CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

The review literature is an integral part of any research investigation which gives a necessary input to the investigator to frame the research study on the chosen topic. Review of related studies helps to avoid the duplication of research and to study the different aspects of the chosen problem. It enables the researcher to identify the unexplored areas, in order to create new grounds for research. It also helps to set the investigation in the right direction that would keep the scholar abreast of the latest developments of the research topic chosen. The available literature related to the present study has been collected from various sources such as books, journal articles, thesis, reports, proceedings, websites etc. They are arranged under the following subheadings and presented in an ascending chronological sequence.

Accessing and analyzing existing research literature published across the globe is immense for any research work, which is also possible with the advent of technology particularly, the present environment. Reviewing the existing literature enables the researcher to identify the research trend on its research area in general and to trace the earlier studies on its research problem in the geographical area in particular where the present research has surveyed. Perceptions, the research concepts, the fatigues and tools that were discussed
and used in earlier studies are matched with the present study and this has enabled to frame the research design. The data analysis and research that were matched and contradicted with the findings of the present study also has been made.

The researcher has assessed the existing literature related to be objectives and variables of the study by scanning the print periodicals, thesis and dissertations, conference proceedings and also from the popular full-text databases and bibliographic databases on electronic mode. Accordingly the researcher has appended number of reviewed articles, which includes articles from national journals and international peer reviewed publications. All the selected reviews were arranged as to the below mentioned subject headings in a reverse chronological order that were to encompass the facets of the study.

2.2 INFORMATION SERVICES

2.2.1 International Studies

Dehpadekani & Pourhamidi (2011) conducted by the study is designed to find out the information needs of nomadic students in Iran in order to present a library service model to meet their needs. The results show that the preferred information format of the majority of students was print, especially books. Most of the students stated that they were in need of cultural and medical non-educational books. The study led to improved and expanded library services for respondents who are deprived of such services, including audiovisual services, extending the book collection, loaning books, advertising books and other publications, reference services, technical services and providing needed information to them. Further discussed for the first time a
model for providing library services for nomadic students. Both practitioners and researchers in the nomadic library services domain will benefit from the synthesis offered in this paper, as it puts together convergent views on what nomadic students currently need.

Pan & Lan (2009) described the functional framework of a subject service virtual communities' platform and implementation planning at Shanghai Jiao Tong University Library. To analyses the three aspects which should be considered when libraries carry out subject information services, next points out the users' behavior preferences of scholar communities to use libraries services and access library resources, and then explains the limitation of current methods used by academic libraries to reveal and deliver resources and services. Second, the paper describes the advantages of using a virtual community platform to reveal library subject resources, services, and to construct the communication environment for subject users. Finally, the functional framework of the subject service virtual communities and implementation planning at the Library of Shanghai Jiao Tong University are illustrated. Findings - Based on the next-generation discovery and delivery system - Primo - subject service virtual communities at Shanghai Jiao Tong University Library integrate diverse functions as follows to one platform: Subject information discovery and accessing (subject information letters, subject information gateway, subject information one-stop search), Subject information blog, Subject information literacy instruction, Subject information generation and preservation, Subject information consultation. Besides "one-stop" accessing and obtaining only needed library resources and services, the virtual communities platform gives subject users a more convenient and
more attractive environment to preserve their research results and share their experiences. Subject service at Chinese academic libraries has become a hot topic in recent years. Advice on how to support the service and make it become more effective and attractive is also an important problem. It covers various library systems and tools that can be used to build subject service virtual communities and shows it is valuable and could be tried elsewhere.

Popoola (2008) discussed the faculty awareness and use of library information products and services in South-West Nigeria universities. Systematic random sampling method was used to select 446 faculty members from a population of 4,459 in the universities. A questionnaire formed the major instrument for data gathering. The response rate achieved was 89.7 percent and the reliability coefficient of the questionnaire used was 0.72. The study found that there was a significant difference in faculty awareness of available library information products and services. In addition, they did not have sufficient knowledge of those library products and services pertinent to their teaching and research activities. The survey also revealed that the level of knowledge of faculty staff had positive relationship with the frequency of use, consultation with the librarians, faculty status and membership of library related committees. User education programmes coupled with planned public relations were recommended to improve faculty awareness of library information products and services.

2.2.2 National Studies

Preedip Balaji & Kumar (2011) discussed the present status of using new generation web technology, social media and Web 2.0 features among the
technological university library websites in south India. It seeks to assess the library websites as a primary platform and one-stop portal for information services and to examine how much library websites are effective in providing web-based information services. The library websites of the technological universities in south India were evaluated on the basis of a relative weight checklist. The criteria for the checklist were drawn on the basis of availability of websites for library, resource discovery tools, access to scholarly content and Web 2.0 tools. The various issues and challenges in adapting new web technologies in the academic environment are discussed. Using the current web development technologies and deploying for mainstream web information services is not widespread as web information services are yet to take off widely in academic libraries. The majority of university libraries are found to be working in the conventional library settings and the diffusion rate of web information services is relatively low. As this is an assessment of the existing online information infrastructure facilities of the engineering universities in south India, the awareness of web-based information services, their viability, and service values can be enhanced. More emphasis to improve upon the current learning, online educational facilities and benchmarking electronic information services for sustainability is highlighted.

Kaur & Rani (2008) determined the attitude of library professionals towards the concept of marketing and also how it is applied in practice to marketing of University library products and services. Library search concerning the subject was made to examine the findings of earlier relevant studies. To collect the relevant data, a questionnaire was designed and
distributed to the subjects under study. Interviews were also conducted with the librarians/professional staff to fill in any gaps in the questionnaire. The librarians/professional staffs have positive attitudes towards the marketing of library information services and products and admit that each library should have a mission statement and a full time professional to handle marketing-related activities; but in practice, no library under study has its own logo, mission statement or specifically designated personnel for marketing-related activities. The study explores the possibility of adopting marketing strategies in University libraries to provide value-added, need-based and user-oriented services/products.

Madhusudhan (2008) Indian universities are facing issues such as budget cuts, increased publication costs, and money devaluation, and coping with ever-increasing information requirements of readers. There is an urgent need for the libraries and information centers to provide better library and information services. Libraries and librarians in Indian universities are forced to adopt marketing tools to become more competent and alert. It described the marketing of library services and products with particular reference to Goa University Library. There is discussion of marketing concepts, on the investigation of potential markets, planning, targeted services to accurate market segments, and identification of competitive advantages.
2.3 WEB BASED INFORMATION SERVICES

2.3.1 International Studies

Melo & Pires (2011) described the use patterns of electronic and traditional resources in Portuguese academic libraries; to estimate the value of the Portuguese electronic scientific information consortium b-on by using two alternative valuation methodologies; to relate the use patterns with the valuation of b-on. The value of the Portuguese electronic scientific information consortium b-on is estimated by using two alternative evaluation methodologies: a) the value of the time saved by using this electronic resource; and b) the contingent valuation method to estimate how much the user is willing to pay for the service. The results show wide differences in use patterns, with professors, researchers and PhD students having a more intense use of digital library services than undergraduate and master’s students. Moreover, the benefit-cost ratios computed using the two valuation techniques indicate that the value of the electronic scientific information consortium b-on is well above its costs. Finally, the study shows that the valuation of b-on is higher for the user groups with higher percentage use of digital services.

Tosaka (2010) analyzed the problems in citation outputs generated by Web-based bibliographic management software Ref-Works in order to illustrate how existing library data in the WorldCat.org database can be repurposed effectively to interact with new Web-based technologies and services. Using both quantitative and qualitative approaches, the study finds that, in addition to numerous, repetitive problems that might be easily overcome with improved formatting on the software side, the quality of
citations suffers critically from a wide variety of problems in original metadata, such as authority control issues in a multiple-database environment, the presence of legacy data, and the lack of relationship information in most MARC records. The results of the study indicate a pressing need to develop a new, common data model for library services and applications if one wants library data to support and integrate easily with a myriad of potential uses on the Web.

Rockliff (2008) carried out that the Librarians often survey their clients to determine which electronic resources need to be purchased and whether clients need training on the use of specific resources. Librarians at The Queen Elizabeth Hospital (TQEH) in Adelaide, South Australia, evaluate their training sessions but were interested in following up on how and where clients use electronic resources once they are out of the library door. This survey looks at the "other" reasons that clients might not use library and other electronic resources in a hospital environment. With the current strong focus on evidence-based health care and the patient journey, clinical staff needs to be able to comfortably use all the necessary electronic resources available to them in a timely and suitable manner, yet frequently the environment in which they function is not conducive to best practice.

Santos, Roberto, Gonçalves & Laender (2008) investigated the Web services-based framework for building componentized digital libraries (DLs). We particularly demonstrate how traditional RDBMS technology can be easily deployed to support several common digital library services. Configuration and customization of the framework to build specialized systems is supported
by a wizard-like tool which is based on a generic Meta model for DLs. Such a tool implements a workflow process that segments the DL design tasks into well-defined steps and drives the designer along these steps. Both the framework and the configuration tool are evaluated in terms of several performance and usability criteria. Our experimental evaluation demonstrates the feasibility and superior performance of our framework, as well as the effectiveness of the wizard tool for setting up DLs.

Adekunle, Omoba & Tella (2007) conducted the study and used a descriptive survey to study the attitude of selected librarians in Ibadan, Oyo state, Nigeria, toward information communication technology (ICT). The population includes 41 librarians in four institutions. Data were collected using an instrument adapted from the Igberia and Chakrabarti (1990) Computer Anxiety and Attitude towards Microcomputer Utilization (CAATMU) scale, and the librarian attitude questionnaire developed by Ramzan (2004). Two research questions were developed to guide the study. The results show that librarians have a positive attitude toward ICT and that training and knowledge are the sine qua non for a positive attitude. The fear of ICT that some librarians in Africa demonstrate is widening the digital divide. Librarians in Africa are called upon to rise to the challenges posed by ICT and to help bridge the digital gap.

Davison, Li & Kam (2006) pointed out that the web-based surveys have received increased attention given their potential to cut the costs and time associated with paper-based surveys. In this exploratory study, the feasibility of using the Web as a data collection medium in China, which has a current
Internet population of 103 million is considered. Following a review of the literature regarding the design, implementation, and application of Web surveys, and the current state of data collection in developing countries in general and China in particular, how a Web-based survey instrument focusing on the ethical values of IT professionals is developed is described. 5,000 IT professionals in China, were e-mailed inviting them to participate in the survey. Thirty-seven percent of those contacted visited the Web site and 5.8% submitted the survey. The survey data, both qualitative and quantitative, is analysed and discussed with a view to drawing up instructive guidance for researchers interested to use the Web as a data collection tool in China, as well as developing countries more generally. The Web-based survey has great potential in these contexts, if sensitively designed and implemented. The implications of this research and identify areas where future research is necessary are considered.

Li (2006) explored the key issues involved with opportunities, challenges, and future developing trends of delivering dynamic and distributed web-based academic library information resources, services, and instructions for library users in the digital age. Based on the typical web-based, three-tier client/server architecture, this paper explores ten key issues how to leverage quality library user services in the digital age: roles of academic libraries; funding support; information resources; information access; information services; instructions and trainings; impacts of cutting-edge technologies and emerging technologies; web contents management and knowledge base; assessment and evaluation; and Librarians. Also discussed are the next-generation web-based client/server library information architecture and
services in the foreseeable future. With the rapid development of the internet and the World Wide Web, information exchange and information distribution can be transformed either by disparate formats or by dynamic channels. Knowledge, competence, and skills cannot follow up with the rapid advances of science and technologies. Many library users need assistance to access, locate, convert, synthesize, and evaluate information effectively and efficiently. It is very imperative for libraries and librarians to design, develop, enhance, implement, and deliver high quality user-centered information services, resources, and instruction at the fingertips of library users. Readers who include librarians, instructors, trainers, consultants, managers, IT specialists, executives, and other professionals who are involved with developing and delivering distributed library user services via the internet will find this article of value.

Maness (2006) examined the definition and theory for "Library 2.0". It suggests that recent thinking describing the changing Web as "Web 2.0" will have substantial implications for libraries, and recognizes that while these implications keep very close to the history and mission of libraries; they still necessitate a new paradigm for librarianship. To apply the theory and definition to the practice of librarianship, specifically addressing how Web 2.0 technologies such as synchronous messaging and streaming media, blogs, wikis, social networks, tagging, RSS feeds, and mashups might intimate changes in how libraries provide access to their collections and user support for that access.
Khan & Bawden (2005) studied the current status of, and future prospects for, community informatics (CI) services in libraries in Pakistan. It is based on a questionnaire survey of academic and public libraries, and community centres, in the major cities of Pakistan, backed up by interviews with librarians and community leaders. It is found that while most libraries provide community information services, these are of traditional kind, and there are very few examples of information and communication technologies-based CI. There is enthusiasm for developing such services among librarians, and high regard for library services in the community. Essential factors are funding for provision of equipment and training, and awareness rising in the community. The study was limited to a sample of libraries in large cities. Proposals for development of a government-sponsored CI initiative are presented. This is the only study to date which investigates the role of libraries for CI provision in Pakistan, and one of very few which studies this topic in a developing country.

Bao (2003) conducted a study focused on the strategic issue of access and policy in developing Web-based interactive reference services via academic library home pages. It examines the current status of Web-based interactive reference services in the United States through a national survey. The study finds that less than one-half of the surveyed institutions (67 of 143 or 46.9 percent) use Web-based interactive reference as an extension of their traditional reference services. Web-based interactive reference services are primarily used to provide brief factual information, basic guidance in conducting library research on a topic, and to answer questions about library resources, services, policies, procedures, and facilities.
Matoria, Upadhyay, & Mishra (2003) focused on the newspapers constituted an important source of information as they contain the latest information in the form of news with, often daily, updating. Being aware of their importance, libraries have been providing news clipping services in various ways to their users since newspapers were invented. Initially, manual methods of marking, cutting and pasting the useful news items were used, but today's libraries have automated this service by using information technology. This certainly has improved the access, delivery, and searching of news clippings in a Web-based network environment for remote users. This case study discussed the needs, objectives and advantages of News NIC, a Web-based full-text news clippings project implemented by the library of the National Informatics Centre, Ministry of Communications and Information Technology, Government of India. The authors discuss the design aspects, various systems components, Web technology and database tools used as back-end solutions, and the use of the Microsoft MS SQL Server features and active server pages technology.

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

Kroeker (1999) investigated the World Wide Web is changing the face of today's academic libraries, that is, the way in which one uses them and values them. Author explains what the Web means to the academic library and why it has become worthy of consideration. He shows that the Web will have a great impact on the library, whether the library wants it to or not, and that this impact will in large part be dictated to the library by forces both technologically and socially based and, therefore, beyond the library's overall control. Some consequences that the author sees of attempting to ignore Web technology or providing inadequate resources to it are discussed as well. Finally, he presents some of his observations on how the Web is changing the balance between the libraries as provider of information and teaching faculty as providers of education.

Cherry, Williamson, Jones-Simmons, & Gu (1994) conducted the survey of OPACs (online public access catalogs) in twelve Canadian academic libraries were evaluated using a checklist. Particular emphasis was placed on evaluation of functional capabilities and interface features which have been suggested in the literature by researchers. This study suggested that, among the ten areas evaluated, "Screen Display" is the best developed area, whereas "Subject Search Aids" is the weakest. Possible directions for the future development of OPACs are identified and areas for future OPAC research are suggested.
2.3.2 National Studies

Kanamadi & Kumbar (2006) investigated the study of the library portals and the web-based library services expected at management institutes in Mumbai City, Maharashtra State, India. The article explored the availability of institute website, importance and extent of the library details hosted on the institute website. This survey reveals that the lack of interest of users in library website is because of the inadequate and static information being made available on it. This case study also reveals about the services users expect to access through the Internet at their convenience. Suggestions are provided at the end on how to make library portal more informative in order to attract more and more users.

Babu & O’Brien (2000) stated that web-based online public access catalogues (OPACs) began to appear in the late 1990s and many libraries are currently considering implementation. As catalogues, they demonstrate advances on traditional OPACs, especially in terms of remote access by users and their potential to integrate many document types and sources via a single interface. It considers some of the features and functions of Web OPAC interfaces. As yet, very little evaluation of systems and users has taken place and until more such literature appears, a general approach to products available is considered to be of value. Six popular Web OPAC interfaces in use in UK academic libraries (Talis, INNOPAC, WebCat, Voyager, GeoWeb and ALEPH) have been examined with an overview of the functions offered
via those interfaces. A checklist has been developed as an indicator of the important features and functions offered.

2.4 USE OF WEB TECHNOLOGIES IN LIBRARY AND INFORMATION SCIENCE

2.4.1 International Studies

Barros, Silva, Costa, Bittencourt, Holanda & Sales (2011) Semantic Web Services domain has gained special attention in academia and industry. It has been adopted as a promise to enable automation of all aspects of Web Services provision and uses, such as service creation, selection, discovery, composition, and invocation. However, the development of intelligent systems based on Semantic Web Services (SWS) is still a complex and time-consuming task, mainly with respect to the choice and integration of technologies. Have discussed some empirical issues associated with the development process for such systems and propose a systematic way for building intelligent applications based on SWS by providing the development process with steps, techniques and technologies. In addition, one experiment concerning the implementation of a real e-learning system using the proposed approach is described. The evaluation results from this experiment showed that this approach has been effective and relevant in terms of improvements in the development process of intelligent applications based on SWS.

Zdravkova, Ivanović & Putnik (2011) have examined the temperament of web users in the 21st century are no longer only passive consumers. On a contrary, they are active contributors willing to obtain, share and evolve information. In this paper the experience of the authors regarding the
implementation of Web 2.0 concept in several Computer Ethics related courses jointly conducted at two Universities is reported. These courses have been delivered to undergraduate and graduate students. The main deficiencies of traditional E-learning noticed in earlier years and offers an alternative approach based on social media and collaborative creation of joint contents. Each Web 2.0 feature directly implemented in our courses is presented in details. Particular attention is paid to workload, student feedback and benefits and disadvantages are observed.

Ertmer, Newby, Yu, Liu, Tomory, Lee et al (2011) conducted by the research conducted by was designed to explore the impact of a wiki-based international collaboration project on pre-service teachers' 1) cultural competencies, 2) comfort using technology, including Web 2.0 tools, to interact and collaborate with unknown colleagues, and 3) perceptions of ideas for using technology, including Web 2.0 tools, in their future classrooms. Survey results showed significant changes in cultural competency and perceived ideas for using technology from pre- to post-semester while interview data provided support for, and greater insights into, survey results. Furthermore, students' perceived comfort for participating in Web 2.0-based international collaborations was the best predictor of changes in cultural competency. Implications for the integration of international collaborations into on-campus courses, using Web 2.0 technologies, are discussed.

Flores, Verdú, Giménez, Juárez, Mur & Menduiña (2011) the concept of web 2.0 refers to a set of applications that are always evolving according to the requirements that users of these applications have. A lot of virtual 2.0 tools
can be found in the internet: blogs, wikis, shared markers, shared files, forums, and so on. Teaching and learning processes should take into account all tools and resources that ICT offer, so that students and teachers have a great range of educational possibilities. Focusing on University education, one can find several investigations about the computer supported collaborative knowledge. The research that is explained is an analysis of several Web 2.0 tools and their potential use in the teaching-learning process. Furthermore, a set of teaching and learning University experiences about the development of collaborative methodologies using ICT have been collected. Recommendations for use of these tools in teaching and learning processes are also offered.

Janev & Vraneš (2011) the study conducted by the Semantic Web is one of the fastest developing fields within the Information and Communication Technology sector and, as such, under constant examination by scientists and IT professionals. The study conducted aims to provide a better understanding of the applicability of Semantic Web tools and technologies in practice. This aim will be achieved by surveying the recommended and emerging W3C standards, presenting an overview of the state-of-the-art in the Semantic Web research in the European Union, analysing the W3C collection of Case studies and Use Cases, and discussing the extent of adoption of Semantic Web technologies. The overall technology maturity level assessment has shown that Semantic Web technologies are finding their ways into real-world applications, and that, rather than being merely a fashionable research issue, the Semantic Web, slowly but surely, becomes the reality.
Li & Zhang (2011) a plethora of software engineering data have been produced by different organizations and tools over time. These data may come from different sources, and are often disparate and distributed. The integration of these data may open up the possibility of conducting systemic, holistic study of software projects in ways previously unexplored. Semantic Web technologies have been used successfully in a wide array of domains such as health care and life sciences as a platform for information integration and knowledge management. The success is largely due to the open and extensible nature of ontology languages as well as growing tool support. Semantic Web technologies represent an ideal platform for the integration of software engineering data in a semantic repository. By querying and analyzing such a repository, researchers and practitioners can better understand and control software engineering activities and processes. The way in which Semantic Web techniques are applied to integrate object-oriented software engineering data from different sources is described by the authors. The role of integrated data in helping to answer complex queries about large-scale software projects through a case study on the Eclipse system is also shown by the authors.

Anttiroiko & Savolainen (2011) Web 2.0 is the general term for new technologies, applications and services that enable users to interact and personalize websites. The derivative term Library 2.0 was proposed in the mid-2000s reviewed how public libraries have made attempts to renew their services by adopting Web 2.0 technologies. The research material mainly consists of articles and reports discussing the developments of Library 2.0. In addition, the study makes use of data obtained from the websites of public libraries that have pioneered in the field of Library 2.0. The study identified
four main purposes for which public libraries have adopted Web 2.0 technologies: communication, content sharing, social networking, and crowd sourcing. To serve the ends of communication, public libraries have adopted technologies such as RSS feeds and short messaging. The needs of content sharing are primarily served by using blogs and content sharing sites such as YouTube. Public libraries have also used Web 2.0 technologies to support social networking. Finally, to advance crowd sourcing, public libraries have mainly used tagging functionalities and systems of book rating. Overall, the findings indicate that experiences gained from the utilization of Web 2.0 applications are fairly positive and are thus encouraging for the development of Public Library 2.0.

Castellanos-Nieves, Fernández-Breis, Valencia-García et al (2011) the use of Semantic Web Technologies in eLearning has become more significant in recent years. A topic that has received less attention to date is the use of such technologies for supporting assessment processes. An approach that makes use of Semantic Web Technologies to support the assessment of open questions in eLearning courses is described. The users methodology that combines domain ontologies, semantic annotations and semantic similarity measurements. It also incorporates an algorithm for extracting knowledge from students' answers. It has been applied in different courses and the results are also reported and discussed. In our approach, the behaviour of the algorithm for calculating the referred semantic similarity is defined by the teacher.
Pearce (2010) examines the recent development of an e-research agenda. E-Research is taken as the latest stage of the e-science programme, which - as developed in tandem with web 2.0 tools - has begun to be adopted by researchers. It discusses these research infrastructures before current research investigating the relationship between academic researchers and technology is reviewed. The results of a survey undertaken in 2007 within a UK research-led university are presented and analysed in order to answer the questions about the uptake of these technologies by academic researchers and the relationship between the two technological infrastructures. If e-research is to mean enhanced research, it must include web 2.0 developments alongside e-science initiatives, even if this poses problems for institutional support and development.

Ram & Kataria (2011) discussed to provide an insight into the implementation of some of the innovative Web 2.0 applications at Jaypee University of Information Technology with the aim of exploring the expectations of the users and their awareness and usage of such applications. The study was undertaken at the Learning Resource Centre (LRC), Jaypee University of Information Technology (JUIT), Solan, Himachal Pradesh, India. The LRC at JUIT serves its patrons in supplementing their research needs while creating an ambience for teaching, learning and research. The emergence of digital technologies and information and communications technology (ICT) tools in libraries has encouraged the implementation of a wide range of applications, such as digital libraries, video on demand, reference services and database services into library services. The advent of next-generation web technologies, known as Web 2.0 applications,
has prompted a number of other pertinent services to be implemented to enhance the information literacy skills of the existing services. A survey method was used to understand the basic awareness and expectations of library users, and the usability of resources. The LRC has made a number of provisions to adopt some Web 2.0 applications in its library services to create information literacy. The users of the JUIT library still lack awareness about various Web 2.0 applications necessary for teaching and learning. It suggests that Web 2.0 applications can be used effectively to create information literacy amongst users. Library and information science (LIS) educators should take advantage of advances in the field of ICT and consider the learning preferences of information natives as well as information immigrants. Web 2.0 supports a constructivist approach to information awareness tools, and has great potential to socialise learning and information delivery to a greater extent. Web 2.0 technologies should be implemented as a medium of information communication, taking into account the pedagogical perspectives. The case study is a practical application at the Jaypee University of Information Technology. The LRC has implemented some Web 2.0 applications in the Library. The study was undertaken at the university to understand the basic awareness of Web 2.0 and to create information literacy amongst users through it.

Gavekar, Kumbhar & Kumbhar (2010) the importance of Web services has been recognized and widely accepted by industry and academic research. Describes that an ongoing research project involving the implementation of e-Governance services on the Semantic Web. In today's IT world, technology enhanced e-governance system is lacking the concept of resource sharing and
operation integration. A citizen has to go through related services to satisfy his/her particular needs, which takes a lot of time. Semantic web (SW) has potential to overcome this problem. SW technology provides foundation to enable exchange of knowledge and information to co-ordinate business processes. It can automatically compose web services through automatic discovery, selection & execution of web services. This research paper is highlighting an introduction to SW & other aspects like Ontology, Knowledge Management, Web Services & their approaches. Also highlights on the e-governance concept, discusses role of SW in e-governance services. It explains semantic webs based model for e-government with wiki technology, current challenges to the development of a Semantic Web, identifies Wiki advantages, and illustrates a potential solution and challenges with help of primary research work based on secondary data.

2.5 E-RESOURCES USAGE METHODS

2.5.1 International Studies

Al-Suqri (2011) used a questionnaire to study the models of information-seeking behavior that are based almost entirely on research conducted in Western countries, and were generated at a time when electronic methods of information-seeking were still uncommon. This study develops an integrated model of social science information-seeking behavior based on a synthesis of established models and tests the ability of this integrated model to describe present-day information-seeking among social science scholars in a Middle Eastern university. Method: The research was based on e-mail interviews, face-to-face interviews and focus groups conducted with social
science faculty at Sultan Qaboos University in Oman. At the time of data collection in June-July 2007, there were approximately 367 social science faculty at this University, distributed throughout the College of Arts and Social Sciences, the College of Education, the College of Commerce and Economics, and the Law College, including both men and women and representing a range of academic ranks. The data from the e-mail interviews, face-to-face interviews, and focus groups are analyzed using qualitative content analysis. The researcher used a qualitative analysis software program, NVIVO, to facilitate the process of analysis. Initially, the responses are examined and a preliminary set of themes created. Then, the responses are re-examined and coded according to the preliminary themes, with additional themes added as necessary. It was found that the information-seeking practices of the study sample could be readily matched to the stages of the model, suggesting that, in general terms, information-seeking behavior follows universally applicable stages, and that the model can be applied to current-day information-seeking despite changes in the information environment. The findings also provided support for the inclusion in the model of additional dimensions relating to the format and location of information resources, since these contextual factors were found to have an important influence on the process of information-seeking among the study participants. It is hoped that this study will make a contribution to the future development of an expanded knowledge base which will underpin library and information science in the 21st century.
Fry & Rich (2011) discussed in early 2010, library staff at Bowling Green State University (BGSU) in Ohio designed and conducted a usability study of key parts of the library web site, focusing on the web pages generated by the library's electronic resources management system (ERM). The work recorded and detailed the library's databases. The goal is to discover how far users could find and choose e-resources and identify ways, that the library could improve access to e-resources through its web site. The usability study conducted at BGSU, presents its conclusions about how students at BGSU find and choose databases and contextualizes these findings with other current research about user behavior, and further it makes recommendations for increasing the students use of library e-resources.

Okello-Obura (2010) described that the part of the study that was conducted to analyse the LIS postgraduate e-resources seeking behaviour in Makerere University, Uganda. Its purpose is to present and discuss specifically the problems LIS postgraduate students’ face in accessing e-resources. Survey research techniques were used in which the data collected using structured questionnaires were carefully handled and analysed using the Excel Computer Program to generate the frequencies, percentages and pie charts. The respondents have positive attitudes towards e-resources utilization and they indicated varied problems faced in e-resources utilization and proposed different strategies to improve on e-resources in the University. Among the problems identified are: slow Internet connectivity, inadequate networked computers, lack of access to low cost printers in the library, using advanced search strategies of most databases and lack of awareness of most of the e-resources. Without knowing exactly what is wrong with a system, it
becomes very difficult to plan and execute meaningful strategic measures to mitigate the problems. This study has helped the library planners and LIS educators to rethink on how to improve on e-resources access and utilization. It would certainly provoke new thinking to revamp the situation in the University library.

Yin & Chen (2010) observed that though Internet-based electronic resources (e-sources) are growing dramatically, there have not been enough studies evaluating the impact of e-sources in library source management. This study tries to investigate how much e-sources have been used in the area of library and Information Science (LIS) during the period 2001 to 2008. Characteristics of network information resources management are proposed and discussed in this study for the impact measurement. It develops a framework for categorizing the main management issue of e-resources in library.

Shuling (2007) has discussed the electronic resources that have become the library's important storage of a university library, and the fund purchased electronic resources also increased quickly, year after year. In order to find out the readers' present conditions, difficulties and requirement of using e-Resources, The Library of Shaanxi University of Science and Technology, carried out sampling, questioning and investigating of all teachers and students at campus. The investigation was carried out in at the campus, and the investigative target involves teachers, scientific staff, grade, graduate students, scientific staff, undergraduate students, and some training students, from 15 institutes in the whole university. It centers on seven subjects, designs 24
question and 155 selective answers, and everyone is multilateral, 1,000 questionnaires were sent out, 909 reclaimed. The ratio is 90.9 percent. The investigative result shows that: nearly half of the readers investigated are satisfied with e-resources of the University. At present, the main way that readers obtained rebases or literature is from traditional library storage. This illustrated that the printing literature obtained play important functions. The e-book does not substitute the traditional printed book. The construction of library storage should advocate the printed one. Readers selecting the printed and e-book occupy the greatest majority. This shows that the two type of literature are not completely substituted, only mutually supple. The way readers liked obtaining information is to skim the home page of the library. This indicated the home page had become the important window to give publicity and serve the outside. It also shows the use of reading on screen, non-familiarizing the structure and the retrieval method. Showing that the net condition and computer facilities are the main external factors. It has analyzed the consciousness of using e-resources, and the ability of obtaining literature for University readers, by investigating some readers' utility of e-resources at Shaanxi University of Science and Technology. Therefore the readers' range is limited. The result from one side reflects every unit and layer personnel's utilizing condition and difficulty of e-literature in the whole University. By investigating and analyzing, the work emphasis of the library is defined. The investigating table not only looks into some teachers and students' utilizing condition, and readers' opinions and proposing to use the library's, but also obtains the disseminated fanfaron to all people using the library. By angling
the result, it supplies theoretic foundation of e-resources' order, storage's construction and readers’ serve.

Zhao (2006) examined i) how far the library professionals who do research about bibliographic organization use electronic resources (e-resources) in their journal articles. ii) Are they keeping pace with the use of e-resources outside the library world? and iii) What are the e-resources most used in their research? It has aimed to address these and other questions by analyzing bibliographical references/notes in articles in Cataloging & Classification Quarterly (CCQ) for every other year from 1994 to 2004.

Mattick & Bligh (2005) Research into inter professional education is often performed by professionals in practice alongside their other "core" duties, thus additional help and support to achieve quality research outcomes would be beneficial. This study aimed to create a virtual community of researchers with shared interest in quantitative studies of inter professional learning using the Readiness for inter professional Learning Scale. An e-resource was built which provided access to relevant resources, helped to coordinate research effort, and promoted communication. Use of the resource was monitored over a 14-month period and evaluated at the end of this time. Forty-eight researchers across six different countries were assigned usernames and passwords. According to a self-report measure, 23/27 (85%) respondents to the evaluation questionnaire had accessed the resource and 95% planned to use it in the coming year.

Chan (2001) Electronic resources have become a staple feature of mainstream library access. Librarians are employing several methods to
provide enhanced access to e-resources for end users and to make maintenance more efficient for staff. The paper shows how the e-resource registry approach can be integrated with existing custom Web-based services in order to extend their functionality to provide enhanced access to e-resources. It described that the e-journals relational database that describes resources licensed by the University of Illinois at Urbana-Champaign Library and illustrates its interactions with other Web applications developed at the Grainger Engineering Library.

2.5.2 National Studies

Gupta (2011) has analysed the use of electronic journals from the INFONET consortium by faculty and research scholars of Physics and Chemistry at Kurukshetra University, India. It is based on the results of a questionnaire distributed to all the teachers and research scholars of the two departments. The main findings are that the respondents are 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. The use of e-resources, particularly e-journals, is increasing in the developing countries. Studies such as this one are required to understand the problems faced by the users and to increase the use of e-resources.

Gaur & Sharma (2010) discussed the definitions and the factors of Information seeking behaviour and various models designed and proposed by
the library and information scientists like Marchionini, Girja Kumar, Ellis, Wilson and Kuhlthau's model of ISB, Information Seeking through Internet (E-resource). Each model is being discussed in details in check the particular Information Seeking behaviour model. The suitability of these models depends on the factors like balance collection development policies, user education and training and offering specialised services.

Kumar & Kumar (2010) have examined the perception and use of e-resources and the internet by the engineering, medical and management academics in Bangalore City, India. The prime objective is to find out how academics compare e-sources with print sources and how they perceive the advantages of e-sources and problems for accessing them. It further aims to establish the extent of internet use, the purpose of such use and factors influencing it. Data were collected from 300 students and faculty members in the selected engineering, medical and management colleges of Bangalore City. The questionnaire consists of 15 main questions with many of them having a number of subsidiary questions. The questions are designed for the students and faculty members to elicit their experience with the e-sources and internet use for their study and research work. Study results show that the students and faculty who participated in this survey are aware of e-sources and also the internet. Even though a majority of the academic community uses electronic information sources for their academic-related work, most of them preferred 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. Librarians need to reallocate more budgets to expand the availability of electronic resources for students and faculty. Library
professionals should also help users to ascertain what high-quality free resources are available on the internet and how to search these resources more effectively and efficiently. This is the first comprehensive study of the use of e-sources and internet by engineering, medical and management students and faculty members in India. Its findings will help library professionals in respective college libraries to plan for effective and efficient use of the internet to fulfill information requirements of the students and faculty members.

Haridasan & Khan (2009) have presented the fact that electronic resources are a significant part of library collections. A large amount is invested in the development and management of e-resources in the libraries. 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 attempts to find out the users' views about computer literacy among the social scientists. The study focuses on the impact and use of e-resources by social scientists pursuing research in the NASSDOC library. The data were collected from the entire population of social scientists at NASSDOC through a questionnaire accompanied by personal interview. This was further analysed using statistical techniques and percentages to arrive at qualitative and quantitative results. The major findings of the study indicate that respondents are 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 are 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. This is one of the first surveys conducted to identify the need and importance of e-resources in a specific Indian library (NASSDOC) as well as the requirement for information literacy to enhance the use of available resources in the social sciences. It should pave the way to showing the value of such e-resources for scholarly research in India.

Rao & Mudhol (2009) have studied the utilization of e-resources in the medical college (Begun with Kasturba Medical College, Manipal, India in 1953) Manipal University Health Sciences Library, that was begun with KMC in 1953, is one of the largest libraries in South East Asia. This Library offers a rich array of information resources for pursuing discovery and research. The library has access to variety of e-Resources, including 18 online databases, more than 2500 online journals and e-books which have been made available to library users via various interfaces. Frustrated with navigating these different interfaces, Manipal University became aware of the fact that Health Sciences Library required a solution to access all library e-resources from a single entry point. The details on the ERMSS software which has provided library users with a single point access for effective searching of e-resources held by library. ERMSS meets the challenge with a feature rich system combined with a robust administrative module and enabling a single point of access to entire e-resource collection of the library.
2.6  E-RESOURCES MANAGEMENT

2.6.1  International Studies

Amy & Lesher (2011) Electronic Resources Coordinators for Bowling Green State University (BGSU) presented a comprehensive analysis of what libraries can and should do to help users access their databases. She discussed an ongoing project to update her library's database Web pages to enhance their utility for library patrons. During her presentation she explained how she identified the best practices in Association of Research Libraries, member libraries, made recommendations based on these best practices, and discussed the work in implementing her recommendations.

Resnick, Ugaz, Burford & Carrigan (2008) libraries spent increasingly large amounts on electronic resources (ERs), but may not have adjusted staffing to support these resources. Assisting users with ER access problems is complex due to the many reasons a resource may be unavailable at a particular time. The objective of the work is to describe the evolution of a library ER problem-reporting help desk. A pilot project was undertaken by librarians at the Texas A&M University Libraries to redesign workflows and staffing to provide an efficient, effective help desk service for solving ER access problems. Including librarians with experience in licensing and managing ERs in providing help desk services improved response time, problem resolution, systematic information capture, and service expectations and policies, and also led to the development of an ER Helpdesk database with enhanced functionality. Delegating ER problems solely to Information Technology (IT) staff may seem reasonable but they assume technology as the source of
several problems; it is likely that the user, the resource, or a non-computer-related issue be the source. Librarians whose traditional responsibilities include supporting user access were effective in providing expert assistance with access problems. Cooperative efforts of librarians and IT staff are necessary to ensure reliable ER access.

Hawthorne (2003) explained the administrative metadata, its importance, the handling of administrative metadata for continuing the electronic resources and the availability of ILS vendor products. This article describes solutions developed by four academic libraries to manage administrative metadata and access to electronic resources. Pennsylvania State University Libraries and Massachusetts Institute of Technology Libraries developed systems that track the acquisitions process and provide access to e-resources. Stanford University Libraries focused on providing access to electronic resources. The Tri-College Consortium (Bryn Mawr, Haverford, and Swarthmore Colleges in Pennsylvania) created a database to track the licensing aspect of the acquisitions process. It also described the efforts currently underway to develop standards and best practices for managing electronic resources.

2.7 INFORMATION AND COMMUNICATION TECHNOLOGY FACILITIES

2.7.1 International Studies

Premchand-Mohammed (2011) attempts to describe the challenges and examine the impact of the transition from print to electronic resources at a
medium-sized academic library at a multi-campus aribbean university, The University of the West Indies (UWI), with particular reference to the St Augustine campus. Through a review of the literature on the shift from print to electronic resources, the author use the experiences of The UWI St Augustine to provide a model that can be used by other libraries. Libraries have successfully built a "hybrid" collection of print and electronic resources despite challenges with information and communications technology (ICT) infrastructure, balancing costs, licensing model and strategies for selection, acquisition and management of electronic resources. There are some key steps which libraries can follow when transitioning from print to electronic resources. Focused on the experiences and lessons learnt in moving a collection from print to a hybrid of print and electronic resources. However, this by no means encapsulates all the issues associated with any such undertaking. The paper provides some key steps that a library can take in transitioning its collection from print to a print-electronic hybrid. The literature also speaks to different aspects of implementing electronic resources, and provides a roadmap for similar libraries with the lessons learnt and simple steps that a library should take when considering moving its collection from print to some level of electronic resources.

Yu, Lin & Ho (2010) made an attempt to use of Information and Communication Technology (ICT) in higher education, particularly e-learning has been becoming increasingly popular over the past decades around the world. Since the authors' institutions have been implementing synchronous or asynchronous e-learning courses these years, how to involve in or think about becoming involve in the e-learning environment is becoming a significant
issue at the moment to all people who work in the libraries of technological universities. Therefore, 926 questionnaires were distributed to all faculty members from December of 2009 to January of 2010 in three technological universities in the northern Taiwan area, including Jinwen University of Science and Technology, Vanung University and China University of Science and Technology. In total, 545 teachers responded, 19 of which were invalid, resulting in an overall response rate of 57%. Descriptive statistics, mean scores, T-test and ANOVA were used to analyze the results of the survey. Some purposes are achieved in the study as follows: i) understands the faculty's needs for the services of the library in the technological universities in an e-learning and e-teaching environment; ii) compare the different needs for the services of the library among faculty with different backgrounds such as gender, academic college, course of teaching, position, teaching experience with e-learning; iii) analyze the role of the library of technological Universities in the e-learning environment; and iv) provide ideas and suggestions for enhancing the content and quality of the library services to the technological universities in the e-learning environment

Ramzan & Singh (2009) investigated and determined the levels of information technology (IT) in Pakistani libraries. More specifically, the paper focuses on the status of computers and other commonly used hardware, e-mail, internet, library software, automated user services, expenditure on IT and online resources available in academic libraries of Pakistan. The data are collected through a questionnaire survey of 288 (sample of 682) academic libraries across Pakistan. A total of 219 (76 per cent) valid responses are used for data analysis and interpretation using statistical package for social sciences
(SPSS). It finds a low level of IT availability, especially the absence of computers, e-mail and internet in few libraries. Similarly, the libraries are far behind to achieve excellent IT levels. It is found that libraries need to be fully automated using standard library software/management systems. However, access to online resources through the Higher Education Commission (HEC) is found extensive and comprehensive. The data indicate the need to enhance libraries' IT expenditure. The findings can be utilized to evaluate the status of different IT tools and applications. The statistical data are very useful and authentic source for planning to improve the libraries' IT infrastructure, library automation and in reducing the gap in levels of IT application in different type of libraries. This is a first comprehensive study that provides a complete picture along with statistical data regarding IT applications (computers and other common hardware, software, e-mail, internet, other information access technologies, applications and online resources available) in academic libraries of Pakistan.

Ani, Esin & Edem (2005) investigated the extent of adoption of Information and Communication Technology (ICT) in University libraries in Nigeria. Postal survey was the instrument used for data collection. Almost 60 per cent of the University Librarians out of the 29 university libraries surveyed completed their questionnaires. The results of the survey show that only six University libraries are fully "computerized", nine are "about to be computerized" seven of the surveyed libraries have installed local area networks, five have online public access catalogue and only four libraries provide internet service. The major obstacles that influence effective adoption of ICT in university libraries are inadequate funds and the poor state of
electricity in Nigeria. The federal government should increase the present level of funding of Nigerian university to improve the library development fund, which is the major source of funding available to university libraries. The poor state of electricity in Nigeria should also be improved by the federal government for sustainable adoption of ICT by university libraries. The computer networking of university libraries is feasible and it recommends the development of the Nigerian university libraries network and academic libraries network.

Mahmood (2002) conducted the study of changing environment of academic libraries in Pakistan that demands new competencies for future academic librarians. This study defines and validates competencies for entry-level professionals keeping in view the needs of the next five years. Top-level library managers of selected universities and postgraduate level colleges participated in the study. A scale of perceived importance of each competency was used for validation of competencies organized in six categories: management, resource development, technical service, reference & information services, information technology and general. A distinct preference is noted for information technology competencies. A significant overlap between the opinion of public and private sector librarians is also observed. The validated competencies can be used for the evaluation and revision of the curricula of formal education programs.

Siddiqui (1997) investigated the availability and use of information technology (computers, networks, electronic mail, online information retrieval, CD-ROMs, facsimile transmission, personal computers (PCs) and
the Internet) in seven University libraries in Saudi Arabia (King Saud University, Islamic University, Medina, King Fahd University of Petroleum and Minerals, King Abdulaziz University, Imam Mohammed bin Saud Islamic University, King Faisal University and Umm Al-Qura University). The work determines the diversity of computerized library systems, databases and services used in the libraries. It lists the most widely used systems (DOBIS and MINISIS) and the numbers of online and CD-ROM databases acquired by specific libraries.

2.7.2 National Studies

Dhanavandan, Mohammed Esmail & Nagarajan (2011) analysed the use and availability of Information Communication Technology infrastructure facilities in self-financing engineering college libraries in Tamilnadu. The role of engineering colleges in the technical manpower development is quite significant. They need rapid Information Communication Technology infrastructure and in this context, there is a need for adequate development of electronic resources. This study traces out the nature of electronic resources, library automation level, computerized library services, electronic access points, type of digital libraries, network and topology of network, internet and intranet services, and so on with reference to the selected institutions.

Sampath Kumar, & Biradar (2010) have examined the use of Information Communication Technology (ICT) in 31 college libraries in Karnataka, India by investigating the ICT infrastructure, current status of library automation, barriers to implementation of library automation and also
librarians' attitudes towards the use of ICT. Data-gathering tools used included questionnaire, observation and informal interview with selected college librarians. Application of ICT in Indian college libraries has not reached a very high level. Lack of budget, lack of manpower, lack of skilled staff and lack of training are the main constraints for not automating library activities. Even though library professionals have shown a positive attitude towards the use of ICT applications and library automation, they need extensive and appropriate training to make use of ICT tools. This is a comprehensive study on the use of ICT in Indian college libraries. It should help college librarians, local government and also the University Grants Commission, New Delhi.

2.8 DIGITAL LIBRARIES

2.8.1 International Studies

Anunobi & Ezeani (2011) presented one of the ways in which digital library technology is employed in providing twenty-first century library and information services to a University community in a developing country, together with the challenges and prospects of such an application. This work analysed the documents using content analysis of documents in library archives, interviews with library stakeholders and assessment of the structures, facilities and technologies as deployed in the Digital Library housing the information that is necessary for academic work. This work shows that a University's approach to a digital library is a function of environmental, ethno-political and economic issues. Although the deployment struggled to accommodate the attributes of a digital library, including contents, users, functionality, policy, quality, technology and personnel, success is yet to be
fully achieved, because there have been major challenges in terms of management, infrastructure, personnel and the provision of appropriate content. Even so, the effort has been worthwhile and is a stepping-stone to future effective library services in the University. It also provides librarians with an insight into how developing countries understand and apply digital technology to library operations and services. It also provides other libraries and related institutions with an opportunity to learn from a concrete experience.

Canuel & Crichton (2011) discussed to assess how Canadian academic libraries have responded to the rapidly evolving mobile environment and to identify gaps in the services provided, while suggesting areas for future development. It conducted an examination of the mobile content and services provided by the libraries of the member institutions of the Association of Universities and Colleges of Canada (AUCC). Based on this examination, the paper describes the current state of mobile librarianship in Canadian academic libraries. A review of the literature places the investigation in its broader context. Only 14 percent of AUCC libraries currently advertise some type of mobile web presence, with mobile web sites being prevalent over downloadable apps. Examples of content and services are highlighted to illustrate current trends and to provide insight into future directions for developing mobile services. This study raises awareness of the importance of mobile technology for academic libraries and the need to address the lack of mobile content and services provided by most Canadian post-secondary institutions. It also identifies best practices exhibited by the surveyed libraries. This is the first exploration of this type into how academic libraries in Canada
have responded to the mobile environment. The value of this research is in helping libraries identify and address shortcomings in the mobile content and services they provide, and in highlighting efforts by libraries to address their users' needs in this area.

Chen & Reilly (2011) University of Houston Digital Library (UHDL), provides access to collections of digital materials related to the institutional memory of the University and to areas connected to its teaching, research, and cultural missions. Recently, a variety of image archives have been processed and preserved. This paper demonstrates the development of preservation metadata strategies at UHDL and the preservation of Metadata Encoding Transmission Standard (METS) records generated from customized "7train" based on Dublin Core (DC) descriptive metadata and NISO Metadata for Images in XML Schema (MIX) technical metadata using two open-source software tools (JHOVE and 7train). The authors were able to produce complete METS records for digital objects preserved.

Georgiou & Tsakonas (2010) examine during the last years, dramatic changes in the electronic publishing landscape that have created new roles and changed the traditional ones. Presently, some libraries have capitalised on their experience and knowledge in information technology and electronic publishing to undertake such activities, while at the same time they spearhead the campaign for Open Access spreading within academic communities. The Library & Information Centre (LIC) of the University of Patras (UoP), Greece, has been playing an active role in promoting Open Access (OA) in Greece. Since 2007, LIC has been experimenting with OA publishing practices and
tools within the framework of various R&D projects. Two of the major results of these efforts are the 'Pasithee' e-publishing platform and the 'Dexamene' digital archive for Greek scholarly journals. Both platforms are based on OJS-Open Journal Systems e-publishing software. The two facilities were appropriately modified to meet the LIC's publishing and archiving requirements respectively. Currently two journals are being hosted on each platform and all four are from the Humanities. The LIC is negotiating with more publishers and editorial teams to host their journals. In this article we focus on: 1. technical and managerial key issues of the development and operation phases, 2. services and procedures, 3. the business model, 4. technological, procedural and legal issues and problems that were encountered when working together with publishers, editors and authors, and 5. future plans for improving and upgrading our e-publishing services into an integrated institutional platform to cover all kinds of publications and data types (monographs, conference proceedings, teaching material, bulletins, magazines etc.). The article concludes with a succinct presentation of the Directory of Greek Digital Resources, a pilot infrastructure developed by the LIC which indexes and presents digital publishing initiatives in Greece and aims to become a formal registry of Greek scholarly resources in digital format.

Hariri & Norouzi (2011) reviewed the literature concerning Digital Libraries (DLs) and user interfaces in order to identify, determine, and suggest evaluation criteria for a DLs user interface. Accordingly, this study's objectives are threefold: explore which criteria exert a significant relationship with the DLs user interface; identify a set of criteria that appears to be useful
for evaluating DLs user interface; and determine evaluation criteria that have more frequency and occurrence in the related texts reviewed. To do it, first, identifying related texts was necessary. Consequently, keywords such as "DLs user interface evaluation", "DLs user interfaces", "DLs evaluation", "DLs usability", "user interface evaluation", "DLs research", "web sites user interface evaluation", "user interface standards", and the like have been searched in the web as well as in some leading databases including Emerald, Proquest, SagePub, ScienceDirect, LISA, ERIC, ACM, and Springer. After identifying and accessing more than 100 evaluative works and some related articles, theoretical and empirical, nearly 50 sources were chosen for final examination. Findings - After reviewing related texts, three major categories are identified: user interface and DLs; DLs and usability; and other studies related to user interface; each one of three identified categories has its own subcategories. Additionally, 22 evaluation criteria for assessing DLs interface have been identified. The review does not claim to be comprehensive. Practical implications - Hopefully, criteria such as feedback, ease of use, match between system and the real world, customization, user support, user workload, interaction, compatibility, visibility of system status, user experience, flexibility, and accessibility which have been less considered should be applied more in future, particularly user-oriented, studies. Furthermore, it is expected that criteria mentioned here could help related bodies pay more attention to the evaluation of EISs, especially DLs interface. Originality/value - It can be said that this study has contributed to the research into the evaluation of DL interface.
Londhe, Desale & Patil (2011) the purpose of the paper is to focus on the technical know-how required for digitization of manuscripts. It aims to discuss the digitization process of manuscripts adopted in the Jayakar Library, University of Pune in IND and also to evaluate the digitization software used in this project. It explains different steps of the digitization process. It also explains the process for creating metadata fields for easy retrieval of manuscripts and evaluates the digitization software. Digitization of manuscripts is a difficult process because of the fragility and discolouration (yellowishness) of manuscripts. Creation of metadata and especially subject headings for manuscripts is difficult and time consuming. QuickScan software is good for image capturing and DSpace is good for providing access to digital contents. This project details the use of different software which is useful for others carrying out digitization projects.

Si, Shi & Chen (2011) aimed to provide an overall picture of the application of Web 2.0 technologies in Chinese University libraries. The focus of the research is what types of Web 2.0 technologies were applied in such libraries as well as their function and user interface. The top 30 Chinese University libraries were selected to investigate the application of Web 2.0 technologies. Content analysis was used in terms of quantitative approach. Data were collected by accessing these 30 University libraries web sites within five weeks. Two-thirds of Chinese University libraries deployed one or more Web 2.0 technologies. Only one-tenth of libraries adopted more than four Web 2.0 technologies. RSS was the most widely applied, while Wiki was the least. The application of Web 2.0 technologies among Chinese University libraries was not extensive
and profound enough. The findings can be utilized to evaluate the status of Web 2.0 technology applications. The statistical data are very useful and authentic sources for improving the level of Web 2.0 technology application. It may enable future research to analyze other aspects (e.g. the application of RSS or Blogs for services).

Arif & Kanwal (2009) in their study investigated the acceptance and importance of digital library among female students of International Islamic University, Islamabad, Pakistan. The study also highlights the problems that are confronted by the female students in completing their research work after limited access to digital library in the female campus of the University. Survey was administered personally to collect data from 315 female students of eight faculties of the University. The convenient sampling technique was used to collect data from the subjects of the study. The access to digital library is indispensable to the students to complete their research work. With limited access to the digital library the students were unable to meet their information needs from the Internet and the libraries of other Universities. The quantity as well as quality of their research work was affected due the restriction of digital resources. Also the limited access affected adversely to improve insight of the respondents regarding technological developments in their respective area of research. The lack of informational literacy program, IT training workshops, IT literate staff and the electricity failure were the main hindrance to access digital library as well as Internet.
Porcel, Moreno, & Herrera-Viedma (2009) The Web is one of the most important information media and it is influencing in the development of other media, as for example, newspapers, journals, books, and libraries. This paper analyzes the logical extensions of traditional libraries in the Information Society. In Information Society people want to communicate and collaborate. So, libraries must develop services for connecting people together in information environments. Then, the library staff needs automatic techniques to facilitate so that a great number of users can access to a great number of resources. Recommender systems are tools whose objective is to evaluate and filter the great amount of information available on the Web to assist the users in their information access processes. A model of a fuzzy linguistic recommender system to help the University Digital Libraries users to access for their research resources is presented. This system recommends researchers specialized and complementary resources in order to discover collaboration possibilities to form multi-disciplinary groups. In this way, this system increases social collaboration possibilities in a university framework and contributes to improve the services provided by a University Digital Library.

Zimmerman & Paschal (2009) examined assessment of the effectiveness of the digital library and the value of multidisciplinary databases in terms of user preferences and use frequency by academic ranking. It compares the results of two survey questionnaires carried out in 2002 and 2005. It examines the level of awareness by academic staff of digital library resources along with their use rate and to evaluate the preferences of faculty for specific electronic databases, case studies were undertaken by means of separate questionnaires in both (2002 and 2005) these years. Findings were
consistent that positive results have been observed in two studies conducted in two years, 2002 and 2005. According to the results of the current survey, increased numbers of the faculty members of Ankara University know about the existence of the digital library. Another result of the survey is that many of the faculty members, although not all use electronic databases. The most preferred databases have been Web of Science, Science Direct and EBSCO. When use of the electronic databases is analyzed, in respect of faculty rank and level of awareness, associate and assistant professors, are ranked first. The study presents the first case study in the field in Turkey that compares the current situation of the digital library usage with the initial survey data.

Bansode (2008) described the digitization of rare materials in one Indian university. It highlights the digitization activities undertaken by Shivaji University Library to preserve rare materials. It attempts to calculate the costs incurred in the digitization process. To finds that digitization is the solution for the preservation of, and access to, rare manuscripts. It provides the complete budget required for the digitization of manuscripts and also suggests best possible preservation and access strategy according to the local needs of the users. It provides valuable insight into the development of digital libraries in India. It is useful for setting the infrastructure required for digitization and a guideline for preservation and access to the rare materials.

2.8.2 National Studies

Chandhok & Babbar (2011) discovered the perspectives of M-Technologies in Distance Education Libraries. It proposes a model for providing e-resources and other information services through
mobile technology to its learners in Indira Gandhi National Open University, India. In this qualitative study, data were gathered through questionnaire and interviews from Distance Learners of IGNOU to access the actual requirement of Distance Learners for various M-Library services in the present scenario. The study is guided conceptually by the perceived need for m-libraries and a growing usage of mobiles in India. The data suggest that M-Libraries offer a unique opportunity for distance learners in different kinds of learning environment settings. The proposed m-library services architecture suggests developing an M-library web site at IGNOU Library to effectively facilitate m-library services, hence strengthening the M-Learning in Distance Education System. Considerably less literature exists about the m-libraries and its services in Distance Education. This study will be of interest to distance education library and information professionals who wish to obtain a better understanding of M-Libraries scenario and practices.

Bhatt (2010) focused on the use of UGC-INFONET Digital Library Consortium Resources by research scholars and faculty members of University of Delhi in History and Political Science. The main aim is to determine the needs of research scholars and faculty members of University of Delhi in the discipline of history and political science and to find out how far their information needs are fulfilled by the information resources available through UGC-INFONET Digital Library Consortium. It attempts to define this consortium, its objectives, scope, e-resources subscribed and the government initiative to provide current information in various disciplines for research and teaching excellence. To study the information usage pattern and needs of the
respectively users a survey was conducted among faculty and research scholars. The population included in the study comprised 105 respondents from both departments and of that, eight are faculty and 97 are research scholars. The study tangibly explains the genesis, e-resources facilities and usage of e-resources available through UGC-INFONET Digital Library Consortium (a University Grants Commission of India sponsored consortium) to provide e-resources and current information in various disciplines. The UGC-INFONET Digital Library Consortium is the most important consortium providing access to a large array of e-resources to all academic Universities and colleges in India and thus facilitates the prompt access and efficient and effective usage of e-resources for teaching and research activities. The scope of the study is confined to faculty members and research scholars of the Department of History and Political Science of the University of Delhi respectively, regarding the use of e-journals provided by UGC-INFONET Digital Library Consortium. It reflects the users' awareness regarding the consortium resources available in the respective fields, information about important databases and e-journals, search techniques, recurring usage for information and knowledge, help and support in research output and teaching activities, benefits accrued such as saving of time, effort and the problems faced.

It is found from the review that a range of research studies have been carried out across the globe particularly during the last decades and recent past on the facts such as application of Information Communication Technology (ICT). Particularly the Status of implementation of Library automation in distributed network systems. Use and relevance of OPAC and Metadata,
Schema, that were applied in different library environment studies but were aimed at availing the Information seeking behavior of the end-user in electronic environment. The assessment and evaluation of e-resources uses the techniques of ICT in order to access management of e-resources in Libraries. The study reviewed and found the application and use of databases particularly Dspace, GSDL, and Fedora access to institutional repositories are yet moderate level. Some of the studies appended were also revealed that the evaluation of library websites and web based services and application of web technologies in terms of Web 2.0 and Web 3.0 has been prevailing in the academic libraries. It is also found that the studies revealed that some of the libraries and the users were akin to make use of mobile application to forward the information delivery and access. A set of selected perceptions and findings of the studying reviews were used at different stages of the present study in order to identify, compare and correlate with the findings of the present study.

2.9 SUMMARY OF THE REVIEWS

The reviewed research literature relevant to the objectives of the present study could enable to identify the following observations that were used as parameters of the present study.

A selected number of 70 research studies both from national and international publications have been thoroughly studied and matched with the major variables of the present study such as e-resources usage, ICT applications, e-Resources
Management, Digital Libraries, Institutional repositories, use of Web Technologies, Web based Information services and so on.

Studies experimented on how for users could find and choose e-resources and identify ways of library access through e-resources through websites.

Studies carried out on assessing the problems to access e-resources emphasized the trained manpower support in libraries, improve response time, systematic information capture, services expectations and the databases with enhanced functionality, studies also stated that the users, the resources and non-computer related issues are the sources of problems in accessing e-resources.

Handling of administrative metadata and solutions to manage the administrative metadata towards accessing electronic resources and studies are also discussed.

Studies are recommended for the web pages of the libraries to enhance the utility of library patrons.

Some of the studies recommended the libraries to built hybrid collection of print and e-resources despite the challenges with the information and communication technology infrastructure balancing library model, selection, acquisition and management of electronic resources and these are some key steps which
libraries can follow when transitioning from print to electronic resources.

Some of the studies assess the impact of e-learning environment among the faculty members of the Universities on the perception of the faculty users towards access to e-learning programmes including online courses and the role of e-content access through the library web information services towards managing the electronic and web technology environment.

 Majority of the studies used survey method including e-mail and online survey among the University libraries and also the faculty members and research scholars regarding access to the web based resources such as access journal databases, book databases, from the present study the variables were framed and analysed using ANOVA, Chi-Square, percentage analysis and other relevant statistical techniques applied by the existing studies both at national and international level.
REFERENCES


