Chapter 2

REVIEW OF LITERATURE

2.0 Introduction

Review of related literature is conducted to enable the researcher to get a clear understanding about the specific field of study. It also helps the researcher to have an insight into the tested methods, procedures and interpretations of similar studies conducted elsewhere. Considerable amount of literature is available regarding application of Information Communication Technology (ICT) in libraries, professional development and continuing education needs of library professionals. But studies are relatively few regarding the impact of ICT on professional development and educational needs of library professionals. A survey of the literature found that most of the studies are reported from foreign countries and that such studies are not given due importance by the researchers in library and information science. An attempt is made in this chapter to present a survey of the literature available in India and abroad under the subheadings listed below. The studies are further grouped under national, international and arranged in a chronological sequence.

1. ICT in libraries

2. ICT and library professionals

3. Professional development and educational needs of library professionals.

4. Thesis

5. Reviews

2.1 ICT in libraries

ICT has changed the traditional methods of library activities and services providing new dimensions for teaching, learning and research in higher educational institutions. With the help of ICT tools, it is possible to store, retrieve, disseminate and organize information by creating websites and databases. Information is now published both electronically and by print making it accessible to users according to their demands. It is important to assess the ICT applications in library and information centres in the
context of changing user needs. This section includes studies related to the application of ICT in libraries both in India and abroad.

2.1.1 National studies

Kannappanavar and Vijayakumar (2001) survey the use of hardware and software facilities in University of Agricultural science libraries in Karnataka. The aim of the study was to evaluate the access of networks, information services and barriers in information technology applications. The survey also covers collections of the agricultural university libraries, In house database, use of IT in administration and the impact of IT applications on libraries. Results reveal that none of the University libraries at the time of study is having databases and full implementation of IT applications in their libraries.. Though the agricultural university libraries are having hardware and software facilities to some extent, the results are not reaching the clientele. It recommends that the librarians should approach the university authorities to train the library personnel on IT application and approach funding agencies like INFLIBNET and ICAR for their library automation and provide IT based information services to their clientele.

Jeevan and Saji (2004) present the results of a survey conducted among the premier libraries in Thiruvananthapuram ,Kerala to assess the Information Technology adoption in these libraries. A survey using questionnaire and interview was used for getting information about the different IT components useful for better library organization and comprehensive as well as swift information services. Eighteen scientific, technical and research libraries both under Central and State Governments based in Thiruvananthapuram participated in the survey. All eighteen libraries were of the opinion that IT had a positive impact on the day-to-day work of the library and that IT played a positive role in enhancing services, user satisfaction, meeting users' demands, and overall library image. Problems faced in IT adoption included inadequacy of funds, shortage of IT skilled manpower, difficulties in periodic up-gradation of infrastructural facilities, frequent change and advancement of technology, high hardware and software costs, insufficient training of professionals and absence of hands-on training.
Cholin (2005) provides an overview of information technology implementation in different university libraries in India that provides effective access to resources available within universities and elsewhere. This study was an attempt to understand the use of information technology in university libraries by studying the status of information technology applications in Indian university libraries at various levels. The survey method was used to study the application of information technology in the Indian Universities. The study was conducted among 66 university libraries which is approximately 25% of the total number of universities during the period of the study and the responses were received from 54 (81.8%) of the total libraries covered. The factors studied include manpower in the universities, user population, budget, IT infrastructure-hardware, software, network tools, database development, etc. The author predicts that the universities across the country can overcome distance and time with the use of ICT tools in universities and UGC Infonet to provide scholarly access to resources. The study reveals that the university libraries in India are at various stages of development in the application of information technology tools in their day-to-day activities.

Suku and Pillai (2005) present the results of a survey to assess the status of automation in the university libraries of Kerala. A structured questionnaire was used to elicit data from the Librarian/Librarian in-charge of the Central libraries of six universities. The survey mainly cover various aspects of library automation such as information technology infrastructure, in-house activities, information services and their usage, manpower development, and budget. The study also deals with the role of INFLIBNET Centre in supporting the automation activities of university libraries. It is seen that library automation has been rather slow in Kerala due to various reasons like absence of University Librarian in most of the libraries; and lack of adequate qualified professional staff. 50% of university libraries in Kerala, introduced comprehensive automation of housekeeping activities. LAN facility is available in all university libraries. All university libraries in Kerala are using computers for their services. All the libraries, without any exception, are using only personal computers for the entire range of automation activities. The survey also reveals that all university libraries have conducted sufficient number of training programs to its staff members before acquiring the new technology.
Walmiki and Ramakrishnegowda (2009) in a survey of University libraries in Karnataka outline the status of ICT infrastructure of selected six University libraries. A structured questionnaire was used to obtain data from the University librarians. The data collected include details of hardware infrastructure like availability of servers, PC’s, Laptops, printers, scanners etc. Software facilities for automation of house-keeping operations, digital library activities are included in the survey. Availability of campus LAN and internet facilities to provide access to information sources are detailed in the study. The survey reveals that most of the libraries lack sufficient hardware and software facilities, and internet with required bandwidth. The University libraries have to plan, implement and develop ICT infrastructure to exploit the benefits of digital information environment.

Singh, Sharma and Negi (2009) reports a study of the current state-of-the-art use and applications of ICT in LICs in Noida. The study is based on 25 LICs of public, government, corporate, public, and private enterprises in Noida. The data was collected through a structured questionnaire through mail/e-mail among the librarians of selected institutions. The study tries to find the opinion of the librarians about the barriers in application of ICT in LICs and their attitudes towards adopting the technology. The results show that that lack of awareness, interest and initiation of library professionals towards ICT application in the library are the major barriers of ICT application in the LICs eventhough the attitude of the librarians towards ICT application/use in the LICs was very positive. The majority of LICs in Noida has good hardware, software facilities to some extent but ICT based services, and products are not reaching the users to the extent expected due to the problems of inadequate finance, infrastructure, and trained library professionals leaving available ICT infrastructure underutilized. Therefore, it is essential that ICT resources should be enhanced; ICT skilled staff should be increased or trained in using and handling ICT.

Sampath Kumar and Biradar (2010) observe the use of information communication technology (ICT) in 31 college libraries in Karnataka, India by analyzing the ICT infrastructure, status of library automation, barriers to implementation of library automation and librarians’ attitudes towards the use of ICT. The survey carried out using questionnaire, observation and informal interview with selected college
librarians show that lack of budget, lack of manpower, lack of skilled staff and lack of training are the main constraints for not automating library activities. Even though library professionals have shown a positive attitude towards the use of ICT applications and library automation, majority expressed the need for appropriate training to make use of ICT tools.

2.1.2 International studies

Siddiqui (1997) reports the use of information technology in seven university libraries of Saudi Arabia. Questionnaires to deans of academic libraries and interviews of individual library professionals were used to get information about availability and use of information technology like computers, networks, electronic mail, online information retrieval, CD-ROMs, facsimile transmission, personal computers (PCs) and the Internet in the academic libraries. The survey also tries to determine computerized library systems, databases and services used in the libraries, the most widely used automation systems (DOBIS and MINISIS) and the numbers of online and CD-ROM databases acquired by specific libraries. The survey results show that information technologies used by the academic libraries are: automation, networks, electronic mail, online searching, CD-ROM searching, telefacsimile, and personal computers. The academic libraries are using these information technologies to provide excellent services to library users. In addition all seven academic libraries are using IT in performing their day-to-day work of processing and services.

Al-Qallaf and Al-Azmi (2002) in a survey study the availability and use of information technology in public libraries in Kuwait. The study includes hardware/software, patterns of connectivity such as LANs, Internet, etc., training and development activities. The study shows that few libraries have internet connectivity, limited use of ICT applications, and the implementation of an automated library system are very slow. Factors impeding the development of information technology are planning, funding, human resources, and building structure. The survey results also show that there is a positive attitude among library personnel towards IT.

Baruchson-Aribib and Bronstein (2004) reports a Delphi study conducted in Israel during 1998-2000 to examine the views of library science experts regarding the future of library science profession and the skills of library science professionals due to
developments in information technology. 40 experts participated in the study through e-mail. The questionnaire includes three main issues: traditional versus virtual library model, user-centered approach, and library professionals' skills and roles. A highly optimistic picture of the library science profession is drawn from the study. Library and information centres will survive, and both traditional and virtual models will co-exist in a symbiotic relationship. The most salient skill the library professional is to acquire is the training role and act as guides in information technology-related issues. The LIS professionals need to promote and market their skills and thereby acquire necessary social and communication skills.

2.2 ICT and Library Professionals

In a changing environment when most of the library services are ICT based, it is important for library professionals to be well informed and updated regarding developments in ICT. This section deals with different studies regarding the use of ICT-based applications by library professionals, their attitudes towards ICT, skills in handling new technologies, need for training in the new technologies etc.

2.2.1 National studies

Srivastava (1997) reports results of a questionnaire survey conducted in 22 R & D institutions in India to determine the extent of usage of IT components by library professionals and the coverage of IT in their graduate and postgraduate library science programmes. IT components form an integral part of library operations and services. DOS/UNIX databases, library applications software, CDROM databases, word processing, bar coding, multimedia etc. are important to library professionals. The study reveals that library and information science courses must expose students and practicing library professionals to various components of IT, regularly redesigning the syllabus of LIS course to include the advancements in technology.

Ramesh Babu and Parameswaran (1999) evaluates the automation of public library and information services in and around Chennai and the attitudes of library professionals towards the application of information technology. A survey among 50 staff members in the public libraries of Chennai using questionnaires, shows their keen interest in professional development to keep pace with the trends of electronic
information era. Results show that IT applications improve communication facilities and helps in enhancing technical knowledge, providing better services, improving library status, change information handling methods and reduce workload.

Singh and Garg (2002) evaluate the biomedical information centres and libraries (ICLs) in India. The main objectives of the study are to assess the state of the art infrastructure available in biomedical ICLs, to determine the impact of computers on biomedical librarianship, use of computers by ICLs users and information professionals and to identify the impact of computers on career development in ICL services. Three sets of questionnaires have been used to determine the relationships between IT development and its applications in biomedical ICLs by users and professionals. The survey reveals that there is an increase in number of technologies available and adequate hardware and software facilities in ICLs. The study shows that computer based networking facilities are gaining importance in biomedical ICLs. Biomedical information users depend more on computer facility for various purposes. The users are of view that all staff should have higher qualifications for the effective use of IT based services.

Temjen and Saraf (2003) studies the attitudes of academic and research library professionals towards information technology and its relationship with library and information science courses in India. The study identifies the attitudes of library professionals working in the seven states of North eastern part of India, based on already developed and tested scales of attitudes towards computer and information technology. A total of 163 library professionals working in these libraries were given a questionnaire having 81 items and 122 responded. Statistical analyses performed on the data using SPSS 7.5 version are factor analysis and analysis of variance (ANOVA). The five variables identified through factor analysis are anxiety, efficiency, work performance, use confidence and acceptance. He reports that anxiety ranks highest among the different variables of attitude towards information technology and suggests various information technology infrastructural facilities and training and education in Information technology to library professionals working in North east to be at par with the main stream.
Watane, Vinchurkar and Chaukande (2005) reports a study of the computer literacy of library professionals and the use of information technology related services in the college libraries of Amaravati city. The main objectives of the study were to find the awareness of IT application among the professionals and the proportion of application of IT in libraries. A questionnaire survey of selected 38 college libraries was conducted and the results using simple statistical analysis reveals that majority of library professionals are computer literate and are not reluctant to make use of IT applications in their libraries. Automation is progressing in all the college libraries under study and they are providing library services of which 50% are IT oriented.

Jange and Samy (2006) evaluate the use of the Internet as an information source by libraries of National Institutes of Technology in India. Using the questionnaire method data is collected from seventeen National Institutes of Technology spread across the country. Some of the main objectives of the study are to understand the perceptions of Internet technology by library professionals, to identify the purpose of using Internet by library, and to explore the use of Internet services and its impact on library activities and services. It is observed that all the libraries perceive Internet as a communication tool and see it as a supplement to the online library. Among the Internet services, email, online databases and WWW are the most frequently used Internet services by the librarians. The results indicate that, the libraries make use of Internet mainly for identifying latest books and journals in acquisition and serials control activities of library. Search engines are the ultimate mode of searching information and colleagues assist in getting the desired information. The results indicate that the libraries of NIT accept the significance of Internet in library activities and services. The librarians have to reorient themselves, and adopt the new technology to generate services and resources where skills of structuring and organizing resources are put to its best use.

Nath, Bahl and Kumar(2007) reports a survey of librarians of Chandigarh city to assess the ways in which librarians use ICT’s, their level of knowledge and skills, problems faced in the use of ICT’s and their training needs. The study also investigates the extent of adoption of ICT in Chandigarh city libraries as modern tools of providing library service to users. A questionnaire was used to survey the ICT skills and knowledge of librarians with 9 sections on respondent’s background, file
management, word processing, spreadsheets, databases, presentations, E-mail and
Internet. Survey of 21 academic and public libraries reveal a low level of ICT
knowledge among librarians and a general lack of formal training among the
academic librarians. The study recommends library education with a balanced
curriculum including both traditional as well as ICT knowledge and skills.

Ramesh Babu, Vinayagamoorthy and Gopalakrishnan (2007) reports a survey of the
ICT skills among librarians in engineering educational institutions in Tamil Nadu.
The main objective was to identify the types of ICT skills possessed by the librarians,
assess the level/extent of different types of ICT skills, the means of acquiring ICT
skills, and identify the constraints in acquiring ICT skills by the librarians. The
knowledge in ICT relates to operating systems, packages and programming
languages, library automation software, web awareness, knowledge of online
facilities/services, and also technical skills and managerial skills. The results show
that the librarians of these institutions are acquiring considerable basic skills in ICT.
However, they need to concentrate more on network-based services and digital library
services.

Choudhury and Sethi (2009) study the information literacy skills of library
professionals working in three major Universities of Orissa. Survey using structured
questionnaire and interviews points to the fact that most of the library professionals
are computer literate, having undergone computer courses like PGDCA, DCA and
other short-term courses. They are also aware of the use of E-resources, evaluation of
web resources, IPR, webopac, search engines etc. The authors recommend that library
professionals are to be encouraged to attend various training programmes on different
advanced concepts of information technology.

Mohamed Haneefa and Shukoor (2010) reports the Information and Communication
Technology (ICT) literacy among the library professionals of Calicut University. The
study includes only the library professionals in the central library and departmental
libraries of Calicut University. A structured questionnaire was used to collect data.
The study reveals that the Professional Assistants are more ICT proficient in ICT
skills than the Junior Librarians and Assistant Librarians. The use of ICT-based
resources and services, library automation software, and general purpose application software is high among the Junior professionals than the senior library staff. The use of digital library and institutional repository software is very low among the library professionals. Majority of the professionals had confidence in routine ICT and Internet tasks, and need training or orientation in library automation, digital library and institutional repository software.

2.2.2 International studies

Vespry and Kitiyadisai (1992) survey the application of information technology (IT) among academic libraries in Thailand. The survey shows that Librarians are generally aware of the role of IT in libraries and keen to automate their library services. It also shows that the speed of IT implementation in academic libraries depend to a large extent on administrator’s support.

Muirhead (1993) reports the results of a survey, funded by the British Library, Research and Development Department, of systems librarian posts in UK libraries. Survey include 503 UK public, academic and other libraries to determine the activities of systems librarians and the nature of the employing organizations. The survey findings concern what systems librarians actually do, the kinds of stress they are exposed to, and the rewards of the job. As IT penetrates further into LIS the extent to which the applications of IT fall within the systems librarian’s purview was an objective of the survey. This survey indicates that for a considerable majority there has been a widening of their role. Majority said they were involved in IT developments additional to managing their library housekeeping system, standard office automation, CD-ROM, PC-based applications, and network management were among the most frequently mentioned areas.

Shiao-Feng (1993) reports the results of a questionnaire survey to determine the attitudes of professional academic library staff in Taiwan towards computerized library systems. Responses were collected from university libraries known to have installed computerized library systems and follow up telephone interviews were conducted. Results on comparison with those of an earlier study in the USA which related to professional academic library staff in 13 academic libraries in the Midwest, shows very little difference between the attitudes of librarians in the two countries.
One of the hypotheses guiding the study was that no significant differences exist between the attitudes of librarians in Taiwan and the USA. ‘Student t’ tests of the categorizations of attitudes indicate that librarians in Taiwan are significantly more negative towards computers in general than they are about the effects on people and services. Results suggest that there is scope for improvement in the overall computerized systems environment in academic libraries in Taiwan.

O’Neill (1998) examines the current status of continuing education courses in American schools of Library & Information Science, with special emphasis on Librarians working in collection development and acquisitions. A survey of American library schools reveals that only a small percentage of the continuing education workshops deal with technical services. Most of the continuing education workshops are technology oriented. A number of LIS schools offer semester long courses through various technologies, world wide web, satellite, videotape etc. The author suggests that LIS professionals must be more actively involved in the continuing education programs at schools of library and information science.

Tran and Gorman (1999) reports results of a survey questionnaire survey administered to 36 information professionals in Vietnamese libraries, which explores progress in the implementation of information technology (IT) in the library and information sector. It intends to discover what librarians have been doing with computers and to describe current electronic resources available in libraries. It also identifies knowledge and skills needed for the provision of electronic services. Most librarians indicate that they need to be trained in the use of computers, new IT, CD-ROMs, Internet services, etc.

Chisenga (1999) surveys the use of internet for professional development by library professionals in Sub-Saharan Africa. A survey of 47 librarians through mailed questionnaire reveals that internet and electronic mail facilities are mainly accessed at workplaces. The use of facilities for accessing E-journals, discussion groups and other web resources was quite low and in some cases nonexistent due to the shortage of computers, poor telecommunication lines and inadequate internet use skills. The study finds that the library professionals have the opinion that internet could play an important part in facilitating professional networking and sharing of information.
Ondari-Okemwa (2000) reports a study undertaken to examine the specific training needs of practising professional librarians in the Kenyan public university libraries. Two methods were used for the study. One was observing library staff in the Kenyan public university libraries at their places of work over a period of two years; the second was the use of personal interviews with the librarians. The author examines the need for continuous training of library staff in Kenya because of the rapid changes in information technology (IT). Library staff must be equipped with new techniques of handling and managing information. The training needs as evaluated from the study are Information and telecommunication technologies, evaluating and using computer hardware and software, understanding computer and information concepts, understanding systems analysis, and accessing information via the Internet., self-management skills, teamwork skills, verbal, non-verbal, and interpersonal communication skills, marketing skills, training in virtual librarianship and total quality management training.

Biddiscombe (2001) illustrate the Internet and IT skills that are required by information professionals in their support for learning, teaching and research within the changing context of the higher education sector in the UK and the development of managed (or virtual) learning environments. The author stresses that though IT skills, particularly in relation to the Internet are essential, some of the more basic skills that are important to the information professional should not be abandoned.

Mugwisi and Ocholla (2003) examine Internet use, trends by academics and librarians at the Universities of Zimbabwe and Zululand, with specific reference to the use of resources for research and teaching. Results of a survey by means of a questionnaire among the study population indicate high computer and Internet skills among librarians from both institutions. The results also indicate that e-mail and the Web were used most for work and personal use, while telnet, other library OPACs and electronic journals were used most for work purposes. The study also highlights somewhat similar problems facing the two institutions in terms of Internet accessibility. Access was a major concern, due to inadequate provision of computers and the existing connection to the Internet. Article also highlights inadequate training in the use of Internet resources and lack of awareness among academics and other potential users.
Edwards (2004) describes several interviews with reference librarians in two libraries of the University of North Carolina at Chapel Hill in USA. The interviews were conducted to determine how the advancements of electronic media have changed the role of reference librarians in academic libraries. One significant finding was how reference librarians have now taken on more of a teacher role or that of an “information educator”. Data gathered throughout the course of each interview confirmed that the role of the reference librarian in academic libraries has changed in a number of ways due to the advancements of electronic media. This role involves training and guiding patrons (faculty, staff, and students) through the use of electronic media to retrieve information. It also involves introducing patrons to various types of electronic media, (ex. databases, chat resources and search engines) and training them in operational skills.

Ramzan (2004) determines the extent of information technology (IT) utilization in libraries in Pakistan together with librarians’ level of knowledge in IT and their attitudes toward IT in libraries through a survey of 244 librarians in Pakistan. Respondents were asked to indicate the extent of computers, CD-ROMS, network servers, and other hardware, email, Internet, software, and electronic databases available, use of IT-based systems and resources by the library staff and patrons, and the degree of changes occurring in IT applications in their libraries. The respondents’ level of knowledge in IT was examined through measuring the extent of knowledge of technology, rate of keeping abreast of IT, and how much they had written or published about IT in libraries. Regarding the extent of knowledge of technology, the data shows 13.5 per cent of the respondents had no knowledge in technology, 33 per cent had little knowledge, while the majority, 41 per cent of the respondents had a moderate level of knowledge in technology. The findings of the study also reveals that availability of appropriate IT and its proper utilization are important variables that are capable of increasing the librarians’ attitudes more positive toward IT which implies that librarians require continuing education and exposure to increase their level of knowledge of new technologies.

Scherrer (2004) reports a study of the reference librarians from academic health sciences libraries to examine how their roles changed over the past years and what
challenge these changes present. A series of eight focus groups selected from reference librarians were studied. The survey results confirm the role changes of librarians as a result of advancements in information technology. In addition to providing traditional reference services, it was found that librarians engage in teaching, designing web pages, engage in outreach through liaison initiatives etc. Librarians strived to meet their patrons' needs by developing Web pages to facilitate patrons' finding the resources they needed as easily as possible. Librarians identified areas for further training in specialized databases, resources needed by researchers and other modern technologies. Implications for library education and continuing professional development is also stressed.

Obioha (2005) identifies the role of ICT in information seeking and use amongst research officers in Research Institutes in Nigeria. The study examines awareness, use, exposure to ICT; role of ICT and improvements on ICT tools. It shows that ICT plays an significant role in information sourcing, generation, processing, storage, retrieval, dissemination and also entertainment. It also proves that for ICT to be used maximally there is need to have regular power supply, stable infrastructure and provision of more ICT tools and centres.

Adeyoyin (2005) surveys the levels of ICT literacy among library staff in Nigerian libraries. The questionnaire method was used for this study. The data, collected on a self-assessment basis, covered 18 Nigerian university libraries. It shows that Nigerian university libraries, which form the basis of knowledge for the country, do not have professional librarians whose skill-set is adequate to meet the ICT applications which are indispensable for the acquisition, organization, provision and dissemination of knowledge. Library management, for its part, should acknowledge the wide-ranging benefits of both ICT and raise levels of ICT literacy for university libraries and their mother institutions.

Ashcroft and Watts (2005) in a study of ICT Skills for Information Professionals in Nigeria observes that Information professionals are increasingly required to adapt their skills and practice in order to gain an awareness of technological advances. A research project based at Moores University (LJMU) investigated the provision of electronic information resources in Nigerian libraries. Focusing on Nigeria as an
example of a developing country, the project examined existing electronic information resources and identified barriers obstructing the effective provision of electronic information. Responses to questions about the measures required to support future use of e-resources demonstrated an overwhelming need for training/education/skills. Frequently occurring comments stressed the need for increased ICT literacy, training and retraining of staff.

Hoskins (2005) investigates the ICT knowledge and skills of subject librarians at the university libraries of KwaZulu-Natal. A study population of 43 subject librarians in the university libraries were surveyed by means of a mailed questionnaire to establish in what ways subject librarians were using ICTs, what the level of ICT knowledge and skill was amongst the subject librarians, what problems the subject librarians faced in the use of ICTs and what their ICT training needs were. Interpretation of the results revealed a low level of ICT knowledge and skill amongst subject librarians and a general lack of formal training for ICTs amongst the subject librarians. The findings of the study showed that subject librarians generally do not have the knowledge to explore and take advantage of the opportunities technology creates, nor did they have the skill or ability to perform the applications functions and operations described above effectively. By identifying the problems that subject librarians face in the use of ICT, it is evident from the findings that the majority of these problems were as a result of a lack of understanding, knowledge, skill, and a lack of training. The author suggests that Library schools should provide a curriculum that is balanced so that it provides for an education in traditional librarianship as well as ICT knowledge.

Adeyoyin (2006) reports a survey conducted among the professionals, paraprofessionals and other members of staff of 28 university libraries in West Africa to ascertain the information and communication technology (ICT) literacy level among the staff of English-speaking university library staff and their counterparts in French-speaking university libraries. The results show that out of about 370 professional librarians, only 179 of them were ICT literate while the remaining 191 professional librarians were ICT non-literate. Also, out of 526 paraprofessionals, only 84 of them were ICT literate while the remaining 442 were ICT non-literate. Some of the findings were that; there was a need for knowledge acquisition among the librarians in Nigerian university libraries to be able to offer efficient services in the
emerging ICT era and that the ICT literacy among the librarians was low and hands-on practical experience was lacking among the librarians in some cases. The application of information and communication technology in West African university libraries and their subsequent use require that these technologies should become part of library staff training.

Obajemu (2006) reports a survey of 84 participants at the Cataloguing, Classification and Indexing Group of the Nigeria Library Association Workshop in 2004 to determine the impact of the annual workshop on the application of information and communications technologies (ICT) to cataloguing and classification in Nigerian libraries. The work covers 43–libraries, universities, and polytechnics, colleges of education, research institutes and ministries in Nigeria. The data analysis shows that the workshops had encouraged the participants to further pursue ICT. The findings also reveal that the workshops had positive impact on the participants with respect to the application of ICT to cataloguing and classification.

Wilson and Halpin (2006) discusses the effects of operational convergence, and the subsequent growth of the hybrid library model, upon the professional identity of academic library staff. Information communication technology and electronic information services have had a profound and far reaching effect upon learning and information services (LIS) in British academia. As a result academic LIS professionals have evolved to become new hybrid information professionals. Main themes of investigation include the extent of professionalism in academic librarianship, in terms of how LIS staff perceive their careers changing and developing, and the extent to which professional standing and identity are valued and prioritized. A case study of Learning and Information Services (LIS) departments at four British universities was undertaken, to study the development of a new, generic key skills base and the relevant CPD and training. The study covered the process of work assimilation; the growing profile of the para-professional; changing job titles and descriptions; and the growing conflict between commitment to the employer or the profession. Semi structured interviews were used to interview library managers. ICT skills featured strongly in the responses and the importance of being multi-skilled and being able to adapt quickly and effectively are also stressed.
Safahieh and Asemi (2008) assess the computer literacy skill of librarians in Isfahan University of Iran. The factors studied also include Librarians’ computer use experience, extent of computer literacy, software used, purpose of computer use in their day to day work, benefits derived from computer usage and problems faced in effective use of computer. A questionnaire survey of 73 librarians (41 returned) was used to collect data on computing skills of librarians and their use of Microsoft word, excel, access, power point, library software etc. Data analysis reveals that a majority of the respondents considered their level of computing skills as fair. In contrast, only few of the respondents had good computing skills. Majority of the participants are professional librarians with more than six years of experience. The results also indicate that majority of the librarians have acquired their computer skill through informal channels. Library software is the most commonly used software among librarians and the less used software was database management software. The most common problem cited in computer usage was frequent breakdown of system, electric power failure, inadequate computers in the libraries and librarians’ inadequate computer skill. The study recommends the management of the university libraries to organize training programs to educate librarians with the latest advancement of information technology.

Ademodi and Adepoju (2009) report a study of academic librarians in Nigeria. The aim of the study was to determine whether academic librarians in selected Nigerian states possess computer skills and competencies in the use of computer. Thirty questionnaires were administered to respondents in the academic libraries under study. The study finds that the academic libraries in these states have very few computers and these computers are used more for administrative duties and Internet browsing than library routines. Most of the librarians are computer literate, but have no computers to use. The rate of computer skill and competence is low. The study recommends that librarians must be properly trained to acquire computer skill and more attention and funds should be committed to training and procurement of ICT infrastructure in Nigerian university libraries.

Adeyinka (2009) examines the attitudinal correlates of some selected Nigerian librarians towards the use and application of ICT in various libraries. A total of 41
librarians from automated libraries in the Oyo state of Nigeria formed the study’s population. The survey instrument used for the collection of data was a computer anxiety and attitude towards microcomputer utilization (CAATMU) scale and a librarian attitude questionnaire. The main objective of the study was to find relationship between demographic variables of respondents, age, gender, prior knowledge / experience and training, educational qualification, computer anxiety and librarians attitude towards ICT. The analysis of results show that all the four out of the five variables age, gender, educational qualifications and knowledge of ICT significantly correlate with librarian attitude towards ICT; while the variable ICT anxiety correlate negatively with the attitude of librarian towards ICT. The study emphasizes the need for libraries to embark on training their librarian who does not have knowledge of ICT.

2.3 Professional development and educational needs of library professionals

Professional development is the process by which professionals keep current the knowledge, skills, and abilities needed to function effectively in their profession. It is assumed that to maintain professional competence, the professional must participate in updating activities. Continuing education is fundamentally a responsibility of the individual professional. A librarian’s motivation for continued learning involves a mixture of social responsibility, desire for advancement, professional pride, a concern for future libraries, the need to keep abreast of new knowledge and technology, as well as an interest in supplementing professional training. (ALA,1980) Efficiency of a library depends to a large extent on the competence of its staff. Hence it is important to assess the library professionals’ needs for continuing education and professional development in a changing electronic environment of academic library.

2.3.1 National studies

Singh (1988) reports the results of a survey conducted to study the career advancement of academic library professionals in New Delhi. The study intends to find out the factors leading to the advancement in library profession, to establish possible relations between some characters of professionals and their advancement in career. One of the major findings of the study was that majority of the library
professionals avail leave for pursuing BLibsc and MLibsc courses. Professional and academic qualifications, participation in conferences, seminars and workshops were found to be associated with promotion. The suggestions include improving career prospects by developing skills required for the profession and publishing papers in library science.

Jani, Parekh and Sen (1991) reports a survey undertaken to discover the individual perceptions of librarians towards professional development. The objectives were to identify the factors that are instrumental in facilitating or inhibiting professional advancement, to identify areas, agencies and strategies suited for additional knowledge and skills input that will lead to professional development. The study reveals that librarians gave more importance to self education and reading for professional development. Reference and information work was the area often cited which required additional knowledge skills.

Ramaiah and Moorthy (2002) describe the need and impact of continuing education programmes (CEP) for library and information science (LIS) professionals in India, particularly for college librarians. Authors stress the importance of CEP due to the emergence of new technologies, Internet, Management techniques, Communications, multimedia and networking. The subjects of the questionnaire based survey were the participants of a CEP at Dr BAM University, Aurangabad. Majority of the participants attended the course to improve basic knowledge/skills and improve library services. The survey also shows that most of the participants prefer CEP courses on library automation and IT applications.

Nyamboga (2004) details the results of a study of training opportunities for library and information professionals in India and how a selection of Indian university libraries are providing information skills and information literacy programmes for their users. The author stresses the need for training students, researchers and staff to make appropriate use of resources made available in libraries. Library and information professionals need continuing professional development courses as new ways of providing information resources are developed. The study reveals that librarians conducted library orientation programmes (including information on specific aspects such as computer laboratory facilities within the library, library
automation and networking activities), although sometimes systems librarians or information technologists undertook this task.

In a survey of higher educational institutions in Jaipur, Srivastava and Srivastava (2004) studies the opportunities available for the professional development of librarians and their satisfaction level. Out of the total population, 30 librarians were selected and a survey was conducted using questionnaire. Results reveal that librarians need opportunities for higher education, opportunities for attending conferences and are mostly ignorant of the developments in information technology. The authors report that most librarians are dissatisfied with their job and suggest that authorities should encourage library professionals to participate in professional development activities and provide opportunities for higher education.

Kannappanavar and PraveenKumar (2005) evaluates the training programmes pertaining to Library and Information science and their effectiveness as stated by library professionals in selected Agricultural Science Libraries in India. Most of the library professionals in agricultural university libraries have attended these training programmes and they stress the need for more specialized training programmes based on skills and competencies. All agricultural science libraries have been partially computerized and the information stored in digital format. It is found that the workshops organized are generally designed to provide practical training on IT applications, but they are not assessing the training needs of library professionals.

Sagolsem, Purnima Devi and Vikas (2007) report a survey conducted among the library professional staff working in public libraries and NGO libraries of Manipur. The main objectives of the study was to find the status of digital environment in Manipur public libraries, to evaluate the need of manpower training for IT application, attitude of staff towards IT application, their career opportunities and problems in IT application. A questionnaire was used for the survey among 50 library staff in the public libraries of Manipur. The study reveals that public libraries lack sufficient professional staff with required knowledge of IT. Though most of them had a favourable attitude towards IT application majority were not satisfied with their opportunities to enhance qualifications. The problems in IT application include lack of qualified professionals, high cost of IT infrastructure and insufficient computer
facilities. The study recommends the importance of continuing education programmes to upgrade professional competencies and suggests that the government should provide more grants for library development in the state.

2.3.2 International studies

Broadbent and Grosser (1987) outlines the study conducted on 85 Melbourne based special librarians and Information centre managers to ascertain their continuing professional development (CPD) activities. Investigations was based on interviews to assess the nature of organizational support for professional development, the formal programmes attended, the present and future educational needs for CPD. The study shows that over 70% of interviewees had participated in at least one workshop, conference or seminar during the previous two years. Though the funds were provided by organizations, the amounts spent were low and suitable courses were few for professional development. Educational needs mainly concentrated around information technology and management skills.

Roberts and Konn (1989) reports a study conducted on about 52 university and 30 polytechnic librarians about forms of of continuing education and training in their libraries. Induction and further education issues were explored, as well as attitudes to the idea of continuing education. Response shows marked differences in practices between polytechnic and university libraries. Responses indicated a growing interest in continuing education, and respondents repeatedly referred to developments occurring outside their own libraries, which were powerfully influencing their own education and training attitudes and practices. The impact of technological developments upon continuing education requirements was evident in a number of responses. Further education and training includes study for higher degrees, part-time or full-time, inhouse or external training; attendance at conferences and professional meetings; demonstrations; purposive visits to other libraries; etc.

Aina (1993) evaluates the curricula of library schools in Africa to know whether their courses are relevant to the emerging library and information science market based on a standard list of topics, ranging from computer technology, information, and records management to information repackaging and journalism. Data used in the study was based on prospectuses from the schools supplemented with visits. Only schools
having bachelors or postgraduate programmes were considered; library schools that run only undergraduate diploma programmes were excluded, assuming that information professionals are those who have undergone a bachelor’s or postgraduate training programme. Results suggest that a substantial proportion of the institutions in Africa have incorporated courses like information management, information repackaging, systems analysis, design etc that are appropriate to the emerging market in their curricula. Though the relevance of computer technology is stressed, only a few institutions have incorporated computer technology in their syllabus. Recommends that funding agencies should provide assistance in the training of information professionals in Africa by sponsoring visiting lecturers and scholars to training institutions where these lack skilled work force to teach certain courses, and by making the necessary equipment available. The importance of continuing education for trainers is also stressed.

Elkin (1994) stresses the need for continuing education in the modern information environment. She points out that education and training must become a continuous lifelong process to keep abreast of change as professional knowledge is becoming increasingly complex and specialised so that individuals need constant updating to keep in touch with their area of specialization. She reviews the profile of LIS courses in 16 universities in the UK. Potential employers expect students to have skills in IT, in analysis, synthesis and repackaging, as well as high quality management and personal transferable skills, allied to the ability to communicate effectively through a range of media. The author outlines skills which may be seen as the solid core of library and information studies as information-handling skills, training skills to help people to use libraries and information resources in any media, evaluative skills and concern for the customer.

Freeman (1995) explores the possibility of LIS professionals undertaking research for a doctorate (PhD) as an option of continuing professional development. He reviews Doctorate in Library Studies (DLS) being offered by British library schools, together with the opportunities offered in business schools in UK. He points out that for most librarians, full-time study as a doctoral candidate will not be feasible, and they will have to investigate the part-time modes or distant learning options. Library professionals have a duty to advance their knowledge in the profession and are faced
with a rapidly evolving and converging discipline containing many interesting topics for research.

Leach, Arundale and Bull (1996) reports the use of information networking for continuing professional development. With the help of 2 postal surveys, assess the extent of librarians’ and information professionals’ interest in CPD which include computer networks, network based course materials and teleconferencing. The degree of professional demand for such programmes is analyzed. One survey was conducted in the institutions conducting library and information science education in Europe, N.America, Australia, South Africa and Jamaica to establish their involvement in CPD. The second survey collected opinions on the requirements of CPD and its delivery through electronic networks. The main conclusion was that the professionals were interested to accept training through networks, but the technical infrastructure was insufficient to provide distance learning through network.

Rice-Lively and Racine (1997) explores the current role of information professionals in academic settings. Based on a university library case study, it suggests skills and attitudes they need to develop to cope with change. The study group used in this inquiry included students, LIS faculty, and library professionals affiliated with a large research university. It shows that the information professionals today should possess a number of specific human relations skills of communication, intuition, interpretation, and translation to assist the user in the electronic environment.

Anwar (1998) details the results of a questionnaire survey of academic librarians’ perceptions of their continuing professional needs in Malaysia. The continuing professional development environment in academic libraries, duration of such programmes, the skills required in the areas of management, information and communication technology, research skills etc are some of the factors studied in the survey. He also suggests methods to promote professional development programmes for academic librarians.

Edem (1999) in a survey studies the issues and obstacles affecting the career advancement prospects of librarians in Nigerian universities. The main objectives of the study were to identify the career advancement structure in Nigerian universities, and to evaluate the career advancement opportunities for librarians. Respondents were
selected from 22 universities in Nigeria using random sampling. The survey results indicate that career advancement structure has seven main grades or ranks. Further, publication productivity and professional experience are required for librarians’ career advancement. One of the main problems faced in career advancement was lack of higher educational qualification. Other factors include lack of inadequate norms for promotion, and unnecessary emphasis on publication requirement.

Feret and Marcinek (1999) from a Delphi study conducted between December 1998 and April 1999 involving 23 key library experts from ten countries finds the most important trends that are occurring in academic libraries and their impact on the role of the academic library with focus on the skills and characteristics of librarian in the new millennium. The study shows that the library will play an important role in the overall university information infrastructure and the academic librarian’s most important characteristics will be very good interpersonal and communication skills, language proficiency, team-working skills, user friendliness and customer orientation. Training its users will be one of the most important services of the user-oriented library, therefore teaching and training skills are essential for the librarian of the future, and library and IT skills. The author stresses the importance of librarians of the future to be prepared for lifelong learning.

Jain (1999) presents the main findings of the study conducted by the author, On-the-job training: a tool for professionalism and productivity a case study of Botswana National Library Service, which was carried out in order to explore and identify on-the-job training (OJT) needs for library staff. A total of 64 library users and 64 library staff, including 31 professionals and 33 diploma holders were surveyed. The main OJT training needs were identified as: information technology, job orientation, customer service/public relations, marketing/publicity, refresher courses and managerial skills. The survey shows that the ability to use information technology is the most important skill among the library professionals. It shows that usually there is a lack of technological training for the staff. Information technology encompassed computer literacy, information management through technology, and the use of all other equipment such as photocopiers and video cameras. Participants also felt that IT will improve a library's productivity, because staff will be exposed to a new spectrum of information which can motivate them to help the users with recently available
information. The survey stresses the need for effective IT training to make the most effective usage of computers and appropriate software applications pertinent to a specific job.

Marjariitta (1999) reports a study carried out in order to identify the educational needs of the library staff of Finnish polytechnics. The educational needs identified by the library staff concerning four main topics (library work, leadership and management, information technology, and learning and learning environment) as well as the main topics for continuing professional education. Most of the library staff needed to learn more about how to teach information skills, how to integrate libraries into the context of polytechnic information management and how to use information networks effectively. About 70 per cent of the respondents were interested in learning more about these three topics. Half of them (53 per cent) recognised the design of the learning environment as an educational interest and they wanted to improve teaching and training skills. The respondents have no problems with IT applications and Word, Excel, PowerPoint etc. but they prefer to learn more about the networks. As the polytechnic libraries are not integrated into polytechnic information management, the professionals need continuing education and training in information technology and management.

Elgohary (2000) investigates the preparation of entry-level research Librarians in Florida research libraries and describes the relationship between formal library education and work in research libraries from the perceptions of entry-level librarians and their supervisors through a web based survey. The main goal of the study is to help library schools prepare future research librarians and equip them with in-demand knowledge and skills. In addition, it aims to identify the current and the potential required skills for entry-level research librarians. The study focuses on subject-knowledge skills, management and marketing skills, information technology skills and interpersonal skills of librarians in academic and research libraries of Florida. The results of the study identify different methods for library schools to consider in the curriculum development process. Conducting systematic revision based on analyzing market demands for information professionals in different library and information settings is essential for library schools. It recommends internships as a requirement for the MLIS degree to help graduate students acquire more experience that is
practical. Adding more management and marketing curricula will help MLIS students to deal with some of the important issues raised in libraries, information centers, and information technology curricula that focus on issues such as information system and database design.

Chaudhary (2001) reports the continuing education needs of librarians and information professionals in the University libraries of Pakistan. The study explores the needs of university librarians in Pakistan and Azad Jammu and Kashmir, and determine the obstacles to the continuing education programs. It also tries to identify different methods to motivate librarians toward continuing education programs. It is expected that the results of this study will be of practical importance to design continuing education programs for the university librarians.

Bii and Wanyama (2001) analyze the impact of automation on the job satisfaction among the staff of Margaret Thatcher library, MOI University Kenya. Using interviews and questionnaire to all the library staff researchers find that there are problems within the library regarding training and access to automated systems. The main objective of the study is to find the problems staff members face because of automation of the library, and how the library management has tried to resolve them and/or how can they be solved for sustained job satisfaction among the staff. Eighty eight percent of the MTL staff members had received in-house training on various aspects of computerised library applications, albeit some to a basic level. The staff views automation as an enrichment and a source of satisfaction for their jobs. The study recommends structured in-house training, free access to the available software, additional systems staff, and centralised databases, among others, to be implemented. Regular in-house training is a necessity to gain maximum benefit from the available hardware and software.

Broady-Preston and Bell (2001) evaluates the importance of continuing professional development for library and information science professionals through a case study of MLIS distance programme of Department of library and information studies, University of Wales in UK. A questionnaire survey among the students reveals that most of the students enroll for MLIS programme with an aim to update and refresh qualifications, keep abreast of new ideas, acquire and enhance management skills etc.
It is clear that students view MLIS course as a means of CPD that would allow them to enhance their current position and create options for future opportunities. The survey also reveals that continuing professional development (CPD) add value to personal and professional life but only if the employee is motivated to ask for training, design a programme or follow through sometimes at his /her own expense.

Desai (2001) reports the results of a questionnaire survey conducted to analyze the continuing education needs of science and technology librarians. Survey questions include teaching tips, web designing, career development, various current topics etc. She finds that science and technology librarians are highly interested in information literacy in sciences, technologies and learning more about electronic resources, designing web tutorials, selection management, electronic reference services etc. Career advancement and management topics were the least accepted among them.

Smith (2001) examines the pattern of staff development activity in Australian University libraries, State Libraries, the National Library etc. The study reveals various factors influencing staff development. Most of the responses show that increased information technology applications have led to a greater need to train staff in IT applications. There is a good balance between training in specific knowledge and job skills and broader professional developmental programs and activities. In many instances the libraries report that they have a preference for staff development that can be undertaken in-house and the growing role of libraries in teaching literacy, knowledge management skills etc has resulted in a need to develop these skill in their staff.

Terry (2001) reports organizations’ approach to continuing education, with the help of e-mail interviews of a sample of publishers, librarians (academic, research, and corporate), subscription agents, serials aggregators, and library system vendors. The types of training and staff development opportunities available (both formal and informal), the interviewee’s personal experience with training, and the organization’s annual budgets for continuing education activities per employee are also included in the survey. All of the organizations interviewed had highly developed and customized internal training programs. The one principal skills requirement mentioned by all interviewees was in the area of technology, software and hardware skills. Apart from
computer skills, a prevalence of training was reported in the communication/presentation skills, negotiation skills, knowledge management skills, time management skills, management training, and user outreach/customer service training.

Yang (2001) presents the results from a survey to assess the training and educational needs of government documents librarians. The survey included 450 government documents librarians in the United States, randomly selected from the seventh edition of American Library Association’s Directory of Government Document Collections and Librarians (1997). Two hundred and forty-four librarians responded to the questionnaire. The survey included questions concerning the primary means by which government documents librarians gained knowledge about government documents as well as questions on the areas of government publications perceived by them that is covered in greater depth in library school curricula. In addition, government documents librarians were asked whether there were enough government documents workshops/seminars to meet their continuing education needs and what topics were perceived as important to be discussed or presented in future workshops. Topics included the management of electronic resources; effective methods of searching government documents on the Web; how to use the various formats of census publications fully; GIS application and its use; government statistical sources and the use of electronic statistical sources etc. A few respondents stated that working with documents provided an opportunity to become experts in a specialized area of librarianship. The survey responses indicated that self-instruction is the primary means by which government documents librarians have gained knowledge of government publications. Respondents were positive about library school curricula in general, but they suggested a number of areas that should be covered in greater depth, particularly statistical data sources and census publications.

Anwar and Ansari (2002) report the results of an investigation in current continuing professional development practices, perceptions of academic library employers about the skills to be developed in their staff in six Gulf co-operation council countries. Through mailed questionnaires, data was collected from 15 publicly funded institutions. Analysis shows that a systematic staff development programme was lacking in most of the institutions. Information and communication technology skills
preferred relates to automated systems, electronic resources, networking and multimedia applications. Writing and research skills relating to measurement and evaluation, studying information needs, and report writing receive higher ranks in the survey.

Hewitson (2002) reports results of an investigation, undertaken at Leeds Metropolitan University, to study the awareness and extent to which university academic staff use and assimilate electronic information services (EISs) into their work. The study is based on the findings of a quantitative survey, which addressed four specific areas: the characteristics of the respondents (age, gender, and faculty); the level of the information technology (IT) literacy of staff; the frequency of use by academic staff of different EISs offered by the university; and academic staff's perception of student use. The study also investigates how academic staff at the university obtains information for their work and what they do with the information they obtain. The other factors studied include awareness of staff about EISs; the barriers that exist to their use; the extent to which academic staff are integrating the use of EISs into students' educational experience; and what the university can do to support staff better in their use of EISs. It concludes from the results that the internet is the most popular information source but the factors affecting use at the expense of subscription-based services are complex. University staff, especially those with low-level IT skills, frequently uses the internet because it is easy to access and provides instant results. It is clear that members of staff, who used EISs regularly, used it for their own research or after joining some form of professional development such as a PhD.

Breen et.al (2002) evaluates the traditional library skills in relation to the information technology developments in the workplace. It shows that as LIS courses are not reoriented most jobs are lost to library professionals. A survey to establish the extent to which the curricula of current information studies departments teach the relevant skills, shows that there are two courses under LIS one for employment in library sector ,and other for information management. Authors point out that LIS courses must adapt to provide professionals with the necessary skills to take new role in the working place.
Kwasik (2002) analyses the skills required for a serials librarian to manage electronic information. The study conducted analyzing job announcements in academic institutions during the years 1999-2001 examines the most frequently required and preferred qualifications and knowledge demands for a serials librarian. Most preferred qualifications include traditional skills such as knowledge of MARC formats, AACR2, the Library of Congress (LC) classification system, the Library of Congress Subject Headings (LCSH), familiarity with the OCLC etc. Relatively new skills such as knowledge of Dublin Core standards, knowledge of markup language, Web design, or experience in cataloging electronic publications were usually listed as desired qualifications. Based on the study the author suggests some professional development activities to improve competencies for serials librarian due to the progress in information technology and introduction of electronic journals in library collections. To stay current with all the cataloging standards and new developments, librarians need to improve their skills constantly.

Powell et al. (2002) reports a study on LIS practitioners’ involvement in research, 1,444 questionnaires were sent to members of the American Library Association, the American Society for Information Science and Technology, the Medical Library Association, and the Special Libraries Association. An analysis of 615 responses reveals the following: almost 90% of LIS practitioners in the United States and Canada regularly read at least one research journal, nearly 62% regularly read research-based articles, approximately 50% occasionally apply research results to professional practices, and 42% occasionally or frequently perform research related to their job or to the LIS profession. The data analysis also identified factors related to practitioners’ involvement in research and determined how practitioners assess their research training and skills.

Khurshid (2003) review job advertisements published in American Libraries (AL) and College and Research Libraries News (C&RL NEWS) to assess the impact of automation and use of IT in libraries on job requirements and required skills of qualifications for catalogers. Analysis reveal that most preferred qualification is a master's degree in library and information science, or in some libraries a master's degree in computer science or relevant field, or a subject master's degree with library experience. However, major changes are occurring in the skills area. In addition to
knowledge of cataloging principles and procedures, the requirements also include familiarity and experience with an integrated library software, one or more bibliographic utilities, basic computer applications, and emerging metadata schemes and tools.

Minishi-Majanjaa and Ocholla (2003) reports a project that aims to record and review the types, nature and diffusion of ICTs in LIS education and training programmes in Africa. One of the main objectives of the study was to determine the extent to which ICTs are taught and used in teaching, learning, research, and academic administration in LIS schools in Africa. The findings show that LIS schools in Kenya have embraced the use of ICTs, but there are major differences in terms of application. Though LIS Schools offers a wide range of relevant ICT courses, not all of them offer practical training for their students. In teaching and learning, only a few LIS schools use ICTs to deliver lectures, the majority still favour age-old methods of face-to-face classroom teaching. In research, the lack of ICT facilities has resulted in partial and minimal use of ICTs, especially since academic staff has to pay to access the Internet. In terms of academic administration, most LIS schools have computerised but most activities still are conducted offline due to networking inadequacies. The study recommends that Kenyan LIS schools should increase the use of ICTs in teaching and learning to promote greater efficiency. Kenyan LIS schools should make every effort to provide online and distance education in order to open more learning opportunities for the nation.

Adomi and Nwalo (2003) in their study surveys the prospects for continuing professional education (CPE) of library and information science (LIS) professionals in Nigeria using Delta State as a case study. Fifty-one practitioners made up of professionals and paraprofessionals from academic, public, special libraries and information centre were used in the study. Authors note that though LIS professionals and paraprofessionals desire to update their skills and knowledge through continuing professional development (CPD). However some constraints, such as lack of IT components for practice/work, lack of self and organizational motivation, financial difficulty, amongst others, hamper staff from taking advantage of CPD in countries such as Nigeria. Work skills necessary for the respondents are managerial in nature and most of who are already playing managerial roles in their libraries. Conclusions
based on findings recommend that LIS organisations should be more committed to the CPE of their staff; that practitioners should commit their personal funds to their CPE if their organisations fail to support them and that the professional association should develop clear cut programmes for the development of practitioners.

Chan and Auster (2003) explores the extent to which professional development of reference librarians was occurring, based on a survey of 733 professional librarians with reference duties who were working in large, urban public libraries in Ontario. Reference librarians once relied solely on print resources; they can now answer the majority of questions accurately using only Web-based sources. Authors examine those competencies reference librarians were choosing to acquire through formal and informal professional development activities, and explore barriers that might be preventing reference librarians from participating in these activities. In their professional development activities, the most popular topics were related to internet and more than half the respondents studied electronic resources, office applications, integrated library system applications, communication skills and public service skills. Instructional skills and management skills were studied by about 40 percent of the respondents.

Shiholo and Ocholla (2003) outlines the changing trends in the training of information professionals in Kenya based on a literature review representative of popular publications and research reports from 1970 to the current time. The paper gives an insight into Library and Information Studies (LIS) education in Africa. The demand for competency in technology has led to the proliferation of training programs in information technology, leaving out other information areas. There is a need for the development of new programmes and the need for curriculum review that comprises a strong component of information management and IT. Authors stress that information technology, management and user oriented studies (information needs, seeking, interfacing, use and impact) will occupy a central place in LIS education in Kenya. The paper concludes that core knowledge and skills for information providers ought to be reviewed regularly and that support from LIS education stakeholders, such as national library associations and national experts, should be enlisted in determining such requisite skills.
Cardina and Wicks (2004) in a study of reference librarians working in academic libraries of United States, assess the role changes that occurred from 1991 to 2001. It provides information related to the types of job activities performed and the relative amount of time spent on these activities by the librarians who took part in the study. A list of traditional as well as newly developed duties of reference librarians was developed. Duties incorporated into a questionnaire were distributed to reference librarians currently working in academic libraries. The results of the data analyzed using the Statistical Program for the Social Sciences (SPSS) show that changes occurred in the types of jobs most frequently performed, as well as for time spent on particular jobs. The number of reference tools used by librarians increased over the ten-year period surveyed. Use of the Internet, email and electronic resources saw a sharp rise in use from 1991 to 2001.

Flatley and Weber (2004) outline professional development activities for new academic librarians. The authors review various professional development activities including publishing, presentations, involvement in professional organizations, continuing education, and institutional and community service that is required for an academic librarian. The article points out the benefits for librarians in the profession by publishing articles in journals, books, and in web etc. The authors brief the importance of academic librarians to keep abreast of the profession as it changes rapidly and one of the best ways to do this is by attending professional workshops, lectures, seminars etc. Workshops include technology and electronic competency workshops covering database training, software training and new technology awareness. The paper stresses that the benefits of being a librarian is the expertise and service, which touches all aspects of the academic side of the institution.

Henry and Neville (2004) through a web based survey investigates the research, publication, and professional activities of Florida academic librarians. The study seeks to reveal about the various promotion, tenure, and professional advancement processes and opportunities. Survey questions investigate whether there is a perceived difference in the importance attached to various types of research and publications. It shows 46% of all the Florida academic librarians who responded have been engaged in either book, book chapter, or refereed article publication since 1995. The survey
also finds that librarians believe in having or obtaining a second degree for success in advancement or for promotion

Zhang (2004) uses a questionnaire to assess and identify areas of training and development of library support staff in selected academic libraries in Oklahoma and Kansas. Questions include opinions on the importance of training topics on computer skills, interpersonal skills, and supervision/management skills that they perceive as important to their job and the importance of library/organizational supports that encourage them to participate in training and development. It is seen that support staff highly rated computer skills like web browsers, MS Office Suites (e.g., word processing, spreadsheet, etc.), e-mail management etc that help their job and oral/written communication, working with difficult people, managing priorities etc as important training topics on interpersonal skills.

Clyde (2005) reports a descriptive study undertaken to gain an overview of library and Information workplace needs for library professionals with knowledge and skills related to user education and information literacy instruction. The study describes a small-scale research project that used content analysis techniques to study job advertisements posted to the international LIBJOBS listserv over a period of three months. The findings of the study, and recent literature, indicate that skills associated with user education and information literacy instruction are important for today’s library professionals.

Eells and Jaguszewski (2005) reports the study of a task force of the University of Minnesota libraries which developed a list of core information technology (IT) skills that could be expected of all 300 staff including technical services, reference services and stacks maintenance. Once this list was developed, the task force designed and administered an online self-assessment survey to identify the computer skills of library staff. In the study the development of the core competencies and the administration of the assessment are discussed. Authors point out some recommendations for the future, including use of assessment reports and data gathered in the process to develop a training and professional development curriculum focused on the specific identified training needs of staff.
Bawden, Vilar, and Zabukovec (2005) study the approaches to the education and training of librarians for work in digital libraries and identify the important competencies required by information professionals in creating and managing digital libraries. The method used is literature analysis of the skill sets required by librarians working with digital materials and evaluation of formal education and professional development programmes in the UK and in Slovenia. The study assesses how the educational needs are met; the means by which competencies are treated in LIS education and training, and the methods of developing the information professions. Their findings show that formal education and continuing development training cover aspects of the digital library environment, both in the UK and in Slovenia. Curriculum development includes redesign of degree programmes, training courses and Digital library skills.

Feret and Marcinek (2005) in a continuation of the Delphi study conducted in 1999 verify the results of the previous study (comparison of the experts’ predictions with the reality as of the year 2005) and assess the competencies that librarians should develop as professional information suppliers and experts, to meet future needs. Closed questions included four main areas: the Internet as a competitor to the library, local versus remote access, printed versus electronic media, staff and user training. New factors identified by the experts (not mentioned in the previous study) include a raise of user’s expectations, the Internet tools e.g. Google and other search engines challenging the library etc. Regarding the skills of librarians the experts opinion was that IT and communication skills are the most important and subject knowledge is as much important as managerial skills. The study also predicts that IT progress and changes in higher education will play a predominant role in shaping the image of future libraries and their important role will be information management and access, teaching, support for research and cooperation.

Gosine-Boodoo and McNish (2005) reports the results of a survey to identify whether the particular country environment of today's professional librarian impacts upon his/her skills capabilities as well as upon his/her access to opportunities for continued development. The satisfaction level of librarians with regard to six recommended skills and characteristics like communication; training; information technology (IT); managerial; commitment and subject knowledge/profiling was measured. Secondly,
professional development opportunities were measured via skills, services and attitudes, key areas also recommended for staff development and training. An important finding of this study illustrates that what significantly contributes to the librarian's overall satisfaction with professional development is the level of competence with his/her skills set. The emerging need for improved IT and managerial skills is important for librarians' professional relevance and progress.

Mayer and Terrill (2005) report a survey of academic librarian’s opinion about the need for advanced subject degrees. Academic librarians have various opinions on the importance of advanced-subject degrees in addition to a master's in library science (MLIS). The authors using an online survey collect opinions from academic librarians on this topic. Arguments in favor of having advanced-subject degrees include development of research skills, credibility, and overall improved job performance. Arguments against include the fact that the MLS is and should continue to be library professionals’ terminal degree. The need for advanced-subject degrees may vary by many factors, including individual career goals and local institutional culture.

Spackman.et.al (2005) reports the results of a continuing education survey conducted at the end of 2005. The mail survey began with an open-ended question, asking respondents to list three topics in science librarianship they were interested and 24 topics on a five-point Likert scale. The survey also covered questions on professional involvement, professional organization membership and conference attendance. The top continuing education needs of science librarians include new technologies, professional development and keeping current, institutional repositories/digital archives, promoting science information literacy, collaboration between faculty and librarians, and finding free high-quality online data. It was seen that science librarians prefer continuing education in a number of different formats, whether in person or remote like teleconferencing, E-mail tutorials etc. On comparison with previous surveys, information literacy was the strong interest of science librarians.

Bradley (2006) explores barriers and motivators for new professionals who write for the professional literature. Authors from the ALIA New Librarians’ Symposium held in December 2006 in Sydney, Australia were surveyed about their experiences of writing and presenting early in their career. Majority of respondents would like to
improve their research, writing and presenting skills. There is a strong interest amongst new professionals to write and publish, as found in the survey. They are motivated to make an impact on the profession and to develop their own careers. However there remain many varied barriers, and a lack of support structures to develop skills after graduating from library and information qualifications. Encouraging the new library professionals to report on their professional practice and providing the support for them to do so will be to the benefit of their peers who will have greater access to knowledge about activities and innovations in other libraries.

Professional development is essential for academic librarians to keep current with skills, knowledge, and competencies in rapidly changing times. Cassner and Adams (2006) surveys distance librarians in academic libraries to determine their professional development needs. Respondents were asked to indicate which professional development activities they are currently participating in and those they are likely to engage in within the next five years. Findings from the survey show that Listservs targeting distance librarians, distance learning conferences, and professional journal articles are the most important in meeting professional development needs of distance librarians. Blogs, which provide currency, analysis, and quick communication, are increasing in importance. Authors suggest that core activities that will be most important in the next five years are instructional design, Web page design, and marketing/public relations.

Gosine-Boodoo (2006) investigates Caribbean special librarians to study their demographics, perception of skills satisfaction and opportunities for career development. The study shows that special librarians are multi-skilled in technical, technological and managerial skills and some perform all major library functions in combination with management or IT. Their IT related skills in combination with managerial skills, enable them to function as website, database and e-resource managers. One of the recommendations includes commencing a joint venture between the organization and the individual librarian with the goal of establishing a programme of relevant continuing education and training. Author also suggests the formation of ‘special interest’ groups with or without the support of library and information professional bodies or employer organizations.
Kavulya (2007) investigates the types of skills, knowledge and values that are needed by LIS professionals in Kenya if they are to fulfill the current information needs of the society. The survey collects data on the respondents’ perceptions on the status of job market for LIS professionals in Kenya, adequacy of current curriculum and training resources in local LIS training institutions, priority areas of training and ICT skills that are critical for information professionals. Respondents were of the opinion that unless steps are taken to improve the quality of LIS training in Kenya, persons from other professional fields will be better placed to perform some information functions than LIS professionals. The study also finds that LIS curriculum should include hardware and software skills, database construction, website development; digitization process; electronic information, internet use and evaluation, information storage and retrieval. Other IT courses identified as useful are electronic publishing, HTML and programming. Author suggests that to provide information services that address specific targets, LIS schools have to select areas to include in the curriculum, depending on the manpower they would like to produce.

Adanu (2007) reports research carried out among professional librarians in the five state-owned university libraries in Ghana. The study was to find out if their work environment encouraged Continuing professional development (CPD). The results of the survey using questionnaire and interview show that the library environment in the state-owned universities was supportive largely of CPD. The study reveals that the professional librarian’s involvement in CPD was a shared responsibility of the library and the individual. The study reveals that CPD activities might lead to job advancement, competence, or both. A vast majority of the respondents, 92.7 per cent, saw involvement in CPD as a great aid to promotion as well as career advancement. The three main activities that respondents felt resulted in better job performance were reading professional literature (78.2 per cent), workshops (72.7 per cent) and networking with colleagues (36.4 per cent). It also shows that research and publishing was not rated high as a contributory factor to enhancing competence. The author stresses the need for CPD and workplace learning to meet the challenges and changes faced by the library profession due to the developments in ICT.

Leong (2008) in a case study tracks how academic reference librarians at the UNE, New South Wales, Australia have faced changes in library services during the period
from 2000 until January 2007. It reviews the steps involved in managing change and the approaches that were taken. The reference department had responsibility for reference work, information literacy, including Endnote bibliographic database classes and troubleshooting, selection work including electronic database assessment, collection assessment and cooperation with faculty. To provide for this broad scope of work, competencies were developed in addition to the reference competencies. The study shows that staff responded positively to the challenges, developing new skills for a changing environment, for new areas of work and taking innovative approaches to improving service.

Gerolimos and Konsta (2008) reports the results of a research to investigate the qualifications and skills of librarian’s profession as they are seen through the job advertisements studied from the UK, Canada, Australia and the USA in 2006 and 2007. The data were derived from known web sites. The study concerns many aspects and problems of the information professional in the new environment and especially the types, the education needed, the skills and qualifications required, the extent to which the profession should or will change etc. Degree in LIS and working experience skills, Communication skill, Development of digital collections skill etc record highest percentage of skills needed in the survey.

Maesaroh and Genoni (2009) report a study of levels of education, skills, and awareness of Indonesian academic librarians, and provides an insight into their continuing professional development. The paper studies the qualifications of librarians in Indonesian academic libraries; and their type of continuing professional development and work place training in Indonesian academic libraries. The survey method was questionnaire delivered to all librarians employed in indonesian public universities. It also covers a comparison of survey results on key indicators for Indonesian and Australian library and information staff and finds the relative shortcomings in the level and standard of education of Indonesian librarians. While Indonesian staff reported high levels of participation in some types of training, but their levels of satisfaction was lower than that of their Australian counterparts. The quality of education and CPD was not satisfactory for Indonesian professionals.
2.4 Thesis

Nair (1997) reports a study of the attitude of librarians in Kerala towards the use of information technology in library and information activities in his thesis. The main objective of the study was to find out the nature of attitude of librarians towards information technology (IT). The study was conducted on a representative sample of 284 professionally qualified librarians in different libraries of Kerala. The tools used include a scale of attitude towards information technology, general data sheet and job satisfactory inventory for library professional. The results of the study showed that majority of librarians showed favourable attitude towards information technology. They were prepared to accept modern technology in library activities. Librarians considered IT not as a means to reduce their workload but as a device to render effective information service to patrons. Librarians engaged in different professional work were similar in their attitude towards information technology.

Moorthy (2001) surveys the impact of electronic media on library and information centres with special reference to India, to assess the infrastructure available in libraries, the level of automation and extent of usage of electronic media in library and information work. The study includes R&D institutions in science and technology and Universities. The survey method includes questionnaire with open and closed type questions and interview with Librarians. The study covers topics related to infrastructure, hardware and software, databases created, availability of Library LAN, internet connectivity, CD ROM based services etc. It also evaluates the training and orientation needs of the library staff to cope with the electronic media. The study reveals that the extent of use of electronic media is improving with the impact of digital libraries, online journals etc in the library system. One of the major concerns is the training and computer literacy of library staff and users. He points out the need to restructure the curriculum of library and information science courses in India by including various aspects of ICT applications.

Mohamed Haneefa (2004) in a study of special libraries assesses in detail the application of information and communication technologies in special libraries in Kerala. The survey using structured questionnaires, semi-structured interviews and observations, provides a state-of-art application of ICT in automated special libraries
of premier research institutions in Kerala. The study identify the factors that promote or hinder application of ICT, user’s satisfaction, ICT skills of library professionals and the facilities for training in ICT in special libraries. It also assesses the attitude of users and librarians towards the application of ICT. Survey results show that majority of the libraries have basic hardware and software facilities. Majority provide training for their library staff in ICT based services. The librarians and users have a highly positive attitude towards ICT application and the main barrier to ICT application is inadequately trained library professionals.

Muhammed Salih (2004) surveys the computerization of University libraries in Kerala for his Doctoral thesis. The main objective is to identify and compare the application of computers in housekeeping operations in University libraries, infrastructure, finance, library services etc. The study also aims to identify the personnel engaged in computerised activities and their competency for work in terms of their qualifications. The study covers four major university libraries of Kerala, viz. University of Kerala, M.G University, Cochin University of science and technology and University of Calicut. Data was collected using questionnaires to librarian, person in charge of computerization, users and from websites of the university libraries. The survey shows that none of the university libraries is totally computerized. All the libraries under study had Inflibnet support, had university LAN and providing internet services to users. User awareness about various library and information services was found to be poor. One of the main suggestions includes setting up of a Consortium of Universities to share the resources between university libraries in Kerala.

Mohana Kumar (2007) in his study of college librarians in Kerala evaluates their professional manpower in the IT environment. He studies the present position of library manpower in college libraries and develop a professional library manpower measurement scale PLMM. The study found limited use of IT in college libraries and inadequate staff to provide relevant services. Majority have attended conferences, continuing education programmes, computer training etc. But only a very few have publications and he recommends more IT related training programmes for college librarians to provide effective services for users in their respective institutions.
Vijayakumar (2007) evaluates manpower utilization in the university libraries of Kerala, through a survey of university libraries and library professionals in five universities with well equipped university library system. He makes a detailed study of the various university libraries in Kerala with details regarding central library and various departmental libraries with the help of data sheets and questionnaire for library staff. Data includes details of documentary sources, budget allocation, infrastructure and manpower of all libraries. From the analysis of the qualifications and skills of library professionals it is seen that 83% of professional staff had higher qualifications than the entry level requirement. He states that library professionals must acquire more management skills in addition to computer skills and recommends restructuring the manpower in university libraries in the light of induction of new technologies.

2.5 Reviews

In addition to various research studies in areas related to professional development and ICT applications, a lot of literature is published on the theoretical aspects of professional development, ICT applications and skills. A few are reviewed in this section.

Griffiths (1995) opines that the traditional information access and management roles played by the information professions are expanding, particularly in the design and development of new information products and services and of tools to support information seeking and selection, the analysis and synthesis of information content on behalf of users, and information user instruction. The role of information professionals is to mediate the interface between users and knowledge resources, using tools and technologies. In addition to the computer-based and telecommunications technologies, there are tools like classification schemes, indexing systems, data structures, directories, metadatabases, and so on. He observes that librarians will increasingly be involved in the creation activity, will create more and more bibliographies, guides, and syntheses, and higher-level abstractions of information content, directories etc

Barden (1997) describes the skills required by the information worker of the future. He refers to Librarians as information workers and suggests that information workers...
have to develop technology skills and network management. They must be customer focused, need to have a sophisticated knowledge of media management, storage, retrieval, and they will be required to be acutely aware of the financial and business implications of their activities. The author also suggests a manifesto for training and development for information workers, which will see them as being major contributors to, and shapers of the 21st century.

Bryant (1997) identifies nine core competencies for solo librarians and discusses five of them, which are organizational culture; management skills; communication; library/information skills; and networking. The full list also includes interpersonal skills; information technology; subject knowledge; and personal development. The author suggests that this list is relevant to the professional development needs of all information services practitioners.

Kajberg (1997) explains the need for competency development and upgrading of public librarians’ knowledge in the field of information technology (IT). The range of skills needed by today’s public library professional includes skills in developing local full-text databases, Intranet design; designing innovative multi-media based OPACs, electronic publishing, homepage creation, and Internet navigation and searching. He discusses new roles and emerging professional identities for librarians such as the net navigator, the educator, the information consultant, and the gatekeeper.

Alelnna (1998) identifies the education and training needs of future librarians in Ghana based on the assumption that librarians and information scientists are to assume new responsibilities due to the developments in information technology. This also means that both short- and long-term training programmes must be developed based on assessed needed skills – actual and potential. He observes that any changes in the curriculum of the Library School in future must also consider the need to keep a proper balance between theory and practice. Consideration must be given to the amount of time that should be devoted to practical work and when and how practical fieldwork would be organised, supervised, quality controlled and evaluated. The author points out the areas such as Personnel and Financial Management, Marketing of Information Services, Information Technology and Communication Networks, Management and Maintenance of Computers,
Bookbinding, Conservation and Restoration, Records Management, Inter lending and Document Supply, User Education that are to be included in the future training of library professionals.

Ilyas (1998) gives an overview of librarianship in Pakistan in the 21st century. He observes that new skills and a change in attitude on the part of librarians in Pakistan are required if they are to be able to provide efficient and effective information services to users into the next century. The available data show that there are only a few opportunities for M.Phil and Ph.D. studies in the library schools of Pakistan and most of the professionals trained by these schools are thus deprived of chances of getting higher education. About 250 professionals are produced annually through the library schools in Pakistan; excluding those trained by the Allama Iqbal Open University through distance education. Hence, there is an intense need to tune the profession according to the multifaceted needs of the emerging scenario of information technology and the communications revolution.

Sreenivasulu, V (2000) highlights the roles and functions of a Digital Librarian in information retrieval, content delivery, navigation, and browsing. In his article, he stresses the need for professional education and training for digital librarians in the management of digital information systems. It denotes the DL’s interface functions, roles, skills and competencies for the management of digital information systems in the important areas of imaging technologies, optical character recognition, markup languages, cataloguing, metadata, multimedia indexing and database technology, user interface design, programming, and Web technology. The author finally advocates and targets the task of creating a new job title – digital librarian – to take care of digital libraries and to manage the digital information system.

Dalton, Mynott, and Shoolbred (2000) based on the findings of the Library and Information Commission (LIC) report on Cross-sectoral mobility in the LIS profession and considers some of the barriers to career development within the Library and Information Services profession. It focuses specifically upon difficulties experienced by LIS professionals in moving to different sectors of the profession. It discusses issues such as professional segregation; employer prejudice; poor employment strategies; lack of confidence among LIS professionals; training; and
lack of professional support. ICT skills were considered to be of value in all sectors. Other skills include basic LIS skills, communication and interpersonal skills, and self-management skills. In addition to outlining some of the barriers to the career development of LIS professionals; the paper offers a number of recommendations for employers, professional bodies and LIS professionals that may help to lessen many of these barriers.

Orick (2000) reviews the changing role of librarians. The information revolution and availability of wide range of information on web have created new challenges to the traditional professional ethics of librarianship. The globalization of information means that access to information is not limited by what is available in the local collection. The librarian is no longer the primary "gatekeeper" or guide to information. Today most libraries are struggling to maintain a "transitional library" collecting and organizing both print and electronic resources. Ability to access full-text resources electronically from within the institution or from any PC provides the user with convenient and immediate access to information. The digital library requires the librarian not only to collect, organize, and teach patrons about those resources in the local collection, but also to acquire access to the vast amount of aggregated information housed on computers throughout the world and to guide users to this information. In the author’s view, technology will continue to change, and libraries and librarians will use the changing technology to provide the best access and service to their patrons.

Singh (2001) emphasizes the challenging role of librarians and information professionals in the present internet era and describes the impact of internet on various library processes. Internet has changed the traditional library services like document acquisition, technical processing circulation, reference service resource sharing, document delivery etc. The role of internet to provide different user friendly services in a library is described in detail. Integration of library activities through Email, list serves, search of remote databases, participating in interlibrary loan etc. The paper also stresses the role of librarians in designing and maintaining libraries’ website /web page leading to increase in library use and efficiency.
Braun (2002) examines some of the ways in which the Internet has brought new duties and new organizational structures to traditional library jobs. Observes that the biggest change has been in the teaching role of library staff that now provide users with classes in both general computer skills and information literacy. Often librarians do not have the skills required to organize, manage, and run computer-training sessions. The demands of technology have also led to a greater use of teamwork and to flatten the traditional hierarchical organizational structure that allows all levels of staff to be trained in the required skills and to be able to be members of project teams.

Gulati (2002) discusses the status of information and communication technologies 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.) It also details the challenges for library and information science professionals in the present IT environment.

Jestin and Parameswari (2002) observes that electronic environment of the 21st century will demand a range of skills from library and information science (LIS) professionals, including technical skills, IT skills, and managerial skills. Users may turn for help and advice on search techniques, database quality, database development, and the range of databases that are available. Librarians will need organized training programs, which can be in the form of workshops, conferences, seminars, symposia etc.

Vijayakumar and Vijayakumar (2003) discusses the changing nature of academic libraries and librarianship. Authors stress the need of librarians to be involved in teaching and education through information management and information access, building collections and making them accessible, creating electronic libraries, cooperation and resource sharing, support for research and reference, etc. They also
point out that future academic librarian should be skilled in communication/training, IT, management, and subject knowledge/profiling.

Song (2005) reports that the changing educational environment in China requires new functions for university libraries, and these functions demand that librarians possess different skills and talents. The quality and skills of university library staff are decisive factors for the development of both librarianship and national education in China's digital and networked environment. On-line distance learning is playing a more and more important role in improving both the theoretical knowledge and practical ability of practitioners in LIS. In China, over 40,000 staff work in more than 1,000 university libraries, but the lack of staff with professional education in some libraries is the main issue and continuing education offerings need to be strengthened. The issues faced by University libraries at all levels of professional education are analysed. Suggestions are put forward on how to expand the scope of education, and how to utilise the networked environment to supply e-learning to library staff to improve their ability in organising information resources and in providing higher quality information services

Omekwu (2006) reviews the trends in information handling and the transition from information to knowledge management systems in developing countries and the internet usage status, information and communication technology facilities in Africa. Author also discusses the changing role of Librarians in the knowledge age. He suggests that library professionals must participate in information and knowledge creation, undertake information resources documentation, provide an information identification service and evolve new means of preservation of resources. He points out that information professionals from developing countries must re-evaluate their roles in terms of how they contribute to the management of technology and information in the knowledge age.

Guha (2006) outlines the opportunities that Digital Learning Environments has put forward for teaching and learning. Focusing on a particular aspect of professional development i.e., continuing professional education (CPE) in the light of Information and communication technology (ICT), the paper discusses about the changed scenario. It also presents an Open access Continuing Education Virtual Classroom,
developed to provide a continuing professional education platform to LIS professionals in India

Islam and Rahman (2006) outlines the present status of information and communication technology (ICT) in Bangladesh to represent the scenario of growth and development of ICT in relation to the evolution of the information explosion with the aim of providing better library and information services in Bangladesh. The status of Information technology (IT) in Bangladesh is not at par with the other developed countries, but recently the situation has changed significantly. Libraries and information services centers are expected to get immense facilities to access and cooperate with information world. A UNDP funded Program SDNP virtual library has prepared a union catalogue of 13 libraries, all of which are using CDS/ISIS software for bibliographic record keeping.

Patel (2006) describes the changing role of libraries and LIS professionals in the digital learning environment and discusses about the library services in an integrated environment where digital libraries and e-learning programme goes hand in hand. It highlights e-learning scenario in India with special reference to the initiatives taken by educational institutions and emphasizes the need to initiate LIS education in Digital Learning Environment, particularly in India.

Rajyalakshmi (2007) discusses the knowledge and skills required for information professionals with respect to the changing concept of Information management. Briefly describes the areas to be included in the curriculum for training of information personnel such as Artificial Intelligence, Economics of Information, Manpower skills, Information systems etc. The author also discusses the impact of information technology, resources in information management, the changes in work environment of libraries, and the current trends in information management.

Singh and Nazim (2008) discuss the impact of information technology and role of libraries in the age of knowledge and information societies. The paper highlights the problems faced by the Library & Information Service (LIS) sector in India and achievements over the years using modern information technologies. Stress the role of libraries in performing pivotal roles in disseminating and sharing the culture of
knowledge. Developments in information communication technology (ICT) have enabled libraries to provide access to all, and bridge the gap between the local, the national and the global. Yet the Library and Information Services (LIS) sector in India has not kept pace with the paradigmatic changes taking place in society.

2.6 Conclusion
The survey of literature has given an insight into the research carried out in the related fields of study. Further, it has helped to know the tools and methods relevant for the study. Majority of the studies are conducted with the help of questionnaire survey and personal interview. The literature survey has also revealed that most of the ICT related studies are conducted abroad. In India there are comparatively few studies related to ICT applications and professional development of library professionals. The pace of developments in ICT in the field of library and information science is rather slow when compared to other sectors. It is clear that technological change clearly affects library staff and there is a need to develop guidelines and policies to train the professionals in providing frontline services in academic libraries.

References


