system" (21.8%), followed by "from my library web portal" and "from citation links found in another resource".
Most respondents scan the abstracts first to check relevance and then download the articles. Most respondents believed that electronic journals will co-exist with print journals (46.2%). The rest believed that electronic journals will replace the print journals (25.5%) or will supplement (25.5%) (Rani and Zainab 105-120).

Dutch faculty was surveyed by Voorbij and Ongering (223-237) as to their use of electronic journals. It was found that electronic journals had become indispensable for scientists and social scientists, and have a profound effect on information behaviour.

Wulff and Nixon (315-322) examine the patterns of use of electronic versions of journals supplied by an academic health sciences library to determine whether they differed from patterns of use among corresponding print titles and to relate the applicability of print collection development practices to an electronic environment.

Use of e-journals by the researchers of the Aligarh Muslim University (AMU) and the Banaras Hindu University (BHU) were studied by Khan and Ahmad (708-717). A well-structured questionnaire was administered to the research scholars of the AMU and BHU to collect data regarding the use of e-journals. The survey revealed that most of the research scholars were aware of the availability of e-journals and largely used them for reference purposes in their research work. They fully agree that with the usage of e-journal the quality of research work improves with enrichment of appurtenant contents and materials leading to high-quality manuscript. It was also found that lack of training was the obstacle in proper and full utilization of e-journals.

Kumar and Kumar (137-156) examine the perception and use of e-resources and the internet by the engineering, medical and management academics in Bangalore City, India. The prime objective was to find out how academics compare e-sources with print sources and how they perceived the advantages of e-sources and problems for accessing them. Study showed that the students and faculty who participated in this survey were aware of e-sources and also the internet. Even though a majority of the academic community used electronic information sources for their academic-related work, most of them prefer print to electronic information sources.
Many of the students and faculty learned about the electronic information sources either by trial and error or through the advice of friends.

Alison, Kiyingi and Baziraake (90-96) investigate factors influencing utilisation of e-resources in three universities offering medical education in Uganda. Data was gathered through interviews, questionnaires and citation analysis and graduate students, teaching staff/ researchers, heads of departments and librarians were participated. The study revealed that utilisation 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 utilisation of e-resources improves study, research, and ultimately patient care.

Mirza and Mahmood (123-131) attempt to evaluate the effectiveness of electronic resources and services in Pakistani university libraries on the basis of users’ satisfaction. A survey method was employed to conduct the research. Using convenience sampling, eight university libraries; four each from Islamabad and Lahore including two from the public sector and two from the private sector having IT applications, were included in the users survey. The total population (i.e., 40,236) of library users was very large; therefore, a reasonable, manageable and convenient sample of 800 library users, including 100 users each from the eight libraries was selected. A semi structured questionnaire was designed to collect data, while a five-point Likert Scale from 1 (Dissatisfied) to 5 (Extremely satisfied) was used to measure the satisfaction level of the respondent. The study concluded that Pakistani university libraries are offering effective electronic resources and services to their users.

Colorado State University faculty, graduate students, and administrative professionals were surveyed in spring 2001 to determine their usage and acceptance of e-journals. A majority of respondents used e-journals at least monthly and preferred multiple access points on the Libraries Webpage and OPAC. Almost all respondents supported adding electronic access to print journal subscriptions, but fewer respondents supported cancelling print subscriptions and relying on the electronic subscriptions. Respondents strongly supported having access to journal back runs older than four years and believed that the Libraries had a good balance of print and electronic resources.
A qualitative study of the impact of electronic journals on the information behaviour of academic researchers at Catalan universities shows that academic researchers now read more, and more widely. However, their reading was becoming more superficial; they were compelled to improve their discrimination skills in order to decide what to read in more depth. The electronic accessibility of journals means that researchers now make fewer library visits. Web browsing and table of contents (TOC) e-mail alerts are replacing physical browsing, and searching is a very popular option for keeping up to date with developments. Internet search engines, especially Google and Google Scholar, were becoming important sources of information for researchers. However, they face problems in managing their personal scientific information (Olle and Borrego 221-228).

Zhang, Ye and Liu (67-77) report on users' information behaviour in China. The aim was to help producers and providers collect and develop more electronic resources. The study investigated users' information behaviour at seven "211 Project" universities in Wuhan, a city in central China. These universities all have access to the resources of the National Science and Technology Library (NSTL). The questionnaire includes questions about respondents' basic identifying information (educational level, job, etc.) and their information service requirements. Correlations among users' education level, users' jobs, users' retrieval methods, literature use, etc. were analysed. The results showed that most NSTL users are graduate students and young staff members and the number of male users surpasses female ones slightly. The purpose of the utilisation of electronic resources for customers was scientific research, teaching and the need for self-development. During a year, the demand of users was the highest in March and the lowest in August. The users' knowledge service types include learning the progress of science and technology, citation retrieval and analysis, statistical analysis, intelligent retrieval and knowledge aggregation.

In the past decade, electronic journals have received much attention from both researchers and practitioners in scholarly communication. A large amount of research has been conducted to explore how faculties and graduate students use electronic journals. In this article, the main literature on this topic is reviewed in terms of 1) overall trends of use and users, 2) factors that
affect their usage, and 3) users' perceptions from 1995 to early 2004. Most faculty members, especially natural scientists, use electronic journals as a useful and convenient tool for reading articles. They usually visit library web sites to obtain an article as a PDF file and print it out for reading. Specific functions of electronic journals, such as links to references and early view, are highly valued by users, but motion picture, animation, and pay-per-view are not frequently used. Although some faculties visit the library less frequently, they valued the library as an institution that provides scholarly journals and as a repository. Each users' discipline, age, rank, work place are often recognized as factors that affect their usage of electronic journals. Those who major in natural science, are young, and belong to a large university or institution, tend to be heavy users and early adopters of electronic journals. In its early stage, the legitimacy and authenticity of electronic journals were doubted by most users. Such doubts, however disappeared by degrees as prestigious commercial publishers and learned societies have begun to provide their own scholarly electronic journals. Users value usefulness, timeliness, accessibility, and the ability to search electronic journals. However, at the same time, they feel that electronic journals are hard to read on display and their perpetual archiving is not guaranteed (Mine 17-39).

Another study by Bravo and Diez (181-195) describe the models of consumption of the academic communities of five Spanish universities with regard to the use of contents distributed by four major providers of electronic journals from the time at which subscriptions were first taken until 2010. Similarly, the authors undertook an initial approach to assess the value of the financial investment in such subscriptions on the basis of data from the Spanish universities of Leon and of Vigo.

Research was carried out at the University of Parma with the purpose to investigate the organisation of e-journal titles from a user viewpoint, in order to find out what influence the approach adopted by the library may had on the use of e-journals and what characteristics the organisation of e-journals should have to enable an easy discovery of resources. The case study involved students, faculty members and library staff in classics and medieval studies. The group of users appeared still reluctant to use e-journals, the main barriers to use being lack of awareness and limited number of relevant resources. Users were favourable to being provided with multiple points of access to e-journals. Their preference appeared to be based on the
familiarity of the method and similarity to the organisation of their physical library. The organisation of e-journals adopted at Parma had the potential to meet the users' expectations, but its actual implementation seemed to require more effective promotion and user-centred design (Bevilacqua 416-429).

Tripathi and Jeevan (134-156) highlighted the importance of quantitative and qualitative analysis of the usage of e-resources in academic libraries. It also describes various studies undertaken to study the users' behaviour and attitude towards e-journals. It was found that the usage statistics help in studying and evaluating the users' behaviour in an online environment. The library services can be extended and modified, to reflect user interests suiting the users the most, in the light of the evaluation and analyses done.

3.0 Conclusion

After reviewing the published literature in various online databases such as Science Direct, Emerald, LISA, Scopus, Web of Science etc., related to the use of electronic resources and especially on the use of e-journals, the following conclusions are drawn:

Number of studies have been conducted on the use of e-journals and majority of authors study the users’ perceptions of electronic resources, their search behaviour, and their usage patterns. Use of e-journals was found maximum in field of natural sciences followed by social sciences and humanities and users in the field of humanities were more inclined towards printed resources as compare to electronic resources. In all the studies it was noted that most of the users were aware of the e-resources. To find out the use of e-resources, majority of authors have used survey method and structured questionnaire for collecting data. The purpose for use of e-journals among the users’ community includes getting information regarding research, dissertation, presentations, seminars, lectures and largely to update their own knowledge. The above review of literature revealed that major hindrances faced in the use of e-journals were lack of e-journals in specific field, computer illiteracy, lack of computer training, inability of retrieving particular information and some of the technical deficits like slow downloading, slow connectivity, and subjective strain to eyes were also present while using e-journals. One trend which was found from above studies was that the libraries subscribe e-journals through consortia basis. Various consortia for accessing e-journals include UGC-Infonet Digital Library Consortium, INDEST
Consortium, CSIR Consortium etc. It was also found that majority of the respondents had learnt the use of e-journals effectively from friends and colleagues. Respondents also identified the need for training in using e-resources and retrieving information from them from time-to-time. Mostly all the studies suggested that information literacy programmes, user orientation programmes should be organized frequent basis in order to increase the use of e-journals.

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