CHAPTER II

Review of Relevant Literature

For any research work, review of literature is placed most important portion. Review of literature is a measure, stating the recent output on a particular area of research and organized in a helpful sequence to strengthen the present research. The main objective of the review of literature is to understand the research activities that have taken place in a particular discipline in general and the area of research in particular. The review of literature is a tool to enable the scholar to move in the right direction. As the present study is aimed at understanding the impact of ICT on the administration and functioning of college libraries, the reviews pertaining to professional attitudes of college librarians towards information technology are collected. The contribution of academicians, information scientists, research scholars, and library professionals on this topic in various dimensions has yielded invaluable set of research output. The review thus collected are classified into three groups namely:

1. New dimensions of Academic Libraries
2. Impact of ICT on the functioning of Academic Libraries
3. Information seeking behavior in the electronic era
3.1 New dimensions of Academic Libraries

Gopinath, M.A.\(^1\) (1990) identified that the human beings are one of the important factors in library management. The problems or complications faced by librarians are more or less same in any type of library. Increased access to knowledge is one of the issues that made the librarians to learn or improve the skills, particularly, information technology. The library professionals should act as a link between knowledge sources and knowledge seekers. To make the libraries user oriented, to satisfy potential users, to adopt with electronic media, to identify the services those can be offered at a price, etc. the library professionals should have training in traditional librarianship and Information Technology oriented librarianship. The author noticed the developments in library profession such as generation of information in variety of forms, computer and communication technology, exchange of information, manipulation of information, etc. He suggested the following skills for professionals:

- Knowledge of specialized reference sources.
- Specialized analytical skills and techniques.
- Collection Development
- Library automation etc.

Malinconico\(^2\) (1991) opined that the libraries and librarianship is rapidly influenced by modern and electronic technologies. The new technologies and services in libraries and information centers will be controlled and managed, whom we call Librarians. The new technologies empowered the library professionals to do things


qualitatively and quantitatively. The changes appeared in information infrastructure such as computer, telecommunication networks, increased use of mainframe computers for local library systems, access to additional information, databases through online public catalogues etc. have significant influence on professionals and their attitudes to set, along with changes in the environment. The author mentioned a variety of computer readable information sources, which requires training for the library professionals to use them properly. Further, the developments in information technology that are influencing access to information and its management etc., were mentioned and suggested suitable training programmes for the professionals. The creation of global village and the role of librarians in information handling was predicted. The urgency of learning computing and communication technology was rightly stressed.

Haravu3 (1993) explained the library automation in India during a period of ten years in which he discussed about the database development and information retrieval services in research libraries. A comparison was made on application of automation in academic, public and research libraries. He opined that the automation in academic libraries is far from satisfaction and the situation in public libraries in India is still low. Most of the research libraries are under pressure to develop more efficient services and to provide better services. Main focus is given to the in-service training of library professionals at regular intervals, there by the quality of services can be improved. The availability of library software packages in India was discussed and compared with commercial software. The limitations of Indian software package are mentioned by comparing the software packages of the Western World. Most of the library

professionals are becoming not only computer literate but quite familiar to system analysis, programming and the application of new tools and techniques for library management and information retrieval.

Lambert⁴ (1994) stated that the advantages of CDs have increased its popularity to use the CD-ROMs in libraries and number of issues have to be attended such as financial sources, staff requirements, training, assistance to users, etc. The professional staff have to attend administrative as well as technical functions. To meet with the situation, the libraries have to introduce staff training programmes from time to time. The staff are required to be trained in the following aspects:

- Trained on each CD-ROM before it is made available to users;
- Competent on all publicly available CD-ROMs;
- Trained on the complete range of options of each public CD-ROM;
- Familiar enough with the structure and protocols of each CD-ROM;
- Able to move quickly and effectively from one database to the next;
- Able to advise end-users on which database to search for a specific topic;
- Able to handle basic troubleshooting problems, such as difficulties with the printer.

Sharma⁵ (1994) focused on personal transferable skills and the LIS professionals. The National Advisory Board for Public Sector, Higher Education stated the components on personal transferable skills, as:

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Communication skills,
Ability to working groups,
Problem solving and
Inter-personal skills.

These skills help the professionals to acquire specialized knowledge and skills as well as their application in the profession. The author suggested that the above mentioned components should be included in the curriculum of Library and Information Science.

Gilligan⁶ (1995) made a proposal to prepare library personnel for the libraries of 21st Century. She mentioned the future of libraries, besides traditional activities like collection, organization and preservation of information, the libraries have to give online public access, computerized circulation system, CD-ROM, Databases, etc. to get the information available in other libraries networking of libraries is necessary. Now the strength of the libraries will be rated on their services and ability to connect electronically with other libraries rather than on size of their collection. The changed role will become as information manpower or information navigator. The library staff should have communication skills through which they can educate their user, about the services available in their library.

Dhiman\textsuperscript{7} (1997) studied the use of computers and their application in libraries. The author listed in-house operations and services that can be automated in libraries as (1) Acquisition control, (2) Classification, (3) Cataloguing, (4) Serials control, (5) Circulation control and (6) Documentation and Information retrieval service. In order to attend to these activities technically qualified library professionals are necessary. Limited Professionals are having the knowledge of computers and computer operations. They suggested that sufficient funds should be made available for all activities of library automation including staff training.

Gupta\textsuperscript{8} (1997) stated that the library automation is one of the key activities in converting library service tools and practices to electronic based media. The information requirements of the users and its impact on libraries for using information technology are also discussed. The areas of automation in libraries are thoroughly studied and made an attempt to state the financial requirements necessary for hardware and software. The importance of information super highway, Internet facilities, digital libraries, and retrieval databases on tapes or CDs are also discussed.

Sharma\textsuperscript{9} (1997) discussed the challenges before the librarians while introducing automation in libraries. The author stated that manpower development is one of the areas of automation. The dependency of the society on libraries is increasing for its information requirements. Supply of current, pinpointed, exhaustive information in the shortest possible time is possible only by using the facilities of information technology.

So, it is the responsibility of the library professionals to update their knowledge to meet the situation successfully. The areas to be considered for automation in academic libraries are:

- Collection development;
- Serial control;
- Management of non-book material;
- Thesis and dissertation processing;
- Cataloguing and subject indexing;
- Reference and documentation service;
- Circulation;
- Financial management;
- Stock verification and inventory control;
- Co-ordination of different libraries; and
- Library statistics and research

To cope up with the changing situation, the professionals should develop the skills of Information Technology.

**Tanija, S.K.**\(^{10}\) (1997) stated that the Information Technology revolutions are greatly influencing the library profession. The information which is available in various databases cannot be achieved and maintained by the users. So, the libraries should act as intermediaries to provide the information from the databases to users. To cope up with this issue, the library professionals should have to develop the skills that are necessary to handle databases. The emerging communication technologies also

influencing the library services and has an impact on library profession. All these changing trends have direct impact on library profession.

**Biswa and Kamila**\(^{11}\) (1998) discussed the issues involved in information management in libraries. They mentioned the changes in the characteristics of information systems, styles of management attitudes, skills of staff. Discussion was centered on the skills, knowledge of the professionals to cope with information management in the light of information technology. Further, they advocated training for library staff.

**Malaisamy**\(^{12}\) (1998) discussed in-detail about the importance of computer, Internet and computer education for library staff. For library management, the professionals should have knowledge on areas of in-house activities of Libraries. Most of the library staff had their training on traditional techniques. Therefore they need to be trained and exposed to modern electronic information technology devices with special reference to the effective way of storing and retrieval of information. He suggested that the library staff needs to be mentally prepared to accept knowledge and skills, which would bring qualitative change in their services to users.

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Ramesh\textsuperscript{13} (1998) stated the technical problems in university libraries during automation, wherein the professional problems were also discussed. The author advocated for adequate training on IT applications. Further, emphasis is given to the continuous in-service training to library professionals to enable them to learn new knowledge. The management of libraries should provide financial resources for automation activities.

Sharma\textsuperscript{14} (1998) viewed in his paper, that the information technology involves computers, electronic media, satellite, telecommunications and storage devices. It has made a deep impact on academic libraries. The emphasis of these libraries is shifting from collection to access. Academic libraries in India still face several challenges due to the emergence of IT. He has listed all the challenges and dealt in detail with one of the foremost challenges, i.e., manpower development in the context of IT. The provision of raising facilities on IT in the library schools, inclusion in curriculum, short term training facilities by other organizations, refresher courses, participation in workshops, seminars, conferences, conventions, etc. were discussed. For their own survival and for the survival of the profession, the librarians have to play their role effectively in future. Otherwise they will be replaced by a new group of professionals.

Subba Rao\textsuperscript{15} (1998) stated that information technology (IT) has radically changed the nature of work in the library profession. Keeping the libraries in institutions


\textsuperscript{14} Sharma, P.L.(1998) .Exploitation of IT, academic libraries and human resource development. Proceedings of the 5\textsuperscript{th} National convention for Automation of Libraries in Education and Research (CALIBER-98), Bhubaneswar, India, 4\textsuperscript{th}–5\textsuperscript{th} March 1998, Pp.27-30.

\textsuperscript{15} Subba Rao, V.S.(1998). Impact of information technology on the knowledge and skill base of library staff in IIT, Bombay - A Study of management change. Proceedings of the 5\textsuperscript{th} National convention for Automation of 86 Libraries in Education and Research (CALIBER-98), Bhubaneswar, India, 4\textsuperscript{th}–5\textsuperscript{th} March 1998, Pp.35-39.
of higher learning (the IIT, Bombay) in mind, he mentioned the approaches for developing new skills demanded by the introduction of IT in the libraries. The IIT, Bombay library staff have responded positively to the changing environment, maintaining a satisfactory balance with traditional print based information sources and services. There is a substantial educational role for the librarian in familiarizing users with the networked learning environment and it is possible to carry out many of the activities associated with this role in cyberspace.

Misra\textsuperscript{16} (1999) advocates the use of CD-ROM as one of the means of electronic publications. The cost of conventional multimedia is increasing and the librarians have to opt relatively low cost machine, CD, DVD, floppy, magnetic tapes, etc. The author stated the features of CD-ROM and its storage capacity. The growth and development of CD-ROM database is discussed. It is reported that nearly 50 percent of the database belong to USA, followed by U.K. To make use of these electronic gadgets, the professional should feel the necessity of learning these skills.

Varalaxmi, R.S.R.\textsuperscript{17} (1999) listed the new changes occurring in profession such as, new categories of users, changes in information, changes in management, influence of Information Technology, etc. The role of professionals on these lines was discussed. The staff should provide the information needed by user which requires specialized knowledge and professional skills. The importance of communication skills were highlighted. Since the automation and application of Information Technology are inevitable in libraries, the staff should develop an attitude to learn the latest

\textsuperscript{16} Misra, Rabindranarayan.(1999). CD-ROM – A Medium of Electronic Publishing. ILA Seminar Papers, 45\textsuperscript{th} All India Library Conference, Hissar, 23\textsuperscript{rd} –26\textsuperscript{th} December 1999, Pp.316-320.

developments, taking place in library automation and information technology, which are necessary to improve the quality of information products and services.

**Lakshman Moorty and Karisiddappa**\(^{18}\) (2001) studied the information infrastructure facilities in Indian libraries. They have conducted a survey on 147 libraries, of which 78 are in government sector and 69 are in autonomous institutions. It is reported that 73 percent of the respondents using computers in their libraries. In the similar lines, they studied response rate on library automation software, use of media, use of online, electronic journals, etc. The response rate on digital libraries is not promising, as the respondents' knowledge on digital libraries is low.

**Pinfield**\(^{19}\) (2001) discussed the role of subject librarians in academic libraries in the light of information technology. In U.K. academic libraries, the delivery of library services are carried out through traditional and electronic library services. The traditional role as well as the changing role of library professionals was discussed. In addition to the traditional jobs, professionals have to perform other jobs which came into being due to IT. The role of professionals in the selection of eservices was highlighted, which requires a special training for professionals. Further, the author emphasizes on training in information skills to subject librarians for performing their job successfully. The importance of library websites and its advantages to library professionals to develop information landscape to users were discussed. This also demands the need for training of the professionals. Besides these, the author also recommended training


on communication skills, IT skills, presentation and technical skills, financial management skills, analytical and evaluation skills.

**Ghosh and Avasia** (2002) made an attempt to explain the role of intranet extranet and internet for information management in libraries and the responsibility of library professionals. The library professionals have to develop the skills to facilitate quality information retrieval in addition to traditional information retrieval skills. There is an urgency to inter relate users needs with the available technology to process the information. Training in internet would help the staff to discharge their duties, particularly updating of information. They advocated for proactive management of the information sources. Continual professional development is stressed upon library professionals. They opined that the tools required to make use of information through networks are totally different and emphasized training to professionals to that effect.

**Anjaiah and Sudarshana Rao** (2003) expressed that to ensure easy access to information; the professionals should be trained thoroughly with the areas of Information Technology. They suggested the following areas for training:

- Awareness on the sources of information availability.
- Familiarity with methodologies for identification, analysis, organization, evaluation, presentation and dissemination of information.

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Knowledge on planning, designing and developing local and regional information systems.

Skills required to collect, preserve, organize and dissemination of information.

Knowledge on Information Technology developments.

Knowledge on Automation and Networking skills.

Continuous professional training.

Uddin, H., and Akhter (2005) tried to highlight the libraries/information centers in the 21st century, the different components of providing digital information services, and Information and Communication Technology’s role in modernizing libraries. In Bangladesh, the use of ICT is yet to take off. In absence of strong telecommunication the Internet facility is not spread out successfully. Financial constraints are the major hindrance for its growth at the national, local and organizational levels.

Xu (2012) discusses the rapid development of computer network information technologies, libraries of colleges and universities. Digitization, networking, intellectualization have been the signs of modern library. In the network environment, the value of the university library is not only reflected in its collection, but also reflected on if it can satisfy users' requirements on knowledge information. The author expounded the present situation and problems of the construction of universities library information technology and the concrete measures that should be taken, and proposed

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two important problems which should be paid attention to in the construction of universities library information technology

**Konings and Dekker**\(^\text{24}\) (2005) observe technologies, ICT and the Internet, that were responsible for the emergence of the hybrid library led to a diversification of the activities that were deployed by libraries. They found that Libraries became publishers and publishers began offering their services directly to the end-users thus entering the library area. Where does this lead? Should we keep our current diversification strategy or do we need a new focus, a (redefined) definition of our core business?

**Ani and Edem**\(^\text{25}\) (2005) found 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 of Nigeria are inadequate funds and the poor state of electricity in Nigeria.

### 3.2 Impact of ICT on the functioning of Academic Libraries


Venkata Ramana and Vinod Kumar\textsuperscript{26} (1996) studied the influence of technology on libraries and network environment. Many changes are appearing in libraries due to the reasons like rising cost of materials, changing needs of users. They emphasized on library cooperation, through which the financial problems can be minimized. At this juncture, the use of information technology has become mandatory among participating libraries. So, the professionals in these libraries should be trained in library networks and communication technology.

Chandran and Ramesh Babu\textsuperscript{27} (1999) studied the application of information technology and professional attitudes of academic and professional college libraries in Tirupati. To elicit information from the selected respondents a questionnaire was designed and distributed. It is reported that all the respondents expressed positive attitude towards IT and also opined that the IT applications will improve the quality of library and enhance the knowledge and expertise. The professionals expressed that IT will help in bringing integration within the organization. All the respondents have accepted that IT will improve the communication facilities, helpful to obtain the right information at the right time in the right place at the right cost and improve the status of the library and information centers. Further, 40 percent of the respondents expressed that IT applications would disturb the routine work in library and information centers, while the remaining 60 percent opined that the workload of library professionals would be reduced gradually. However, majority of the respondents expressed their interest in


automating the library and information centers. All the respondents are of the opinion that the IT applications are necessary to manage the contemporary library and information centers. The study also stated that there are no sufficient funds to improve the IT infrastructure in library and information centers.

**Murthy** (1999) highlighted the role of librarians in the area of information technology. The areas stated that are relevant to libraries from information technology are – computer technology, telecommunication technology, reprographic technology, printing technology and technical communications. The application of IT can be used in the following areas in libraries – collection development and acquisition, cataloguing and classification, circulation, reference work, preservation and conservation and archiving. The importance of information analysis and repackaging of information would become necessary in future, which requires a reasonable amount of knowledge of IT.

**Nityanandam** (1999) discussed the role of Information Technology in Science and Technology Libraries. The components of Information Technology are mentioned as computers, telecommunications, storage technologies, databases, information systems, microforms, micro-graphics, expert system and video text and tele text, etc. The role of Internet in information flow and its impact on libraries is focused. The emergence of multimedia technology and its impact on the Science and Technology libraries is emphasized. The reasons for adopting multimedia are developments in computer and communication, need for information integration, digital libraries, distance

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learning, manpower training, information presentation, etc. To get the benefits of these technologies, the professional should cultivate the habit of learning and improving the skills regularly.

Sangam and Byadagi\(^\text{30}\) (1999) studied the impact of Information Technology on library services and products in which a reference was made regarding development of the professional skills. The importance of Information Technology in Library and Information Centres was thoroughly discussed. While discussing the requirements of the IT, they emphasized on the need for manpower development and motivation of manpower. The morale of the library staff will be increased, if the facilities of IT are applied in Library and Information Centres. They observed that most of the libraries would react negatively to any new system, particularly, library automation. Therefore, the attitudes of library staff should be re-examined and suitable measures should be taken to attract the library staff towards automation.

Sharma\(^\text{31}\) (1999) discussed about information technology in special libraries. In which, the key areas mentioned for automation are, library house-keeping operations, automation of reference services, classification, cataloguing, indexing, database creation, networks, reprography, technical communication, etc. For taking up all these activities, the library professionals should be thoroughly trained.

\(^{30}\) Sangam, S.L., and Byadagi, Ganga. (1999). Impact of IT on library services. ILA Seminar Papers, 45th All India Library Conference, Hisar, 23\textsuperscript{rd}–26\textsuperscript{th} December, 1999, Pp.466-477.

Ojha and others\textsuperscript{32} (2000) studied about the application of Information Technology in Indian libraries during the last decade of 20\textsuperscript{th} century. They made an attempt to visualize Indian Librarianship in 21st century in the light of ever-changing Information Technology. The use of computers in libraries, particularly for information management emphasized in which case the library professionals have to change from traditional techniques to modern techniques. According to them the impact of Information Technology in Library and Information Science is in the activities of networking, CD-ROM, Internet and multimedia.

Somasekhara Rao and Ayyababu\textsuperscript{33} (2000) made an attempt to study the attitudes of the professionals on information technology in Andhra University Library. In their survey, the Assistant Librarians, Library Assistants and the Technical Assistants were covered. They reported that the awareness on library automation is satisfactory. Regarding Information Technology, the response from library assistants is negative and rest of the professionals have knowledge. But, a majority expressed their willingness to gear up with the latest developments by attending short-term training programmes on computers. Most of the staff had training and would like to have further training. The respondents expressed their interest to use electronic media in their respective libraries and also e-mail, CD-ROMs etc. Almost all professionals selected for the study expressed their interest in learning and understanding the latest information technologies that are useful to information processing and retrieval.

Carolyn and Emmett\textsuperscript{34} (2001) conducted a survey twice from three libraries of Florida Community College. The professionals expressed their willingness to library automation, concerned about ergonomic factors. Automation had no influence on library administrative hierarchy, job satisfaction and major time saving benefits to workload. Some of the respondents expressed that the training on automation is not adequate. More than 63 percent of respondents stated their interest to learn new knowledge and the rest reported that they had insufficient background to learn the latest knowledge. The respondents expressed their satisfaction on the quality of training.

Gulati and Srivastava\textsuperscript{35} (2001) discussed the changes taking place in libraries due to Information Technology. In the changed environment, particularly, the use of Internet, Web resources, etc., the responsibilities of library professionals were discussed. The information publication is undergoing several changes and the use of information, the library professionals have to learn Information Technology skills. They suggested the training for library professionals to acquire skills in collection development, information consideration and re-packaging, data presentation, technical processing, information services, database management, etc. They concluded that, the Library and Information Science Professionals should know the skills that are necessary to create, collect, communicate and consolidate information on behalf of users.


Kasi Rao et al\(^{36}\) (2001) studied the application of IT among academic and special library and information centers in and around Chennai. It has been found that majority of the library and information centers have opted for IT applications. Interest for IT applications in libraries is not promising among the academic library professionals. Application of IT is more prominent in special libraries and information centers. They also expressed that there is a need for the provision of more funds for IT applications. Training programmes on IT are also suggested for library professionals.

Nandi, S. Gopal\(^{37}\) (2002) discussed the influence of Information Technology on LICs in the areas of library collection, library personnel, library equipment, library users, library building, etc. He made a comparison between existing pattern and changed pattern of the said areas. Further, stressed the importance of communication technology in discharging various library services. The areas of priorities for library automation were discussed, such as creation of databases, network development, housekeeping activities etc. The competencies that is necessary to make use of information technology facilities were listed – personal characteristics, basic skills, general knowledge and specialized knowledge. In India, more than 80,000 Public Libraries, 230 University Libraries, 8,500 College Libraries, 2,000 Government Libraries are managed by about 3,00,000 professionals. A plan should be made to train these many professionals towards information technology.


Ramzan, M$^{38}$ (2004) in his paper, presented librarians' attitudes toward information technology, their level of knowledge in IT, and their relationship with each other. Secondary data was collected through review of the relevant literature. Primary data was collected through a questionnaire survey of 244 librarians of libraries in Pakistan. The study revealed that awareness of the potential of IT, recency of attaining professional qualifications, and knowledge in IT had a significant relationship with librarians' attitudes. The study also revealed that librarians' level of knowledge in technology is a good predictor of their attitude toward application of information technology in libraries. Based on the findings, the paper puts forward recommendations to improve the librarians' attitudes toward IT applications in Pakistan and other developing countries

Paul, A.A., Rosnald, O.O. and Adeyinka, T$^{39}$ (2007) report that training and knowledge are the sine qua non of a positive attitude toward ICT. In this era, when new technologies are introduced almost daily, it is essential for librarians to keep up with ICT developments. The fear of some in the developing world toward ICT is widening the digital divide. Training is the first step, which will reduce fear when implementation of ICT begins.


Rabina, D.L. & Walczyk, D.J. (2007) examined the innovativeness of librarians with regard to their willingness to adopt ICTs. Using an online questionnaire and results from more than 1,000 respondents, distinct and consistent patterns were revealed. The findings showed that librarians' attitude towards new innovations is unevenly distributed, with most either accepting of new innovations or being late adopters. These findings were consistent regardless of demographic variables. Age, role, tenure, and library type were shown to have little effect on librarians' attitude toward the adoption of ICT innovations. The findings suggest that some of the conventional wisdoms regarding information professionals and their willingness to adopt new ICT innovations may be incorrect. Contrary to common beliefs, librarians in academic or special libraries are no more innovative than public or school librarians. Technical service librarians are not more innovative than public service librarians. Older librarians seem only a little less likely to accept innovations, and administrators appear to be no more innovative than the employees they supervise.

Theresa, W and Lalithamba, C. (2008) reported that application of ICT in libraries has become inevitable in an era of information explosion and widespread use of digital information resources. Effective application of ICT in libraries helps in performing their operations and services most efficiently. The modernization of libraries and information centers enabled information transfer and access, meeting objectives and there by establishes a network of libraries and information centres. This initiative

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saw a major shift in resource development, resource sharing and their utilization at various levels. They subscribe to e-journals, CD-ROM databases, online databases, web-based resources, and a variety of other electronic resources. They participate in library consortia and build digital libraries.

Cynthia Orr\(^\text{42}\) (2011) feels that some libraries have been more successful than others in implementing, promoting and managing their e-book collections. As he sees it, libraries will become the premium destination for access to copyrighted digital media. With many cash-strapped libraries already doubling their digital circulation since 2010, this may be a somewhat frightening scenario for those who wonder how they will afford to meet the new demand. But just as e-book popularity didn't take off in libraries until after the Kindle success led to better media coverage of the format, perhaps this new demand from thousands of outspoken Kindle users will challenge reluctant publishers to agree finally to do business with libraries.

Panda and Mahapatra\(^\text{43}\) (2011) surveyed the web-based library services or e-resources available at Gandhi Group of Institutions (GGI), Gunupur, Rayagada, and Odisha State, India. The library details hosted on the institute website. This survey reveals that the students are interested in accessing library website, because of the sufficient adequate and current information being made available on it. This case study also reveals about the services users expected to access through the Internet at their convenience.


Gunjal and Dhamdhere\textsuperscript{44} (2013) discusses the scope of information and computer technology (ICT) in the libraries. They found that prospective work on ICT-enabled learning would help to grasp the opportunities offered by ICT to prepare for learning in the 21st Century that embraces digital technologies for better learning, for better assessment of learning outcomes and achievements, for better teaching and for better social inclusion.

Lee\textsuperscript{45} (2005) Studied the impact of ICT on visually impaired people about two fundamental freedoms – Independence and Choice in library services. Before electronic information and on-line catalogues became available visually impaired people required assistance with reading and had limited choice of reading material. But now visually impaired people are no longer disabled in searching and surfing information on digital libraries. This study examines the ICT impact on library services for the visually impaired in mainstream libraries. New opportunities for mainstream libraries to integrate visually impaired people are discussed as well as the problems facing the mainstream libraries.

Buczynski and Mall\textsuperscript{46} (2010) conducted a study despite all the financial resources that are directed to support and acquire learning technologies. Faculties are eager to use technology but lack the technical skills, ability, and experience. Library staff includes a talent tool rich in Information and Communication Technologies


In terms of content sourcing and procurement, library technical services and selection staff have broad knowledge of the marketplace for online information and content as well as experience in licensing access. They have a firm grasp of the transaction process, workflows, pricing, and licensing negotiations. Content development and sourcing inevitably involves access management, online storage, copyright, and licensing—things at which libraries are good. ICT deployment is changing teaching and learning on campuses, and the roles of those involved in teaching and learning are also changing. Whether formally through mandated library services, or informally through back channels, library staff are supporting faculty new technology use as well as faculty teaching materials content sourcing and procurement.

Kehinde and Tella (2012) carried out study of websites of university libraries. It was found that most universities in Nigeria have provided their library with a Web site while more are developing Web sites for their library to meet the new information superhighway’s challenges. However, in-depth studies on the assessment of these Web sites have not been undertaken and the studies have been especially neglected or ignored by the Nigeria researcher. The available existing study only focused on the rating of the Web sites on the basis of the number of hits. In view of this, there is a necessity to research the aspects of in-depth assessment of selected academic library Web site, especially in view of the accelerating rate of university establishment in the country.

Afolabi and Abidoye\textsuperscript{48} (2011) examined the integration of information and communication technology (ICT) to library operations for effective library services and also reviewed the need for the effective application of ICT as the best tool for libraries to use in assisting educational researches and students in this age of information explosion, in ensuring effective services. The paper highlighted benefits and challenges of integrating ICT to library operations. The paper concluded by discussing possible solutions to various challenges to successful integration of ICT to library operations for effective services.

Haneefa\textsuperscript{49} (2007) revealed that though the libraries had hardware, software, and communication facilities to some extent, ICT-based resources and services were not reaching the users to the expected extent. Library automation in special libraries in Kerala was largely commenced during the period 1990-2000. CDS/ISIS was used more in the libraries than any other software. The library catalogue found to be the most popular area for automation. The ICT-based resource used by the largest percentage of the users was the e-mail. Most of the libraries were hampered by lack of funds, lack of infrastructure, and lack of skilled professionals to embark on automation of all library management activities and application of ICT. A good number of the library users were not satisfied with the application of ICT in their libraries and indicated “inadequate ICT


infrastructure” as their major reason for dissatisfaction. They proposed a variety of measures of formal orientation and training on ICT to become more effective users.

**Achufusi and Nwosu**\(^{50}\) (2013) studied the use of information and communication Technology (ICT) in the polytechnic libraries. The analysis of the data collected was based on frequency table and it was observed that problems associated with the use of ICT are computer illiteracy, inadequate funding, unreliable power supply and lack of trained staff.

**Lucy Ndidiamaka and Nebeolise**\(^{51}\) (2013) examined the impact of information and communication Technology (ICT) compliant librarians on library services delivery on NOUN library. It was found that the use of ICT compliant librarians on library service delivery aids immensely in the development of NOUN library, quick delivery of information services, access and easy retrieval of information by users. The study shows that inadequate ICT skilled professional Librarians, inadequate provision of ICT training programmers, inadequate Power supply and inadequate ICT infrastructures hinder the effective use of ICTs in NOUN library.

**Mohsenzadeh and Isfandyari-Moghaddam**\(^{52}\) (2009) study show that the level of application of information technology in Kerman academic libraries is acceptable but they should improve their status to match with ever increasing demand for better

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librarian services at universities; the most important problem and serious difficulty is the lack of educated librarians, which needs a suitable investment and planning; and, although about 70 percent of librarians in Kerman academic libraries have participated in related training courses, the most serious difficulty in using information technology is still the lack of educated librarians.

Gulati\textsuperscript{53} (2004) discusses the status of information and communication technologies usage in Indian libraries with special reference to special libraries and the efforts made by various institutions to propagate e-information products and services. This paper highlights the consortia efforts in India like JCCC Consortium, INDEST Consortium, CSIR E-journal Consortia, and UGC Infonet. It further discusses digitisation efforts in India at NISCAIR, New Delhi, IIITM, Kerala, C-DAC Pune, and the Digital Library of India. In addition it incorporates details on major information systems in India (such as NISSAT) and major library networks in India (such as INFLIBNET, DELNET, CALIBNET etc.). The paper concludes with challenges for library and information science professionals and an overview of initiatives taken by Government of India.

Okiy\textsuperscript{54} (2005) identified that the obstacles militating against effective application of ICT in university libraries include inadequate funding, inadequate electricity supply, shortage of competent manpower for operation and maintenance of ICT facilities, lukewarm attitude of the Nigerian government towards the provision of ICT facilities and low level of computer literacy among Nigerians.


Womboh and Abba\textsuperscript{55} (2008) gives an overview of the state of the ICT in Nigerian university libraries and traces the development and management of ICT facilities in the Federal University of Technology of Technology Yola library. Some problems militating against proper functioning of such facilities are highlighted and suggestion for possible solutions proffered.

Saxena\textsuperscript{56} (2014) discusses the impact of digital technology and role of libraries in the age of knowledge and information societies. It also highlights the problems faced by the academic libraries in India in implementation of digital technology. The findings show that notable number of digital resources were found in the academic libraries of different states of India such as Tamil Nadu, Karnataka, Rajasthan, Kerala and Uttar Pradesh though still the collections need to be increased in numbers, in this regard this research concludes with some specific suggestions to increase digital resources in Academic Libraries of India.

Bingsi evaluate\textsuperscript{57} (200) discuses the implementation of. Cloud computing will bring both challenges and benefits to library management. The Challenges faced by library management includes fungibility, standard, data security and intellectual property. Librarianship should concern for: the principle of cloud computing; viability of library application; policy, standard and protocol of cloud computing; library administration based on cloud computing service; and case studies.


Khan\textsuperscript{58} (2007) identify the application and Usage of Information Technology (IT) in university libraries of UP in terms of house keeping activities as well as IT-based services provided to the users and also to determine the extent of providing status of IT in the university libraries of UP. The study is based on questionnaires, interviews and observations. The findings of study revealed that there is a bit difference between the old centralized and newly centralized universities especially in BBAU the \textit{denovo} centralized university. It has to do a lot in the sphere of providing IT enabled services to the users. The lack of planned funding, inadequate budget plans and the time constraints for the up-gradation of IT enabled services are the major reasons attributable to this backdrop.

Akeriwa and Holmner\textsuperscript{59} (2014) illustrates that Libraries all over the world are utilizing the latest Information and Communication Technologies to assist in their objective of providing clients with effective and efficient services, as well as timely access to needed information. The implementation of social media and the use of mobile technologies for service delivery are trends that have, however, not yet been fully embraced by academic libraries in developing countries in sub-Saharan Africa. This article reports on a study aimed at investigating the possibility of using mobile technologies to implement social media based services to graduate students at the University for Development Studies Library in Ghana. This article provides a short overview of the various technologies and services available, discusses the opportunities and challenges for implementing such services at the University Library.

\textsuperscript{58} Khan, A. M. Usage and Application of Information Technology in Central University Libraries’ of Uttar Pradesh (UP), India.
\textsuperscript{59} Akeriwa, M., Penzhorn, C., & Holmner, M. (2014). Using mobile technologies for social media based library services at the University of Development Studies Library, Ghana. Information Development,
Tibenderana and Ogao examine\textsuperscript{60} (2008) University libraries in Developing Countries (DCs), hampered by developmental problems, find it hard to provide electronic services. Donor communities have come in to bridge this technology gap by providing funds to university libraries for information technology infrastructure, enabling these university libraries to provide electronic library services to patrons. However, for these services to be utilized effectively, library end-users must accept and use them. To investigate this process in Uganda, this study modifies "The Unified Theory of Acceptance and Use of Technology" (UTAUT) by replacing "effort expectancy" and "voluntariness" with "relevancy", "awareness" and "benefits" factors. In so doing, we developed the Service Oriented UTAUT (SOUTAUT) model whose dependent constructs predict 133\% of the variances in user acceptance and use of e-library services. The study revealed that relevancy moderated by awareness plays a major factor in acceptance and use of e-library services in DCs.

Bhatt\textsuperscript{61} (2012) observe that the advent of Information and Communication Technologies and Impact of Information explosion have brought many changes in diverse field of knowledge, especially in medical sciences which had profound impact on medical professionals, practitioners, students in pursuing their research and patient care. The medical professionals require pinpointed, accurate and speedy information for updating their knowledge. Due to the elasticity of budgets and increases in journal and book prices every year, keeping in view of user needs, libraries are forced to join a


consortium. Medical education aims at developing medical manpower suitable to the needs of the country. The medical manpower produced in the state of Gujarat is in thousands. It is no exaggeration to state that libraries are one of the primary sources of knowledge to this manpower. The medical college libraries have a crucial role to play directly in the promotion of medical education and health care information and indirectly in various health welfare programmes.

Krubu\textsuperscript{62} (2010) study elicits the impact of ICT in Nigerian University Libraries. The primary objectives were to ascertain the level of automation; to determine the usefulness of ICT resources; the effectiveness of ICT resources; the required skills in using ICT resources and the factors militating against the effective use of ICT. John Harris Library, University of Benin and Benson Idahosa University Library, both in Edo State of Nigeria were used as case study. The survey research design was employed and the instrument used for data collection was the Questionnaire. Simple tables and percentages were used to analyze the data collected. The research work revealed that both University Libraries are automated/computerized and that they apply Strategic Library Automation Management (SLAM); only three divisions of the libraries are computerized/automated which are Readers Services Division, Technical Services Division and Collection Development division; the major reason attached to the use of ICT resources was for information storage and retrieval; the ICT resources mostly used are CD-ROM, online database, World Wide Web and the Internet. The study also revealed that ICT has an enormous impact based on its effectiveness. Inadequate training and retraining of staff by management; inadequate funding, epileptic power

supply and lack of search skills are the major factors militating against the effective use of ICT in Nigerian University libraries.

Islam\textsuperscript{63} (2007) discuss that the accelerated adoption and use of Information and Communication Technology (ICT) has resulted in the globalization of information and knowledge resources. Bibliographic databases, full-text documents, and digital library collections are always available to users. Bangladesh entered into the computer village in 1964 with the installation of an IBM 1620 machine at the Atomic Energy Commission (Dhaka). Libraries in Bangladesh began to use computers in the early 1980s. Little progress was observed in the application of computers to library services between 1964 and 1995, but there has been considerable progress since 1996.

Etebu\textsuperscript{64} (2010) observes that the state of ICT availability for library services in the Niger Delta University libraries is not totally encouraging. There is awareness of ICT in the libraries, although the available facilities are very poor. Almost half the number of available computers in the libraries do not function. This makes electronic interlibrary loan impossible at this time. These academic libraries cannot bring the dividend of ICT to bear on their clientele. To sustain and maintain ICT services, an appropriate fee should be charged for various services so as to ensure total cost recovery without profit.

Emojorho and Nwalo\textsuperscript{65} (2009) investigates the availability and use of Information and communication technologies (ICTs) in collection management in

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university and special libraries in the Niger Delta Region, Nigeria Meyer (1997:4) sees ICTs as “the hardware, software, telecommunication technology, human skills and intellectual content that enable the study, design, development, implementation, support, management or use of intellectual expressions. This includes data, knowledge and languages in all digital, print, audio and visual formats. UNESCO (2000:12) defines ICTs as the “scientific, technological and engineering disciplines and management techniques used in information handling and processing.” The use of ICTs provides quality services to users. Moreover, ICTs have revolutionized activities in all spheres of life, especially library and Information services.

Anunobi and Ezeani66 (2011) present 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. Design/methodology/approach – This work analyses 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 research 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.

Lawal-Solarin\textsuperscript{67} (2006) says that Information and Communication Technology (ICT), has added value to the services provided by Nigerian libraries. The respondents were students and faculty of the university. The findings show that Covenant University library, has an abundance of computers connected to the internet with web based Millennium software. The students and faculty make use of online public access (OPAC) to locate materials on the shelves. The study reveals several reasons for using the internet by both faculty and student respondents. But the lowest ICT usage was electronic databases. The faculty respondents with the highest frequency of 40 (80\%) use the internet to up-date knowledge while the highest student respondents 177 (76.7\%) use the internet to complete projects.

Xinping\textsuperscript{68} (2009) analysis's the problems in the construction of the digital library, This article expatiates on the definition and architecture of cloud library, and proposes 3 development stages for cloud library, that is, the digital library constructed partially by using cloud computing technology, the regional cloud library, and the complete cloud library which has a clear division of industry and is collaboratively developed. The article also analyzes and discusses the direction of the change of the traditional library in the cloud era and the challenges the cloud library is confronted.

\textsuperscript{67} Lawal-Solarin, E. The Use of Information and Communication Technology (ICT) in Academic Libraries in Nigeria: A Case Study of Covenant University Library Ota, Nigeria.

Ioannidis et al\textsuperscript{69} (2005) Analysed the research agenda on systems-oriented issues in digital libraries. It focuses on the most central and generic system issues, including system architecture, user-level functionality, and the overall operational environment. With respect to user-level functionality, in particular, it abstracts the overall information lifecycle in digital libraries to five major stages and identifies key research problems that require solution in each stage. Finally, it recommends an explicit set of activities that would help achieve the research goals outlined and identifies several dimensions along which progress of the digital library field can be evaluated.

Vijaya Kumar\textsuperscript{70} (1995) made an attempt to study the professional attitudes towards library computerization. This study was confined to university and special professionals with computer knowledge and without computer knowledge advocated for library computerization, no difference of opinions on library computerization by sex, a significant difference is found between professionals of academic and special libraries on user accessibility to computers. There is a wide range of difference of opinion in computerization among professionals between academic and special libraries. By and large, the professionals of both categories of libraries shown keen interest to have the skills and knowledge of computerization. libraries in Andhra Pradesh. For this study, 8 university libraries and 19 special libraries were selected. The researcher selected 248 respondents from these two categories of libraries. It is reported that the age group of


31-40 years responded positively to the study. The following observations were made from the study.

3.3 Information seeking behavior in the electronic era

Mukherjee and Kumar\(^{71}\) (2010) analyzed the user’s 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. This research reveals that there is a demand for more e-journal titles although a substantial number of users are satisfied with the existing model of UGC-Infonet Consortium. It concludes that comprehensive training on availability and usability would be of great help to the users. UGC-Infonet e-journals are seen as a tool with positive impact, and this study has enabled the respondents to express their satisfaction and their aspirations for improvements. This study reveals that personal visits, training workshops, inviting feedbacks, are issues, which impact the use. Usage statistics, surveys and feedback always remain effective tools to measure the usage. To enhance the use of e-resources, more awareness programmer should be organized to acquaint them about the facilities and benefits obtainable from electronic format as compared to print. A well defined and proper infrastructure remains to be an encouraging factor for the use of e-resources.

Nikam and Pramodini\(^{72}\) (2007) describes the use of e-journals and databases subscribed by UGC-Infonet consortium by the users of University of Mysore. This study

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explains the use of e-journals and databases and also examines the utilization and satisfaction levels of users with respect to the e-resources. The role of Information communication Division of the University of Mysore in informing the users about the availability of these resources is also discussed. The UGC-Infonet is one of the important initiatives that provide access to online journals and databases. This survey indicates that the use is marginal and the scientists in the Mysore University campus need constant guidance and training to maximize the use of the e-resources. The librarians have an important role to play in assisting the library users to make the best use of the electronic journals to a maximum extent.

Walmiki, Ramakrishnegowda and Prithviraj73 (2010) analyzed the use of UGC-Infonet Digital Library Consortium by university. It is found that consortium are not reaching majority of the targeted beneficiaries for various reasons. Less than 40 percentage of the faculty members in Karnataka state universities are aware of and use the UGC-Infonet online resources and more than 60 present are not using the resources. User education programs conducted by the university libraries are found to be inadequate and not focused. The university libraries should make every attempt to convert the non-users into actual users of UGC-Infonet digital resources in order to bring them to the mainstream with an aim to achieve academic excellence. There is an urgent need on the part of the UGC to review the resources included in the consortium in order to fulfil the needs of the faculty members belonging to the entire subject.

Kumar\textsuperscript{74} (2014) attempted to study the usage of e-resources available through UGC INFONET Digital Library Consortium by the Guru Nanak Dev University Library users. The study reveals that the majority of the respondents evaluate UGC INFONET Digital Library consortium as good.

Singh and Devi\textsuperscript{75} (2009) 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.

Raza & Upadhyay\textsuperscript{76} (2006) examined the usage of e-journals by the researchers at Aligarh Muslim University. The survey reveals that all the researchers are aware of e-journals in AMU. From this survey, the investigator has been able to find out that many research scholars are consulting e-journals from their departmental labs and computer centers, not only for research purposes but also to update their own knowledge. However, the study also revealed several problems, including lack of training and slow downloading. The researchers' feelings about the need for print journals as well as electronic journals are also discussed.


Kanamadi and Kumbar\textsuperscript{77} (2006) discusses the library portals and the web-based library services expected at management institutes. The research explores 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.

Jyoti and Nilesh\textsuperscript{78} (2009) focused on the usage impact of E-Resources accessible through UGC Infonet Digital Library Consortium on the campus of The Maharaja Sayajirao University of Baroda. The results show that

- A good infrastructure remains to be an encouraging factor for the use of e-resources
- The usage of e-resources by the pure scientists is found quite satisfactory.
- Usage of Electronic journals is found greater in the campus in spite of the low bandwidth of the University till recent past.

Patil and Parames\textsuperscript{79} et al (2007) collected data through a questionnaire to study the information needs and Use of UGC-Infonet Consortium by the Faculty Members and Research Scholars in the Dept of Chemistry, Gulbarga University, Gulbarga. The paper


\textsuperscript{78}Jyoti Bhatt and Nilesh Joshi, Impact of UGC Infonet Digital Library Consortium to Academic Community : A Case Study of The Maharaja Sayajirao University of Baroda, 7th International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, 2009, Pp 565 - 570

\textsuperscript{79}Patil, Parameshwar, Kumbargoudar.Praveenkumar, 5th International CALIBER -2007, Panjab University, Chandigarh, 08-10 February, 2007
revealed that UGC Infonet Consortium is much helpful in fulfilling their information needs. There is need to train the faculty members and research scholars in using the UGC-Infonet Journals. Further, there is need to include more number of Journals in the Consortium.

Kibirige and DePalo\textsuperscript{80} (2001) describes that digital libraries have been a feature of the information arena for some time. They have re-defined the concept of “bibliographic instruction” in which the connotation “library” is implicit, but has become inadequate in a digital library context. This paper relates the results of pilot studies of Internet use in academic libraries in the New York metropolitan area to the education of users in a digital library environment. It attempts to crystallize vital concepts and issues generated by interviewing users and information professionals, which could not be quantified in an earlier publication. The studies revealed an urgent need to develop user-education programs that emphasize: the nature and various types of digital collections; interfaces; hardware and software requirements; telecommunications access modes; and making such programs part of continuing education.

Ravichandra Rao, I.K\textsuperscript{81}. (2002) identified difference of information management in traditional libraries and automated libraries. Librarians mostly deal with information available in documents. But information management is not totally Librarians’ job. Librarians can be called as information managers provided the information handling


activities are taught to them. The author discussed differences between conventional libraries and E-libraries and emphasized the need for training to professionals. A number of changes that are appearing are listed. Technological changes, socio-political, educational and demographic changes, changes in the government policies, changes in user needs and requirements and changes in structure and dimensions of information industry. The issues associated with use of E-publications are listed as accessibility, awareness and coverage in securing periodicals, access Vs. ownership acceptability, accountability, pricing, bibliographical control, sociological and psychological issues, classification, etc. To meet the challenges and changes, the professionals should be trained from time to time with the developments occurring in information management.

Shanmugam82 (2002) made an attempt to explain Knowledge Management (K.M.) and the role of librarian. The knowledge computing process in an organization or institution should give thought to how the users of library be served, the knowledge sharing within the company or library and geographical and chronological barriers. In knowledge management different databases are developed to meet various activities. To create, develop and organize databases, the library professionals should be trained thoroughly. The author concluded, the library staff should depend on stake holders of knowledge, to understand intricacies of the subject and also keep the staff abreast with the recent developments of the subject.

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Hussan Nabi and Others\(^{83}\) (2002) discussed CD-ROMs as a media for information packaging, retrieval and dissemination. The use of CD-ROMs in libraries is highlighted. In advantages, high storage capacity, reliability, cost effectiveness, portability, ability to store graphic data and resource sharing were discussed. The problems of Indian Libraries particularly the financial crunch can be minimized by adopting CD-ROM Technology and networking according to them. So, professionals be imparted with the kind of training that is necessary to use CD-ROMs was stressed.

Majumdar, Kamalendu and Panigrahi, P.K.\(^{84}\) (2002) presented a birds eyeview on internet and its use in libraries. The importance of internet and its use was mentioned – e-mail, research, downloading files, discussion groups, interactive games, education and self employment, friendship and dating, electronic newspapers and magazines, job wanting, electronic commerce, etc. The anatomy of e-mail was stated along with skills required for professionals to use e-mail. The advantages of e-mail were discussed in detail to make use of this facility, the library professionals should have a systematic training.

Harish Chandra\(^{85}\) (2002) stressed upon e-collection in libraries, their advantages and disadvantages and the role of librarian in e-collection, development. Various types of e-

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collection like E-books, E-Journals, etc. were listed. There is an urgent need to build e-collections to meet the growing information needs of the users. Therefore, a policy for development of e-collection is to be evolved. In this situation the traditional librarianship may have little significance and the professionals need to be trained with the latest developments taking place in information handling from time to time.

Prem Singh\textsuperscript{86} (1991) expressed that change in any field is a continuous and inevitable phenomena, so also in library and information centers. The importance of Information Technology is rightly stressed consequently the traditional manpower requirement can be reduced. I.T. is an amalgamation of following technologies: (1) Computing Technology, (2) Data Communication Technology, (3) Document reproduction Technology. To solve many problems, such as information acquisition, information organization, information dissemination, space problems, etc. could be solved to large extent, if I.T. is applied in Libraries. Advantages through application of I.T. are listed as: (1) Redundancies of depth classification, (2) enhance the productivity (3) Enhance the efficiency (4) Provision of quality information services, (5) Provision exhaustive information, (6) Use of National and International bibliographic data bases through networks, (7) Use of optical discs/compact discs, read only memory for faster access to information and saving of space. The author concluded that, training in new Information Technology skills are necessary for library personnel. Librarians are left with no option but to go for information technologies.

3.4 Summary

An analysis of the reviews enables the researcher to come to the conclusion that

- the new millennium has accelerated the implementation of ICT in academic Libraries.
- Still there exist a need for provision of proper training to the LIS professionals in developing countries and under developed countries
- The academic libraries in India are still facing problems of adequate training in ICT, funding for implementation of ICT in libraries
- Most of the Academic libraries are hybrid in nature i.e both traditional and IT based
- There is an increasing trend in the use of e-resources in academic libraries