REVIEW OF LITERATURE

INTRODUCTION

The review of relevant literature starts with a compilation of bibliography on the subject of study. According to Bruce, "The review forms an important chapter in a thesis where its purpose is to provide the background to and justification for the research undertaken."[1] The review of literature is a critical look at the existing research that has relevance and significance to the work that is being carried out. A literature review is an account of what has been published on a topic by accredited scholars and researchers. It also allows a researcher to refine the research question based on the experiences of others. This chapter presents a review of related literature on the topic taken up for investigation.

The reviews provided in this chapter are drawn from previous studies at the international, national and regional levels, reported by scholars on public library, its use, users and their perceptions and satisfaction regarding library collection, staff and services including the internet provision. The reviews comprise of Indian and foreign studies on the topic of present investigation.

2.1 REVIEW OF GENERAL RESOURCES

Gabriel Aine Obinyan(2011)[2], carried out a study entitled "Use of Information Resources in Four Branches of a State Public Library in Nigeria". A survey study was carried out on the use of information resources and services in community public libraries in Nigeria with particular reference to Edo State. The study revealed that the majority of users were students and youths whose information needs were basically for examination and for personal enlightenment.

The available resources in the libraries were found to be inadequate and in most cases, inappropriate. This situation was credited to poor funding of the libraries as well as to lack of local content in the collection of the public libraries. It was also revealed that the libraries lacked Internet facilities. In terms of service delivery, the libraries also lacked the capability and competence to provide translation services to the non-literate group of the communities.

Modepalli Doraswamy (2010) [3]carried out a study "Information Use Patterns of Post-Graduate Students: A Case Study of P. B. Siddhartha College of Arts and Sciences, India". This study investigates information use patterns of post-graduate students at Siddhartha College of Arts and Sciences, Vijayawada, Andhra Pradesh, India. It focuses on the kinds of academic information needed by post-graduate students, such as what information resources they need, their methods for locating information, and their level of satisfaction of the library collection, services, and facilities. A descriptive survey method was used, and the data was gathered via a questionnaire completed by 140 post-graduate students. Respondents were also asked for their opinions and suggestions during the data collection process.

Maria Anna Jankowska and James W. Marcum (2010) [4], "Sustainability Challenge for Academic Libraries: Planning for the Future". There is growing concern that a variety of factors threaten the sustainability of academic libraries: developing and preserving print and digital collections, supplying and supporting rapidly changing technological and networking infrastructure, providing free services, maintaining growing costs of library buildings, and lowering libraries'

ecological footprint. This paper discusses the multidimensional issues of sustainability in academic libraries and identifies needs for designing an integrated framework for sustainable strategies in academic libraries. Additionally, the paper presents a synthesis of existing literature on the increasingly popular topic of "green libraries" and prepares a background toward developing a framework for sustainable strategies in academic libraries.

Katherine Tyler, (2011), [5] focused specifically academic institutions serving virtual patrons must remain focused on meeting the needs of those library users by continually examining their preferences, their searching behavior, and the information they seek. The purpose of this research was to determine if virtual patrons are satisfied with the resources and services being provided by a university's online library. Following a web-based survey, demographic characteristics of students were analyzed to determine if any influenced students' satisfaction. Using analysis of variance, correlation, and descriptive statistics, several demographic factors were found to influence student satisfaction with the library's online resources: age, gender, achieved educational level, student status, and computer experience. One factor, computer experience, was found to influence student satisfaction with the library's online services.

Dehua Hu(2012) [6], carried out the academic libraries became acutely aware that the expansion of research activity had resulted in an increase in the numbers of journals, and in the numbers of articles published. These changes were followed by increased journal subscription prices, and the combination of these three factors caused the "serials crisis" The China Academic Library and

Information System (CALIS) proposed five criteria for evaluation of sustainable development of digital resources which included both OA resources and general online resources such as subscription E-journals. These proposed five criteria were, 1.The proportion of digital resources in the library resources, 2.The proportion of digital resources to be permanently available in the library resources, 3.The cost of long-term preservation of digital resources, 4. Fair usage of digital resources, 5. The archiving methods of digital resources. These technical standards guide the construction of academic library digital resources, and ensure the sustainable development of digital library collections.

Jie Sun(2012) [7]**,** study that the digital libraries promise new societal benefits, especially for e-learning in digital or mobile times, starting with the elimination of the time and space constraints of traditional bricks-and-mortar libraries. The library and information professionals are required to acquire such knowledge and skills as the library is one of the highly IT influenced service profession. This paper gives an overview of current trends in digital library research consists of digital library characteristic, advantage, disadvantages and function. This paper also highlights on the impact of information technology on the traditional library.

Devendra Kumar and Rajkumar Singh (2009)[8] a study entitled "Information resources and services of national science library India, New Delhi: A user study" The study examines the use of services by the users of National Science Library (NSL), New Delhi, India. A well structured questionnaire was used to identify the impressions of NSL users towards the various aspects. 120

questionnaires were distributed among the NSL users and 108 filed were received back. The questionnaires were checked and 108 (90%) questionnaires were found fit for analysis and out of which 12(10%) were considered unusable. The present study demonstrates and elaborates a various aspects of NSL collections uses within the available resources, frequency and purposes of visit, user satisfaction within NSL services and information about documents. Further attempt has also been made to highlights the findings of the study and a few suggestions have been given based on the analysis of data.

Syamalamba Rani (2009)[9] carried out a study entitled "Library Use Pattern of Undergraduate Students in Minority Degree Colleges in Andhra Pradesh". Library is considered an integral component of any efficient education system. It plays an important role in the improvement of the organisation. This study, which was conducted in minority aided degree colleges, reveals the nature and the extent of use of college libraries in Andhra Pradesh. It evaluates in detail the type of material, sources and the services used by the students. It also assesses the extent of student's satisfaction regarding collection, timings and library staff cooperation in finding the information.

Akobundu Dike Ugah and Umudike (2008) [10] entitled, "Availability and Accessibility of Information Sources and the Use of Library Services at Michael Okpara University of Agriculture".Using the case study method, the author investigated the availability and accessibility of information sources and the use of library services in the university library, Michael University of Agriculture, Umudike, Abia State, Nigeria. The population was made up of 1,000 registered

library users, with a random sample of 200. A response rate of 168 was recorded. The study revealed that information sources in the library are not readily available nor easily accessible and concludes that the independent variables of availability and accessibility have influence on, and a significant relationship with, the use of library services.

Sunil Tyagi(2011) [11] The study examine how scientists of Homoeopathic Pharmacopoeia Laboratory (HPL) use electronic information resources, whether print or electronic are read more, whether there is a pattern among types of users. The problem has been studied based on the information available in the open literature and a survey conducted. The methodology for the proposed study is "Survey Method" with the help of structured questionnaire. The result showed a growing interest in usage of electronic information resources among the Scientists of HPL. All the respondents belonging to the laboratory used EIS to consult drug indexes and compendia, to consult monographs, to consult drugs related online databases, to consult drugs related e-journals, to consult drug promotional literature and to consult standards. All the respondents stated that to a very high extent EIS has become a substitute for printed materials. These findings have implications for collection development, promotion of library resources, and end-user training.

Waldman (2007) [12] carried out a study entitled "Users' information behaviour - a gender perspective". The paper is based on the study of library users in Slovakia as part of a larger research project on the use of information. A large-scale questionnaire survey was conducted in 2002 in sixteen academic and research

libraries with 793 subjects, especially students and educators.The data were analysed with the use of statistical package SPSS. Gender differences are analysed with regard to ways of information seeking, use of electronic resources and publishing. Results indicate that men prefer individual information seeking and women apply collaborative information use. By sorting user types it was found out that women tended to manifest a pragmatic way of information use (the S type). Men confirmed analytic information processing (the A type). Women declared less experience in the use of electronic resources and publishing. Differences in orientation, collaboration and feelings have been noted. Gender as a variable can be productive for better understanding of cognitive and social background of human information processing. Findings can inform design of services and systems and information literacy policies.

Suresh Chand(2011)[13] The purpose of education is well-rounded development. Students need a combination of arts, computer science, science, and humanities or literature courses to achieve this kind of development. A well-equipped and well-managed library is the foundation of modern educational structure. It is said that education without library services is like a body without soul, a vehicle without an engine, and building with bricks but no cement. The library is the chief instrument for accumulating and using our intellectual heritage. Formal education can be conducted effectively and efficiently only with well-equipped libraries. Academic libraries are the nerve centers of their institutions, and must support teaching, research, and other academic programmes. University library is a way of making educational and research data and information available to faculty, researchers, students, and others at the institutions and worldwide.

Singh, K. P.Satija, M. P. (2007) [14] carried out a study entitled "Information seeking behaviour of agricultural scientists with particular reference to their information seeking strategies". The paper is an outcome of the research study conducted by the authors on information seeking behaviour of agricultural scientists working in the ICAR institutions of Delhi and Punjab Agricultural University, Ludhiana. Data has been collected through the structured questionnaire and analyzed with the help of latest version of MS-Excel for appropriate statistical procedures for the description (i.e., frequencies, percentage, means, and standard deviations, etc). Study discusses the findings of various strategies and procedures adopted by the agriculture scientists in meeting their information requirements. The agriculture scientists were asked to ranks the information sources in on the basis of I, II, and III in the order of priority. The survey result shows that agriculture scientists have expressed great dependence in meeting their information requirements on their institutional library/information centre. The Library/Information Centre is the most preferred source (72.05%) of the respondents for all categories of agriculture scientists. On the other hand for accessing information, agriculture scientists highly depend on the library collection, followed by the personal collection, collection of their supervisor and of their colleagues

Mahajan and Preeti (2005)[15] carried out a study entitled **"**Academic Libraries in India: a Present-Day Scenario".Education aims to impart knowledge and makes good citizens. Libraries are the repositories of knowledge and form an integral part of education. Libraries have a long history, starting with the chained and closed-access libraries of earlier times to the present-day hybrid, digital, and

virtual libraries that use the latest technology for provision of information through various services. Accordingly, librarians have also changed from storekeepers who were concerned with protection of books against theft, mutilation, and pilferage, to that of information officers, navigators, and cybrarians who find themselves in the vast ocean of reading material and are busy in satisfying their clients who want anytime and anywhere information. With the advent of computers, the nature of libraries has changed dramatically. Computers are being used in libraries to process, store, retrieve and disseminate information. As a result, the traditional concept of library is being redefined from a place to access books to one which houses the most advanced media including CD-ROM, Internet, and remote access to a wide range of resources. Libraries have now metamorphosed into digital institutions. Gone are the days when a library was judged by its quantitative resources. Today, libraries are surrounded by networked data that is connected to vast ocean of Internet-based services. Moreover, electronic resources relevant to the professions are developing at an unprecedented pace. Academic libraries are considered to be the nerve centers of academic institutions, and must support teaching, research, and other academic programmes. The situation in academic libraries of India is the same as that of academic libraries the world over; however, Indian libraries must provide maximum information with limited resources. Type: Journal (On-line / Un paginated)

2.2 REVIEW OF TRADITIONAL RESOURCES

Although computers have been around in some form since the 1940s, it wasn't until the early 1980s that computers were reduced in size and price to the extent that they became widely accessible to the American public. According to a

1983 Time magazine article, which named the personal computer the “Man of the Year” for 1982, most Americans at that time were receptive to the proliferation of the personal computer and optimistic about its impact on their lives; nearly 80% of Americans polled indicated that they expected home computers to become as common place in homes as television sets or dishwashers, 68% said that they thought that the computer would improve the quality of their children’s education, and 67% reported a belief that computers would ultimately raise production and, therefore, standards of living [16].

The American public in the 1980s was enraptured with the idea that the personal computer could be used to improve their daily lives, the possibility of using computers to conduct research was far from the minds of most librarians. As Simmons-Welburn put it, “In 1980, computers were not yet a part of the chest of tools that every reference librarian carries” Zumalt and Pasicznyuk note that the Internet wasn’t mentioned in any type of library professional, research, or trade journal until Perry, Blumenthal,and Hinden’s “The ARPANET and the DARPA Internet”[17]appeared in Library Hi Tech in 1988.

Cynthia(2004) [18], exploratory study reports the results of 20 in-person interviews conducted with professional reference librarians at public libraries in the Triangle area of North Carolina regarding the librarians’ opinions about the impact that online reference sources have had on the collection and use of print reference sources at their libraries. Study results indicate that most librarians are comfortable with using both print and online reference sources to answer patrons’ reference questions but that they have found that certain types of questions lend themselves more readily to being answered either by print or by online reference sources.

Librarians stated that a patron's preferences often dictate whether they will use a print or an online source to answer the patron's reference question. Additionally, many librarians reported that several reference sources formerly held in print format have been augmented or replaced by online reference sources. In fact, it was not until the 1990s that it began to seem more possible that computers could be used for research purposes. Although the Internet took shape in the 1960s, it wasn't until 1989 that the World Wide Web was developed in order to provide a graphical interface to the Internet. During the 1990s, as large numbers of web sites, search engines, and search directories were developed and refined, researchers began to recognize the value of using computers for conducting research.

Other librarians also noted the potential for computers to change the way in which reference transactions were handled. For example, in a 1992 article, Jerry D. Campbell, the University Librarian at Duke University, stated, "We should set ourselves the goal of answering no less than 75 percent of the questions that currently come to our reference desks using computers and, yes, without human intervention" [19].

But not all librarians were immediately convinced of the value of the Internet for conducting reference transactions. Olson's 1992 survey of 130 university reference librarians, for example, revealed that 23% said that the Internet had no value at all in helping them complete their daily reference tasks, while another 61% said that the Internet was only of moderate value in aiding them with their daily reference duties. Similarly, Schilling and Wessel [20] found that of the 103 reference department heads whom they surveyed, only 35% of respondents considered the World Wide Web to be "very," "somewhat," or "slightly" useful in their jobs.

Other librarians conceded that the Internet might be useful in helping some librarians perform certain daily tasks, but they claimed that the Internet did not lend itself to certain types of interactions. Lanier and Wilkins, [21] for example, wrote in 1994, "Ready reference is one area in which Internet access may seem to offer only minimal benefit. The experienced reference librarian knows traditional ready reference information sources well. What could be easier than consulting the appropriate print source to deliver a quick bit of information?"

2.2 REVIEW OF ELECTRONICS RESOURCES

Ahmed Elhafiz Ibrahim (2004) [22] his study entitled "Use and User Perception of Electronic Resources in the United Arab Emirates University" proved that the use by faculty members in the UAEU of e-resources was not at the anticipated level that would effectively enhance the learning and research process as stated in the mission statement of the Libraries' Deanship. Significant low usage was reported for e-books, bibliographic databases and e-journals. These attitudes might be a result of a lack of awareness about the e-resources provided by the library or due to ineffective channels of communication in campus as reported in earlier research. Some respondents have missing values in the question about frequency of use of e-resources; this might be explained as lack of awareness of the participants about the resources provided by the library.

Jambhekar,N.D (2011) [23] analyses his study entitled "The traditional Library system and the framework to convert it into Digital Library: A case Study" Today, the rate of peoples to read books is tremendously increased due to awareness of education everywhere. The college's efficiency is depends on their

ability to manage information effectively, whether for educational, research, business and governmental purposes. Each time, we must rely on paper based library. To concern with the demand and availability of books in the paper oriented libraries, it is not possible to available the copies of books, journals to all students, lecturers, researchers at a time depending on their changing requirements. This is not affordable to any paper oriented library to keep all books with complete needed copies. To solve these problems, the Digital Libraries must be implemented across colleges.

Sathe,Nila A(2002),[24] During the month-long study, patrons completed sixty-nine surveys of electronic and ninety surveys of print journal use. Results analysis indicated that fellows, students, and residents preferred electronic journals, and faculty preferred print journals. Patrons used print journals for reading articles and scanning contents; they employed electronic journals for printing articles and checking references. Users considered electronic journals easier to access and search than print journals; however, they reported that print journals had higher quality text and figures.

Ishwara Bhat M (2009)[25], there is a large quantity of subscribed e-resources in our libraries and they contain quality information, though expensive. In spite of advantages in terms of access and search capabilities, they are underused. Systematic plan has to be in place for their promotion of use. While a good ICT infrastructure is a prerequisite, it alone will not do. Proactive strategies are required and these need to be adopted imaginatively. Access to e-resources need to be made easier for both on campus and off campus users. As a priority,

active users need to be identified and they need to be converted to heavy users of resources. Secondly, non users be converted to active users Various methods have to be tried in order to grab the attention of the users towards the e-resources. User training will increase the confidence level of the users. Traditional awareness methods include: Personal visits, user training, brochures, posters and displays. Newer technologies from the Web 2.0 such as RSS alert service, Blogs, Wikis and Face book make the interaction with the library not only interesting but also add more value. Finally, the effectiveness of various promotional strategies needs to be measured by monitoring the usage and user feedback.

Kannappanavar(2010) [26]**,** Since India is a land of farmers, socioeconomic development depends on the education of farmers and their information level. They need information to become enlightened and rational and to make quick and correct decisions to improve rural life. The nature of information services provided by the agricultural university libraries vary from one to another, owing to the range of interest of the user community. With the emergence of the computer and revolutionary changes in communication technology, it has become possible for a agricultural university libraries to provide a variety of technology based information services to users with a wide range of interests. The libraries under study are in the initial stage of development. Modern technologies in the libraries are now being used to satisfy the information need of users. The people working in these libraries need training and exposure to new technologies. There is a need to develop the culture of interlibrary loan services and electronic transmission of documents. Databases of theses, journal articles and library catalogues must be made available to users.

Bashorun (2011)[27], this study for the user perception of the electronic resources by the academic staff of the University of Ilorin. The sample consists of 250 academic staff selected from eight (8) out of the twelve (12) faculties that made up of the university. Data were collected through an electronic resources user perceptional survey (ERUPS). Responses were received from 225 (90%) academic staff of the eight faculties. Analysis revealed frequency of use of electronic resources was low. Reasons alluded to were lack of time because of the time required to focus on teaching; lack of awareness to electronic resources provided by the library; power outage, ineffective communication channels, slow network and inadequate searching skills. The study recommended adequate Information and Communication Technologies (ICT) training for all categories of academic staff and provision of adequate power supply.

Mara Rojeski (2011)[28], Libraries have grappled with how to integrate ebooks into our collections since they came onto the market. ebooks offer some tempting advantages, such as: saving physical space in the library, increasing access to those off campus, and potentially allowing multiple users simultaneous use of one item. Recent books like No Shelf Required offer some guidance for libraries grappling with questions that ebooks bring up. Smaller academic libraries face unique challenges when evaluating how best to use ebooks to serve our patrons. Given their smaller budgets, they often still engage in title-by-title books selection. Many larger institutions engage in standing orders for print acquisitions or purchases of large packages of ebooks. As financial constraints grow even tighter, we all want to make sure that we get the most use out of the materials we

acquire. This involves detailed study of our users' interaction with library materials and creative thinking on the part of librarians.

Singh Gurdev(2010)[29], This paper describes the use of electronic resources by the students and teachers of various college libraries of Delhi. The survey was particularly conducted to know the use of e-resources and awareness of electronic resources in various college libraries of Delhi. The analysis of the data collected covers various types of e-resources, purpose of use of e-resources, problems faced by the users in using the e-resources, satisfaction level of users and finally it highlights the suggestions made by the users for further improvement of use of e-resources in various college libraries of Delhi. This study has also shown the preferences and importance given to e-resources by the students and teachers of various college libraries of Delhi.

Saikia Mukesh(2011)[30], This article discusses a survey conducted by author to learn perceptions of teachers and research scholars of Tezpur University towards electronic journals. The survey determined the views and feeling of teachers and research scholars on electronic journals. The survey distinguished between user's format preferences for those journals that are most important to their teaching and research. This study is conducted to learn users perception of online jour-nals and determine a policy for subscription of journals to meet the needs of teachers and research scholars of the university.

Hadagali Gururaj(2011)[31], Examines the use of electronic resources by faculty members and research scholars of universities of Karnataka State, India, in order to determine the level of use and different purposes of using electronic resources, and its impact on the academic community. A total of 604

questionnaires were distributed and 479 (79.63%) completed questionnaires were retuned; Survey responses were coded and input into Excel for analysis. Software Package for Social Sciences (SPSS) was also used for construct frequency tables, and calculates Mean, Standard Deviation and Co-efficient of Variation. The study emphasizes different aspects such as, the future of the library and information services in academic libraries depends upon major factors, like, availability of adequate manpower, which provision for continuous updating of IT skills and and allocation of adequate recurring grants to procure, update and maintain IT infrastructure and electronic resources.

Thanuskodi, S. (2011)[32] carried out a study entitled "Usage of Electronic Resources at Dr T.P.M. Library, Madurai Kamaraj University: A Case Study" Information technology (IT) has thrown a new challenge to the libraries. The technology has shown a great impact on the services of the libraries. Libraries use IT for better services and satisfying diverse user needs. Libraries have transformed into digital and virtual libraries where books, journals, and magazines have changed into e-books, e-journals, and e-zines. This has increased the global dissemination of information. Electronic resources (e-resources) are easily accessible in the remote areas. The e-resources solve storage problems and control the flood of information. Print sources are being digitised. There is a great need to study the use of e-resources and investigate the factors that are a hindrance to their use. The present study is an attempt to examine the usage of electronic resources at Dr T.P.M. Library, Madurai Kamaraj University. Study revealed that M.Phil student's respondents took the first position in their overall methods of searching e-resources, postgraduate student respondents the second position, PhD Scholar respondents the last position. The study confirmed that respondents were aware of

the e-resources and various types of e-resources, e-database, and e-journals. The study recommended the improvement in the access facilities with high internet speed and subscription to more e-resources at Dr T.P.M. Library, Madurai Kamaraj University.

K. R. Mulla, M. Chandrashekara (2006)[33] carried out a study entitled "E-Resources and Services in Engineering College Libraries – A Case Study". Libraries have witnessed a great metamorphosis in recent years both in their collection development and in their service structure. Over the last several years, a significant transformation has been noticed in collection development policies and practices. Print medium is increasingly giving way to the electronic form of materials. This study examines libraries by region within the State of Karnataka, India. It examines the level of effort taken by the engineering college libraries in Karnataka to build electronic resources.

Dr. Chetan Sharma (2009)[34] carried out a study entitled "Use and Impact of E-Resources at Guru Gobind Singh Indraprastha University (India): A Case Study". Today availability of e-resources in a university library is very common. But their proper and maximum use is a matter for discussion. The present paper examines the existence of various e-resource databases in Guru Gobind Singh Indraprastha University Library. The study also highlights the preferences and importance of online resources among the teachers and research scholars.

Adeyinka Tella (2007)[35] carried out a study entitled "Self-Efficacy and Use of Electronic Information as Predictors of Academic Performance".Students'

ability to find and retrieve information effectively is a transferable skill useful for their future life as well as enabling the positive and successful use of the electronic resources while at school. It is a known fact in this digital era that any student at the higher level who intends to better achieve and go further in academics should have the ability to explore the digital environment. Students are increasingly expected to use electronic information resources while at the university. Research was undertaken to determine the level of influence of self-efficacy and the use of electronic information resources on students' academic performance. This study examined self-efficacy and the use of electronic information as predictors of academic performance. Its participants were comprised of 700 students (undergraduate and postgraduate) randomly drawn from seven departments in the faculty of education, University of Ibadan, Nigeria. Data on the study was collected through the Morgan-Jinks (1999) academic self-efficacy scale and the use of the electronic information scale (UEIS) with r = 0.75. Three research questions were raised to guide the study. The results indicate that self-efficacy and the use of electronic information jointly predict and contribute to academic performance; that respondents with high self-efficacy make better use of electronic information and have better academic performance; that a correlation exists among self-efficacy, use of electronic information and academic performance; and that the use of electronic information influenced respondents' performance in General Education subjects more than other subjects. Finally, the results reveal that the Internet is the electronic information source student's access for information most often. Implications of these results and recommendations are discussed.

Micaela Waldman (2003)[36] carried out a study entitled "freshmen's use of library electronic resources and self-efficacy". To encourage students' use of the

library, and in particular of its electronic resources, we need to understand what factors encourage students to seek out information in the library setting. Research has shown that self-efficacy influences academic achievement. This paper looks at the role self-efficacy plays in their search for information and use of the library's electronic resources, by surveying a class of freshmen at Baruch College. Their library and computer use were analyzed and correlated with their self-efficacy scores. Through statistical analysis, we found that use of the library correlated to the students' use of the library's electronic resources. We also found out that students who express an interest in learning about the library's electronic resources will be more likely to have higher self-efficacy.

Xuemei Ge R (2010)[37] carried out a study entitled "Information-Seeking Behavior in the Digital Age: A Multidisciplinary Study of Academic researchers". This article focuses on how electronic information resources influence the information-seeking process in the social sciences and humanities. It examines the information-seeking behavior of scholars in these fields, and extends the David Ellis model of information-seeking behavior for social scientists, which includes six characteristics: starting, chaining, browsing, differentiating, monitoring, and extracting. The study was conducted at Tennessee State University (TSU). Thirty active social sciences and humanities faculty, as well as doctoral students, were interviewed about their use of electronic information resources for research purposes, their perception of electronic and print materials, their opinions concerning the Ellis model, and ways the model might apply to them. Based on the interview results, the researcher provides suggestions on how current information services and products can be improved to better serve social sciences and

humanities researchers. The author makes recommendations for improving library services and technologies to better meet the needs of social sciences and humanities scholars.

Sandra.J. (2000)[38] carried out a study entitled "When Questions Are Answers: Using a Survey to Achieve Faculty Awareness of the Library's Electronic Resources". The Utah State University (USU) Libraries spend approximately 11 percent of their materials budget on electronic resources. Because electronic resources occupy no shelf space and often are used from remote locations, it can be difficult to alert users to new resources at the library and to determine what sort of patron support is needed. This study investigated electronic database awareness and use by 856 USU administrators and teaching faculty. The responses revealed the need for greater publicity regarding new acquisitions, training opportunities, and methods of remote access. Unexpectedly, the survey itself, with its accompanying descriptions of databases and access methods, met many of the needs it identified.

Karla.L.(2002)[39] carried out a study entitled "Evaluative Usage-based Metrics for the Selection of E-journals". To measure the value of print journals, librarians have gathered a range of statistics and developed a variety of metrics. Similar work to assess the value of e-journals has just begun. This article explores the usefulness of available e-journal usage statistics and develops three metrics and three benchmarks based on those metrics. The proposed metrics build on earlier work that assesses the value of print journals, although the earlier work is modified extensively to fit the e-journal arena. The e-journal statistics and metrics are further

transformed to address a completely new area of application: the evaluation of potential purchases. Statistics and metrics are used to build three benchmark measures for assessing e-journal candidates for purchase. A comparison of Science and Nature site licenses illustrates the utility of the assessment benchmarks. The benchmarks, metrics, and statistics developed here provide a reliable framework for assessing both current collections and candidate collections of e-journals. Implications for standards development are clear; content measures are desperately needed for the development of an effective suite of e-journal

Natarajan (2010)[40] carried out a study entitled "Use and user perception of electronic resources in Annamalai University: a case study". Survey of 117 faculty members and research scholars on use and user perception of electronic resources in Annamalai University reveals that despite the availability of wide range of e-resources the frequency of their use was low. The reasons identified for this are lack of time, lack of awareness, lack of subject coverage; and slow downloading.

Singh (2009) [41] carried out a study entitled "Use of internet based e-resources at Manipur University: a survey". Describes a survey on the use of the electronic information focusing on the Internet services by the users of Manipur University Library. Also examines the utilization, purpose, difficulties and satisfaction level of users about Internet based e-resource services provided by the library. Finds that low speed internet access, erratic power supply and lack of required full text journals are problems with regard to the use of internet based e-resource.

Mukherjee(2010)[42] carried out a study entitled "Use of UGC-Infonet e-journals by research scholars of the Banaras Hindu University, Varanasi: A case study". Attempts to identify the users' requirement of online journals in general and to know the use of online journals that are available through UGC-Infonet e-journals consortium in particular. A questionnaire survey was conducted amongst 100 research scholars of various departments like history, political science, sociology, psychology and economics at the Faculty of Arts, Banaras Hindu University, Varanasi. Reveals that there is a demand for more e-journal titles although a substantial number of users (61.90 percent) are satisfied with the existing model of UGC-Infonet Consortium. Concludes that comprehensive training on availability and usability would be of great help to the users.

Biradar(2009)[43] carried out a study entitled "Use of information sources and services in library of Agriculture Science College, Shimoga: a case study". Survey of 101(84.16%) students belonging to Agriculture Science College, Shimoga to study the frequency, purpose of visit to the library and the usefulness of agriculture science periodicals reveals that 77.22% of respondents visit library everyday. About eighty eight percent students visit library to read journals and magazines followed by visits to borrow books (87.12%). It was found that a large number of users use books followed by periodicals. As far as usefulness of periodicals is concerned users opined that The Indian Journal of Agriculture Science (62.92%) and Karnataka Journal of Agriculture Science (60.67%) are the most useful journals. Concludes that emphasis needs to be given for subscribing online periodicals through e-consortia

Sunil Kumar(2010)[44], This paper aims to assess and evaluate the use of e-resources by the faculty members of C.V. Raman College of Engineering (CVRCE), Bhubaneswar, with a view to examine the exposure of faculty members to e-resources. Besides, it aims to highlight the problems encountered by the users and suggests some remedial measures for its improvement. The authors investigate the use of e-resources by the faculty members of CVRCE through a survey based on a structured questionnaire. Various statistical methods have been used for data analysis. The study confirmed that faculty members are aware of the e-resources and various types of e-resources, e-database, and e-journals. It suggests for the improvement in the access facilities with high Internet speed and subscription to more e-resources by the Central Library of CVRCE.

Kumari. H.(2009)[45] carried out a study entitled "Use of information resources in chemistry: a study of Mangalore University" .Through a questionnaire survey, data collected from 138 users from the Department of Chemistry, Mangalore University revealed that majority of the users visit the library to borrow books, to consult periodicals and browse UGC INFONET journals. OPAC and the assistance of the library staff are the primary means to locate information. The library resources in chemistry are current and useful but the periodicals both primary and secondary are inadequate. Concludes that various findings of the present study serve as guiding principles in developing need based collection and provide effective services to the users' community of the department of chemistry of the Mangalore University in particular and paves the way for conducting similar studies in other disciplines.

Gowda(2009)[46] carried out a study entitled "Attitude of research scholars towards usage of electronic information resources: a survey of university libraries in Karnataka". Questionnaire method was employed to gather data from researchers of humanities, social science and science disciplines in six universities in Karnataka. Responses received from 845 research scholars shows that in general the research scholars prefer print resources and there exists significant differences in the preference of print and electronic resources among various disciplines. Identifies the gaps in the need and availability of electronic resources like online journals and databases in the university libraries. Reveals that the electronic resources have created a positive hope among the research community in searching the information.

Nazima (2008)[47] carried out a study entitled "Open access journals and institutional repositories: practical need and present trends in India". Trends in open access publishing in India are discussed. Data was collected from directories of open access journals and institutional repositories. The URL of each institutional repository and open access journals was visited to collect relevant data and information including from earlier studies. Case study method was used to know the trends of open access publishing in India. Data is analyzed based on certain parameters, such as number of institutional repositories and open access journals, number of documents, software used, types of documents, etc. Among the top 25 open access publishing countries, India ranks 12th for the overall number of journals, but drops to 18th for journals with online content. However, its position in the list of open access journals is fifth. At present India ranks 12th in the list of

countries with registered interoperable archives in the Registry of Open Access Repositories (ROAR).

Fatima (2008)[48] carried out a study entitled "Information seeking behaviour of the students at Ajmal Khan Tibbiya College, Aligarh Muslim University: a survey". Study of data collected from 60 students by administering questionnaires on their information seeking behaviour at Ajmal Khan Tibbiya College, AMU, indicates that guidance in the use of library resources and services is necessary to help students meet their information requirements. Finds that textbooks and journals are the most popular sources of information for the students' course work.

Bhat (2008)[49] carried out a study entitled "Use of web based sources in scholarly electronic journals in the field of library and information science: a citation analysis". Citation analysis of research articles from scholarly electronic journals in the field of library and information science published during the years 2000 to 2006 shows that 81.49% of articles published during the period have web references. Out of 25,730 references, 56.54% of references are print journal references and 43.52% of them are web references.

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Sujatha(2008)[50] carried out a study entitled "Use of electronic information sources at the College of Fisheries, Mangalore, India". Examines the use of electronic information sources (EIS) by the teachers/scientists, research scholars and postgraduate students in the College of Fisheries, Mangalore. A survey was administered among the academic community along with observations and

informal interviews at the College of Fisheries, Mangalore. Demonstrates and elaborates the various aspects of EIS use such as frequency and purpose of EIS use, frequently used EIS, methods of learning to use EIS, benefits of EIS use, constraints faced in the use of EIS and the satisfaction level of users in the use of EIS. Suggestions have been given to strengthen the existing electronic information sources and services and to maximize the use of EIS among the fisheries institution academic community. Electronic information resources play a vital role in the field of fisheries and aquaculture. The librarians are facing many challenges posed by numerous electronic information sources such as CD-ROM databases, online databases and web resources in these areas. This article makes ah attempt to identify and discuss some of the important databases in fisheries and aquaculture research and management.

Nikam (2007)[51] carried out a study entitled "Use of e-journals and databases by the academic community of University of Mysore: A survey". This paper describes the use of e-journals and databases (subscribed by UGC-InfoNet consortium) by the users of University of Mysore. Nearly 200 responses to a survey based on questionnaire have been analyzed and presented. Besides studying the use of e-journals and databases, the paper also examines the utilization and satisfaction levels of users with respect to the e-resources. The role of Information Communication Division (ICD) of the University of Mysore in informing the users about the availability of these resources is also discussed. Use of internet as an alternative to UGC InfoNet consortium resources is presented.

Nair, R. Raman (2007)[52] carried out a study entitled "Information resources on agricultural economics: A study with special reference to Kerala". Opines that scientific planning for agricultural development to overcome backwardness is very important for India. Speedy and sustainable agricultural development is tied closely to effective planning which in turn rests heavily on information available for the process. Information specifically related to this area is classified under agricultural economics. This makes information systems on agricultural economics very crucial in the context of increasing requirements for food grains as well as globalization. Examines the coverage of agricultural economics, nature of information on the area, and the importance of technical and marketing information to managers, farmers and other stakeholders to take maximum advantage of the WTO Regime. Examines in detail the resources of information units of organizations dealing with agricultural economics in the region and the provisions for resource-sharing between them. Reveals that information resources available collectively are sufficient, but that at individual institutions are not adequate, full or reliable. Recommends a resource sharing programme for institutions concerned with agricultural economics.

Krishnan, Jayaja (2007)[53] carried out a study entitled "Media resources collection organization and management– An Overview (CEC Media Library-As an example)". Provides an overview of the organization and management of Media Resources Collection in Media Libraries with example of how it is organized at Media Library of the Consortium for Educational Communication (CEC), New Delhi. It informs the readers how the applications and convergence of Information Communication Technologies (ICT) helps in distribution and dissemination of

knowledge resources in a converged environment. The advancements and developments in ICT have made possible information access and retrieval much faster in present times.

Pujar, S.M, Sangam, S.L (2007)[54] carried out a study entitled "Information use by economists: A study". Discusses the information use pattern of Indian economists in the present Internet era. Highlights the use of various types of resources, including institutional resources and role of NASSDOC in providing various services to social scientists

Carol Tenopir,(2003)[55] carried out a study entitled " Use and Users of Electronic Library Resources: An Overview and Analysis of Recent Research Studies" Academic faculty and graduate students read the most, and they readily use electronic journals accessible from their office or home, but scientists in government laboratories and companies also rely on electronic and paper journals for research. Students prefer to access electronic resources through the library from home. Users in medical libraries read from fewer journal titles than do general university or college users. There is little evidence that gender in most cultures makes a difference in use of electronic resources, although in the DLF/CLIR/Outsell studies, women report more use of electronic journals and men use Web search engines more often to locate journals.

2.3 REVIEW OF TRADITIONAL RESOURCES AND ELECTRONICS RESOURCES

Kacherki(2010)[56] carried out a study entitled "Print vs e-Journal and Information Seeking Patterns of Users: A Case Study of SPJIMR". The developments in information technology have made drastic changes in the way the information is collected, stored, retrieved, and distributed. Electronic journal is one of the products of information and communication technologies. The advancement of e-journal during recent years has given librarians a powerful new resource to support learning and research. With availability of both forms of journals in the library, it has become necessary to compare and evaluate effectiveness of e-journals and print journals from users' and library's' point of view. The paper discusses a case study done at SP Jain Institute of Management and Research to find out the information-seeking patterns of the library users. The paper also discusses advantages and disadvantages of e-journals and suggests that printed and e-journals are complimentary to each other.

Kathleen Bauer (2001)[57] carried out a study entitled "Indexes as Tools for Measuring Usage of Print and Electronic Resources". Libraries are experiencing rapid change as they add electronic resources. These resources are popular with patrons, but their usage is not captured in traditional library statistics. Libraries must find a way to represent the diverse data available for electronic resources in some meaningful way that allows for comparison with statistics for print resources. To do this, the Cushing/Whitney Medical Library has created two indexes, the Electronic and Print Usage Indexes. An index is a simple tool that combines data

on items from a group into one number and so represents overall change in the group. The indexes at Cushing/Whitney show that in 1998–1999, patron usage of electronic resources more than doubled, whereas print use declined.

Tammy R. (2004)[58] carried out a study entitled "Print versus Electronic Journal Use in Three Sci/Tech Disciplines: What's Going On Here?" An evaluation of journal use statistics at Washington State University was undertaken to determine if the selection of electronic journals in the Owen Science and Engineering Library was changing student and researchers' choice of journals. Use statistics showed that most print journals were being used more than they were prior to the advent of electronic journals. Generally, electronic journals were used heavily and the availability of electronic format greatly enhanced the total use of most titles. However, some electronic journals were used little or not at all, and there was a substantial increase in the use of some print titles.

Shawn V. (2003)[59] carried out a study entitled "Caught in the Web: The Impact of Library Instruction on Business Students' Perceptions and Use of Print and Online Resources". Many business students rely heavily on the Web for research, in part because of their unfamiliarity with the breadth of their library's business resources (online and in print). This study sought to determine whether library instruction could impact undergraduate business students' attitudes and use of three information formats: print materials, library databases, and Web resources. Over the course of a semester, pre-/post instruction questionnaires were collected from ninety students enrolled in a business capstone course. Results indicate that

after library instruction, students held more favorable attitudes toward print resources and used them in their research more than they had initially expected.

Gerke (2010)[60] "The Physical and the Virtual: The Relationship between Library as Place and Electronic Collections ".A statistical analysis of responses to a LibQUAL+™ survey at the University of Colorado at Boulder (UCB) was conducted to investigate factors related to patrons' satisfaction with electronic collections. It was found that a respondent's discipline was not related to his or her satisfaction with the Libraries' electronic collection, nor was the frequency with which the respondent used the Libraries' facilities or used commercial search engines. The factors significantly related to users' satisfaction with electronic collections were the frequency with which they used the Libraries' Web site, and, most interestingly, the physical library they most often visited.

Kimball (2010)[61] This study compares usage figures between equivalent e-books and print books owned by the Texas A&M University Libraries in the physical sciences and technology. For NetLibrary, the top 10 science e-books were used over six times more than the print books, and the top 10 chemistry e-books were used over three times more than their print counterparts. For e-library, the top 17 science e-books were used at least 17 times more than the same print books. In Safari, the top 10 computer science e-books were used 207 times more than their print counterparts. Usage statistics such as these can help librarians make informed e-book purchase decisions, especially in times of retrenchment.

Robert (2010)[62] discusses with the advent of e-journal preservation projects and ,publisher digitization of journal back files, academic libraries have begun to move their corresponding print volumes of these titles to storage to avoid duplication and save space. This article examines the supporting justifications, outreach mechanisms, and logistical procedures undertaken at American University Library to relocate the entire bound journal collection to offsite storage in order to address severe physical space constraints and to support patron use of and preference for electronic journal content. In addition, the article presents preliminary data regarding the use of bound volumes sent to storage and an overall analysis of this transformational project.

Morgan, Pamela S (2010)[63] discusses a research study about the impact of the acquisition of electronic medical texts on the usage of equivalent print books in an academic medical library. The researchers conducted four usage studies. They found substantial and increased usage of electronic books compared with the usage of print books, while usage of print texts both in the reserve collection and in the general collection decreased from 1998 to 2009. The number of e-books in the STAT Ref package increased annually from 2003-06. Analysis also showed that the acquisition of the electronic version of a medical title had little impact on the usage of the equivalent print version.

Robb, Beth G. Hicks, Elaine R. (2010)[64] Providing both print and electronic access to journals in a small hospital library is no longer possible, but what is the best way to adjust services? An evaluation plan was developed to assess print journal use and guide decisions regarding format purchases.

Lippincott, Joan K (2007)[65] describes that Print and digital resources can have creative and interesting relationships; they do not need to reside in separate worlds. Libraries can play a role in working with faculty and students in promoting use of print resources to create new digital products and can be partners in creating learning objects that incorporate primary source materials from the library. Librarians can use the digital environment to create exhibits, displays, and community activities that encourage the use of print materials from the library. These are some of the synergies that can be promoted through the combined use of print and digital resources.

Krishna (2010).[66] A detailed study has been made with help of data collected from 188 users of Mody Institute of Technology and Science (MITS). For this a questionnaire method has been used to know the users response about different aspects of reading habits. All the data pertaining to present study has been analyzed into tables for final interpretations. The study has also been made on different characteristics concerned with print/digital/electronic resources. The various characteristics like attractiveness, portability, need of power supply, infrastructure required, speedy and time savvy, money savvy, up to date information; reliable information and flexibility, etc are taken into consideration for study. The purpose of this study is to know the various approaches for reading habits. Frequency of use of library: Types of reading material used by users, Awareness of E-resources among the users, users approach for information access through Internet, satisfaction of users for E resources, limitations of reading habits in print/digital media access.

Agboola, Idayat Odunola(2010)[67] covers the two-part questionnaire was designed to elicit information on use of print and electronic resources by agricultural science students in Nigerian universities. 912 respondents from faculties of agriculture in three Nigerian universities completed the questionnaires. The results revealed that agricultural science students most prefer to use textbooks (42.1%) among print materials, while The Essential Electronic Agricultural Library (TEEAL) is the most preferred among electronic resources available in their libraries (52.2%). Major problems faced by the agricultural science students include inadequate access to full Internet connectivity and lack of skills on their part to use available electronic databases properly. The study recommends restructuring library collections by increasing the number of agricultural textbooks and databases to meet the information use and retrieval needs of agricultural science students. Other recommendations include establishing Internet-ready computer centers to complement teaching, learning, and research in the library.

De Groote (2008)[68] Purpose of the research assesses the impact of online journals on citation patterns by examining whether researchers were more likely to limit the resources they cited to those journals available online rather than those only in print. Publications from a large urban university with a medical college at an urban location and at a smaller regional location were examined. The number of online journals available to authors on either campus was the same. The number of print journals available on the large campus was much greater than the print journals available at the small campus. The methodology of searches by author affiliation from 1996 to 2005 were performed in the Web of Science to find all articles written by affiliated members in the college of medicine at the selected

institution. Cited references from randomly selected articles were recorded, and the cited journals were coded into five categories based on their availability at the study institution: print only, print and online, online only, not owned, and dropped. Results were analyzed using SPSS. The age of articles cited for selected years as well as for 2006 and 2007 was also examined. And the find are number of journals cited each year continued to increase. On the large urban campus, researchers were not more likely to cite journals available online or less likely to cite journals only in print. At the regional location, at which the number of print-only journals was minimal, use of print-only journals significantly decreased. Conclusion/Discussion: The citation of print-only journals by researchers with access to a library with a large print and electronic collection appeared to continue, despite the availability of potential alternatives in the online collection. Journals available in electronic format were cited more frequently in publications from the campus whose library had a small print collection, and the citation of journals available in both print and electronic formats generally increased over the years studied.

Robinson (2010)[69] reviews that are printed reference sources and references desks are still vital parts of reference service in some libraries, while in others innovative models such as roving reference and learning commons thrive. While undergraduate student's preferences and usage has shifted from print to electronic, students still need to learn the application of Meta cognitive thinking skills in library research. Updating how reference is delivered to accommodate students' emphasis on mobility and expectation of access to information has led to revitalizing reference collections, reconfiguring space as learning commons and roving reference as solutions at Taylor University and Palm Beach Atlantic

University, while Whitworth University retains a more traditional configuration to meet student research needs.

Kieft, Bob (2010)[70] the article discusses the collection management methods of college libraries concerning monographs. The author explains the changes increased digitization have on collections in academic libraries, and examines key components in the renewal of monograph collections, citing steps taken by Occidental College in Los Angles, California, such as planning for storing and archiving academic journals, and focusing on the growth of electronic collections rather than traditional book and print collections. Patron-driven acquisition programs, changes book vending companies such as YBP are initiating in reaction to the popularity of electronic books (e-books), and the roles of college libraries as teaching facilities are also included.

Zimerman, Martin (2010)[71] the purpose of this paper is to describe how the tipping point may have been reached with regard to the transition of periodicals between print and electronic. The methodology of the literature search encompassed articles on the transition of periodicals between print and electronic status. The finding are the libraries will soon have to decide, based on budget, what is affordable in terms of periodicals. Vendors are integral to this process and libraries need to negotiate skillfully with them in order to keep costs in line. Electronic resources will serve researchers well, since they provide easy computerized access (searching, cut and paste) to materials previously only found in print. The limitations are a dichotomy of feelings represented in the literature on the transition of journals from print to electronic. Most of the literature seems to

indicate that the move to electronic journals is good for researchers. The Practical implications are move to electronic resources will provide a rich base of digital literature that was not available to researchers before, and this will result in upgraded efforts at publication. Searching electronically can be an enormous timesaver and provides a previously unknown range of searching.

The value of the research includes examples of what experts in the field suggest to resolve this issue.

Webster, Keith (2010)[72] the article offers the author's insights on electronic reference sources. The author mentions that internet-based reference resources have many advantages over their printed equivalents. The author also adds that the reference resources allow simultaneous use, provide safety from theft or deterioration, can be easily updated and can be located easily. The author also argues that printed reference materials have long life but its nature and location will change.

Ritchie, Genoni (2007)[73] the purpose of this paper is to explore the evolving balance between the use of print and electronic sources for answering reference questions. The methodology is a review of the international literature from the mid-1990s is conducted. A case study of reference questions received at the Northern Territory Library is undertaken, by auditing data held in the online reference information management system. Over 620 questions are categorized according to the sources used in responding to those questions. The Results indicate that print and electronic sources are both important to the reference service at the Northern Territory Library. The research limitations are great difficulty in

assessing what constitutes a 'correct' balance between print and electronic sources for responding to reference questions, and the current practice is likely to differ significantly between libraries. The results of the study are discussed in terms of their implications for the future of reference services and the education and training needs of reference librarians. From the results of this study, coupled with data gathered from the review of international literature, it is possible to identify trends and issues influencing reference services and collections.

Slater, Robert (2010)[74] expresses that the E-books have yet to assume a significant place in academic library collections. This article focuses on extracting common themes from the literature that might help the reader better understand why e-books have not yet become the cornerstone of the academic library. Patrons do not use e-books because they find the experience of using e-books incongruous with their experience of using other electronic resources, and many of the unexpected limitations they encounter when using e-books are not inherent to the format. Most often, they are purposefully imposed limitations tied to digital rights management techniques. Librarians do not purchase e-books because the titles they want to acquire are often not available electronically, because they are priced or packaged in a way that makes them less appealing than their print counterparts, or because acquiring e-books does not easily integrate into their normal acquisitions workflow.

Norlin(2000)[75] expresses that traditional reference services, where librarians gives the users the right or wrong answers to questions, has slowly begun to change. With the emergence of electronic resources, digitalization, World Wide

Web resources, and full text databases, many students need more of a consultation on where to get started than on which option is correct. Librarians at Arizona University Libraries strive to help students gain user sufficiency and information literacy. When on the reference desk, they tend to teach rather than do the work for the students. As the libraries are customer centered, it was decided to conduct an evaluation of its reference services. The evaluation involved using a combination of surveys, focus groups, and unobtrusive observation worksheets with a small sample of students. The results were very meaningful.

Bargellini(2001)[76] shows Distance learning can be defined, in the most general terms, as a method of education that involves an instructor and student(s), who are separated geographically and must rely on one or more methods of long-distance communication. It is the direct descendant of correspondence and home study courses that were developed in the nineteenth century. What is new, however, is the wealth of telecommunications and telemetries options available today that enable the provision of this high-tech educational environment and the enlargement of the potential user base. Libraries have a central role in education, learning, and vocational training in support of increasing knowledge. The rapid evolution of information and communication technology in the learning field imposes supports and stimulates the re-engineering of the library. This paper provides a description of a new distance learning scenario in a library service.

Philip Barker(1986)[77] In the context of information storage and sharing new electronic technology has much to offer conventional library systems. A video disc can be a valuable storage component. However, its full potential is unlikely to

be realised if it is used in isolation from other equipment. Computers, communication networks and video discs can together provide many novel information storage and dissemination systems for use in libraries. This paper describes some of these and also gives a brief outline of some approaches to providing the all important user interface to such systems.

R.P Kumar(1993)[78] describe that in India is one of the oldest civilizations with a kaleidoscopic variety and rich cultural heritage. It has achieved multi-faceted socio-economic progress during the last 43 years of its independence. As the seventh largest country in the world, India is well marked off from the rest of Asia by mountains and the sea, which gives the country a distinct geographical entity. India comprises twenty five states and seven union territories. India has made commendable progress in the technological, engineering and communication fields. Modern technologies are applied to information handling. Production of hardware and software technology is domestic. National resources are augmented by establishing links with the international systems. There are 106 medical colleges, and 40 dental colleges in India. Besides this, there are nursing colleges, pharmacy colleges and other institutions. Each college/institution has a library of its own attached to it. The libraries can be classified into Medical, Research, Ayurvedic, Homeopathic, Dental, Unani and Pharmaceutical Libraries. A survey was carried out on the usage of modern technologies in health sciences libraries example Photocopiers, microfilming, computers, facsimile transmission, audiovisual, online searching and CD-ROM in the form of a questionnaire. Personal visits were made to a number of libraries and some of the librarians were also interviewed. This paper examines the impact of modern technologies on

medical libraries, and concludes with the problems faced by the librarians in adopting the modern technologies and suggests the need and measures for implementation of modern technologies to health science libraries.

Frances Schofield [79] expresses that the people's network (PN) aims to ensure the provision of free and open access to Information Communication Technologies (ICTs) through public libraries. This paper compares the usage of a PN converted library to an original learning centre. It was found that a wide range of people from different age groups and backgrounds use the ICT facilities. The results also indicated that both libraries had been successful in providing access to ICTs for people who would otherwise have had no access, although the age of the technology available in the more established learning centre had a negative impact on users, and the take-up of online learning opportunities had not been as prominent as would be expected.

Olayinka Catherine Fatoki(2006)[80] describe that the GSM technologies acceptance and growth rate among the Nigerian populace has serious and great potentials for enhancing the communication and information technology-related services in libraries and information centers in Nigeria. However, information managers need to fully exploit the opportunities presented by this relatively new phenomenon with a view to providing improved products and services to the library users, especially in the academic sector.

Damaris Odero-Musakali(2005)[81] expresses that the potential advantages of the internet appear to have precluded the foresight of Kenyan university libraries to the challenges that may be associated with its deployment. There is clear under-

utilization and considerable disparities between and within the libraries in their levels of general Information and Communication Technology (ICT) deployment and use in Kenya. Most public university libraries still use conventional methods of service provision, suggesting that most library employees are not ready to embrace and integrate these information technologies in their routine operations. If promising ICT applications cannot be widely deployed, then the benefits resulting from such technologies are likely to be equally curtailed.

Sarah Ormes(2007)[82] considers this paper explores some of the issues surrounding the development of Internet services in public library children's services. It notes that IT services have generally been undeveloped in children's libraries and that this trend must not continue with networked computer services. It recognises that the lack of net-worked computer service provision in children's libraries may lead to them seeming ‘irrelevant’ and ‘old fashioned’ to their users. The paper focuses on literature and literacy issues in relation to information and communication technology (ICT). It notes that few libraries have been using ICT to support their literature-based services. One possible service model for the integration of ICT into literature services, UKOLN's Treasure Island Web site, is described and the results of an evaluation of it interpreted. The paper concludes looking forward to the Stories from the Web project which will develop the Treasure Island model further.

Nancy K. Herther(1998)[83] the purpose of this article is to advocate for a broader discussion of potential needs for better communication and theory in the areas of technological adoption, management and application in libraries and

information centers. From personal readings, reflection, experience and the insights of others in the field, the paper considers movements in the larger library and information science (LIS) theoretical literature and its potential application to technology issues. Numerous areas of potential future research and action in the field are identified to stimulate further discussion and efforts. Although these newer theoretical discussions have stimulated research and reflection in the few, few discussions have been made in the information technology arena, an area ripe for such consideration

Padmini Srinivasan(1998)[84] It is well understood that knowledge management is extremely important in order to achieve the goals and aspirations of research communities. Traditional knowledge management methods linking different knowledge resources are now being augmented by newer models and methods that have excellent potential benefits. The new innovations typically involve creative combinations of technology, human expertise and communication models. Innovations such as digital libraries have attracted significant attention, especially in the publishing industry. Some of these projects have made the transition from prototypes to production systems, enabling relatively quick and reliable access to research publications. Other innovations such as "Push Technology" or information filtering promise a level of maturity that could offer researchers a constellation of automatic electronic agents that assist with highly specialized aspects of the research process. This paper examines developments in some of these innovations and their potential for researchers.

Sandra Sharp(2005)[85] expresses that The library services has developed a learning plan offering different levels of access to information and communication technologies to give the opportunities to all and are trying to expand on provision to learning and information technology to vulnerable and hard to reach groups.

Rachel Spacey, [86] a consideration of the implications of technological change for public library staff and managers in the UK is based on the selected results of a literature review. Recent developments affecting the growth of information and communication technology (ICT) in public libraries provide a context against which research into the effects of automation, the introduction of ICT in a variety of library environments and into society generally, are explored. The values of attitudes to ICT are questioned noting that attitudes are often seen as being important in determining the successful implementation of ICT in libraries. Training is suggested as an appropriate means of enabling staff to cope effectively with technological change. Successful training needs to appreciate that staff have different needs and so prefer different training methods. Resistance is also viewed as a natural response to change that managers should note and attempt to understand, if and when it occurs.

Hudron K. Kari(2003)[87] discusses that the empirical findings of the research are as follows: about 80 per- cent of Nigerians live in rural areas and are predominantly poor farmers and fishermen, of whom about 90 percent are illiterate in the Western sense. They lack basic information infrastructures such as internet, libraries and information centres, and electricity. The oral tradition is still prevalent and written communication remains elusive because a majority of the populace is

still illiterate. Rural dwellers show positive response to the services of information agents such as agricultural extension workers, rural health workers, etc.

Samuel Olu Adeyoyin(2007)[88] expresses that that the result of the findings showed that out of about 370 professional librarians, only 179 of them were ICT literate while the remaining 191 professional librarians were ICT non-literate. This constitutes an overall percentage of 48.38 percent for the literate professionals as against 51.62 percent for ICT non-literate professionals. Also, out of 526 paraprofessionals, only 84 of them were ICT literate while the remaining 442 were ICT non-literate. This also constitutes 15.97 percent for the literate paraprofessionals as against 84.03 percent for ICT non-literate paraprofessionals. Other staff totaled 1,471. Only 190 of them were ICT literate while the remaining 1,281 were ICT non-literate. This also constitutes 12.92 percent for the literate other members of staff as against 87.08 percent for ICT non-literate other members of staff.

Sheila Corrall(1995)[89] analyses the way that higher education library services are viewed, planned and managed must change radically if they are to survive and thrive in the future. Advances in technology, economic and political pressures, and socio-demographic factors have combined to create an environment posing unprecedented challenges and opportunities. The Joint Funding Councils' Libraries Review has highlighted the need for stronger management and more confident involvement in institutional planning and organizational change. Electronic communication will transform service provision, with significant shifts towards distributed networked services, empowering the end-user and offering new

roles and responsibilities to information intermediaries. Effective communication between library, computing and academic staff will be essential to ensure relevant and responsive services. New resource models will be required to take account of diverse customer needs and different modes of delivery. Organizational structures and management styles must change to meet future needs and human resource development must be given higher priority. Bold leadership will enable libraries to enhance their strategic role and respond positively to environmental change.

Rowena Cullen(2003)[90] expresses that the phrase "Digital Divide" has been applied to the gap that exists in most countries between those with ready access to the tools of information and communication technologies (ICTs), and those without such access or skills. This may be because of socio-economic or geographical factors, educational, attitudinal and generational factors, or because of physical disabilities. The paper reviews recent research concerning the digital divide in New Zealand, and the factors that alienate people from enjoying the benefits of information technology and participation in the knowledge economy. While socio-economic factors affect use of ICTs by urban Maori and Pacific Island communities, and rural communities are affected by inadequate telecommunications infrastructure, rural Maori are even more disadvantaged. The paper examines strategies used in the USA and the UK at national and regional levels to address similar issues, including the use of libraries to reduce the digital divide, and compares these with New Zealand initiatives, to identify positive means of increasing participation in the knowledge economy.

Rita Marcella(2003)[91] discusses the second stage of a pilot study, funded by the Economic and Social Research Council, which investigated the impact of technology on the communication of parliamentary information to the general public. This second stage tested the application of a new data collection tool – an interactive, electronically assisted interview delivered in a road show environment. The approach was tested in the context of the public's need for information about the UK Parliament, the Scottish Parliament and the National Assembly for Wales. Interviews were carried out by a researcher, aboard a minibus equipped with a laptop and mobile data transmission equipment, who assisted members of the public in exploring and responding to parliamentary and devolved Assembly Websites. Roadshows took place across the UK at organisations such as public libraries, community centres, sheltered accommodation and universities. Discusses in critical detail all aspects of the execution of the methodology and draws conclusions as to its validity for future research.

Suzie Allard(2002)[92] shows knowledge creation relies on melding powerful technological tools with efficient human organizations. Digital libraries (DLs) provide the technological mechanisms to cross national and disciplinary boundaries, and promote an organizational structure that encourages communication between scholars who are both creating and consuming information. The DL is especially good at coordinating and integrating findings about a specific topic that is being studied by different disciplines and different nations, which is an essential component to further our knowledge. This paper will briefly outline the knowledge creation process, and will introduce the author's SEEK model (Structure for Encompassing Extensible Knowledge) that provides a

framework for exploring the relationship between technology and human organizations in international interdisciplinary knowledge creation. The paper will also introduce two models of electronically-based scholarly organizations that promote international collaboration and facilitate knowledge creation, and will offer eight steps towards building the effective organization for utilizing DLs for international collaboration.

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