CHAPTER 2
PROFESSIONAL ATTITUDES OF LIBRARIANS TOWARDS ICT: A REVIEW

2.1 INTRODUCTION

The purpose of conducting the review of literature is to enable the researcher to get a clear understanding of the research topic. It throws the light into the tested methods, processes and interpretations of similar studies done by other researchers any were in the world. Plenty of literature is available on ICT, ICT and Academic Libraries, Attitude theories and Professional Attitude of LIS Professionals towards ICT.

A bibliography is a basic information source for finding out researches carried out in the subject of LIS. Association of Indian Universities (AIU, 1981 & 1997) published the bibliography of doctoral dissertation in social sciences can be a basic material in this regard. All the bibliographies published by AIU till 1993; Delhi University (1990); and Inter-University Board of India (1974) were referred. In support of this, the bibliography of research in LIS in India compiled by Vijay Pathak and L. S. Ramaiah (1986); P. S. G. Kumar (1987); were scanned as they have covered research conducted at M. Lib. I. Sc., M. Phil & Ph. D. level. The websites of Shodhganga and Shodhgangothri (INFLIBNET, 2016) were searched for theses database. However, secondary information resources and reference books were consulted namely, Library and Information Science Abstracts (LISA) Pro-Quest, Library Information Science & Technology Abstracts (LISTA) EBSCO, Popular databases like Emerald, J-store, Science Direct and Scopus Theses Database etc.

To acquire relevant ideas and outcomes regarding professional attitude of LIS Professionals in College Libraries affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad a comprehensive search for related references, articles and
books has been done. It helped to find out what has been published on the topic by accredited scholars. The objective of this literature review is to establish the foundation of the study from which the analysis of data will be later related and to re-examine the literature spreading chronologically over last two decades and have been discussed under the following headings.

2.2 DEFINITIONAL ANALYSIS

2.3 ICT INFRASTRUCTURE IN INDIA

2.4 HIGHER EDUCATION AND ACADEMIC LIBRARIES IN INDIA

2.5 ICT IN LIBRARIES

2.6 ICT AND LIBRARIANS (LIBRARY PROFESSIONALS)

2.7 PROFESSIONAL ATTITUDE OF LIBRARIANS TOWARDS ICT

2.8 CONCLUSION

2.2 DEFINITIONAL ANALYSIS

2.2.1 Professional

A professional is a member of a profession or any person who earns their living from specified professional activity (Wikipedia, 2016).

2.2.2 Attitude

Yusuf (2005) as an individual perception and reactions to task which is expected to be carried out or executed in a group, institution, school setting or an organization; a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (Eagly and Chaiken, 1993); is a mental and neutral state of readiness organized through experience exerting a directive or dynamic influences upon individual's response to all objects or situations with which it is associated (Allport, 1935).
2.2.3 College

A high level educational institution in which students study for degrees, PG and academic research is done (The Free Dictionary, 2016).

2.2.4 College library

A place in which reading materials, such as books, periodicals and newspaper and often other materials are kept for use or lending (Webster's New World College Dictionary, 2005).

2.2.5 Librarians (LIS Professionals)

A full-time employee with library degree, who is responsible for decision-making regarding application of IT in libraries, and who runs the affairs of a library as in-charge, solo librarian, head librarian, chief librarian, library manager, library director or a senior librarian (D'Souza, Ros and Postula, 2007).

2.2.6 Information

Information is data that has given shape. It may be considered as processed data. Thus, information is data plus the meaning, which has to be a result of human action (Seetharama, 1999).

2.2.7 ICT

It can be defined as technologies that facilitate, by electronic means, the acquisition, storage, processing, transmission, and disseminating of information in all forms including voice, text, data, graphics and video (Michiels and Van Crowder, 2001).

2.2.8 Marathwada

Maharashtra State has six administrative divisions. Aurangabad division is one of them, also known as Marathwada. Marathwada consists of eight districts viz. Aurangabad, Jalna, Beed, Osmanabad, Latur, Nanded, Parbhani and Hingoli (Golwal, 2011).
2.2.9 Affiliation

Affiliated college means a college imparting education which has been granted affiliation by the University (Reitz, 2010).

2.2.10 Government College

Government Colleges are those colleges which are maintained for the public by the Government. They function in accordance with certain guidelines set forth by the State and Central Government (TargetStudy, 2016).

2.2.11 Aided College

Aided (Private) Colleges are those colleges which are maintained for the public by the Private Organizations. They function in accordance with certain guidelines set forth by their founding organizations (TargetStudy, 2016).

2.2.12 Professional Development

Professional development is the process by which professionals keep the current knowledge, skills, and abilities needed to function effectively in their profession. It is assumed that to maintain competence, the professional must participate in updating activities (Chan and Auster, 2003).

2.3 ICT INFRASTRUCTURE IN INDIA

ICT is one of the key driving forces in the 21st century. ICT transforms the way we live, we learn, we work, and we play. Advances ICT have created a new infrastructure for education, business, scientific research, and social interaction. ICT provides a vehicle for educational, social and economic growth. ICT will make the workplace more rewarding, improve the quality of health care and make the government more responsive and accessible to our citizens.

ICT started to play a crucial role in increasing the overall efficiency of the economy and its own growth. All types of developmental activities of a nation bring out socio-economic cultural changes. Application of knowledge or information and its production processes brings change in socio-economic cultural progress, in any part
of the world. Absence of relevant information and its proper usage are the main root causes to slow development in our country. It has been axiomatic that science, technology and education are the indispensable ingredients for the socio-industrial and economic development of a country. The rate of progress of a nation can be sped up by the result of oriented application of ICT.

In the presence of great social diversity in India, it is difficult to change the social background of students, parents and their economical conditions. Therefore the only option left for us is to provide uniform or standardized teaching learning resources or methods. For high quality education throughout India there must be some nationwide network, which provides equal quality education to all students, including the student from the rural areas and villages. The solution to this is to introduce or use ICT and related tools in school education (Pawar, 2004).

The present study intended to analyze the professional attitude of LIS professionals towards ICT. Since library is a social institution, the relevance of it in the present digital era is very important. Library is the storehouse of information. The all-time objective of the library is the collection, processing, organization, storage and dissemination of right information, to the right user at the right time. ICT is nothing more than the technology used for the collection, processing, organization, storage and transmission of information.

Oyetunji (2004) implementing ICT in the library depends largely on librarians' attitudes toward it. The application of ICT has caused significant changes in libraries; automated cataloguing, circulation, information retrieval, electronic document delivery, and CD-ROM databases. The advent of the Internet, digitization and the ability to access library and research materials from remote locations created dramatic changes by the end of the twentieth century. Ramzan (2004) observes that expert systems, wireless networks, virtual collections, interactive Web interfaces, virtual reference services and personal Web portals have brought changes since the start of the new millennium. There have been fast and significant changes in librarianship, where digital and electronic libraries complement and in some cases replace, traditional libraries.
ICT can be broadly viewed under two sectors,

- Information Technology
- Communication

In India, the growth of both these sectors is very significant in the past two decades. Measuring the impact of ICT is critical to better understanding the role of ICT for economic and social development. With the rapid growth of the ICT sector in India, there is an important demand from the research community and policy makers for better data to ensure that research findings are representative for the entire country or the state in order to inform policy makers about ICT developments and its impact and have meaningful interpretations of policies. In particular, there is a real need to measure the digital divide in the country, including the urban-rural, gender divides and the use of community Internet access centers and mobile phone applications by low-income users.

2.3.1 Tele-Density in India

The number of telephone subscribers in India increased from 970.97 million at the end of December 2015 to 996.49 million at the end of March 2016, registering a growth of 2.63% over the previous quarter. This reflects year-on-year (Y-O-Y) growth of 6.80% over the same quarter of last year. The overall Tele-density in India increased from 77.58 as on 31st December, 2015 to 79.38 as on 31st March, 2016 (Figure No. 2.1).
Figure No. 2.1  Telephone Subscribers in India (March – 2016)

Figure No. 2.2  Tele-Density in India: Rural and Urban (March – 2016)
It is found that the figure no. 2.2 that Subscription in Urban Areas increased from 572.29 million at the end of December 2015 to 577.18 million at the end of March - 2016, and the Urban Tele-density increased from 148.06 to 148.61 during the quarter. Rural subscription increased from 398.68 million to 419.31 million and the Rural Tele-density increased from 46.09 to 48.37 during the quarter. The year-on-year (Y-O-Y) growth rate of Rural and Urban Tele-density from March-2015 to March -2016 is 10.03% and 1.94% respectively.

2.3.2 Internet Service

As per reports received from Telecom Regulatory Act of India (TRAI), total number of internet subscribers increased from 267.39 million at the end of December - 2015 to 302.35 million at the end of March - 2016 with quarterly growth rate of 13.08%.

<table>
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<tr>
<th>Segment</th>
<th>Wired</th>
<th>Wireless</th>
<th>Total</th>
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<tbody>
<tr>
<td>Broadband</td>
<td>15.32</td>
<td>15.52</td>
<td>70.42</td>
</tr>
<tr>
<td>Narrowband</td>
<td>3.54</td>
<td>3.55</td>
<td>178.12</td>
</tr>
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It is observed form the table no. 2.1 that Wired Internet subscribers increased from 18.86 million at the end of December 2015 to 19.07 million at the end of March - 2016 with quarterly growth of 1.09%, whereas Wireless Internet subscribers increased from 248.53 million at the end of December 2015 to 283.29 million at the end of March - 2016 with quarterly growth rate of 13.99%, However No. of Broadband subscribers increased from 85.74 million at the end of December 2015 to 99.20 million at the end of March - 2016. The number of Narrowband subscribers also increased from 181.65 million at the end of December 2015 to 203.15 million at the end of March – 2016 (TRAI, 2016).
2.4 HIGHER EDUCATION AND ACADEMIC LIBRARIES IN INDIA

The actual process for the development of university libraries in India can be said to have been set in motion with the appointment of the University Education Commission presided over by Dr. S. Radhakrishnan (1948-49) and its recommendations like working hours, human resources in library structure if the library, annual grants, open access system, steps to make students book conscious and the need to give grants to teachers to buy books.

In addition, the yearly / annual grants for these libraries were not sufficient. Therefore, the Commission recommended that at least 6.00% of the total budget of each academic institution should be set aside for the library. Only then will the condition of these libraries improve.

2.4.1 Ranganathan Committee (1957)

The Report of the UGC library committee, chaired by Ranganathan published by the UGC in 1959 entitled ‘University and College Libraries’. It was perhaps the first attempt by any Library Committee in India to systematically survey the academic libraries on a national basis and it was also the first time that the government of India had decided to seek advice from a professional librarian regarding academic libraries. The committee was to advice the UGC on the standards of libraries, building, pay scales, and library training.

The recommendations of the committee had a far reaching effect on the development of the university libraries later. They had not only provided a framework to the UGC to implement its grants-in-aid programmes but also given to the university authorities’ important guidelines. Particular mention, in this connection, maybe made of the recommendations concerning the library finances which had helped libraries to secure enough finances by way of annual grants from the universities themselves and of development grants from the UGC (India, 1965).

2.4.2 Kothari Commission (1964-66)

The Education Commission under the chairmanship of Dr. D. S. Kothari (1964-66) marked another important stage in the history of university libraries in India. The
Commission devoted considerable attention to the development of the university libraries and made suitable recommendations on the following points:

(i) norms for financial support;
(ii) long range planning for library development;
(iii) the need for the establishment of a well-equipped library before the starting of a university, college, or department;
(iv) suitable phasing over of the library grants;
(v) encouraging the students in the use of books;
(vi) interdisciplinary communication; and
(vii) Documentation service in libraries etc.

The Kothari Commission recommended that a long range plan for library development should be drawn up for each academic institution taking into consideration anticipated increase in enrollment, introduction of new subjects and research needs etc., and documentation service be encouraged in libraries and documentation experts be appointed to help researchers and do indexing and abstracting.

2.4.3 College Libraries

The College libraries in India have a significant role to play in higher education. Majority of the college libraries do not have proper facilities to meet the needs of their users. Their collections are not up-to-date budgets are their very inadequate and limited, and a large number of the mare single libraries. In many colleges, there is neither a library hall nor a sufficient big room, not to think of a separate building for the library. Any unused room, quite often somewhere out of sight, would be considered adequate to house a few shelves of books and in most college libraries there is complete darkness even during the day time, as the windows are closed out of a fear that the books maybe stolen (Susheela Kumar, 1978).

The several commissions and committees, like the Radhakrishnan Commission of 1948, did not stress the importance of the college libraries in their reports. However, the University Grants Commission gives more importance to the college libraries. As the quality of higher education and research, especially at the
graduate level, depends upon, among other things, the standard of the college libraries and their services. Therefore, the UGC has played a significant role in the growth and development of college libraries since 1953 by giving grants for books, equipment, staff and library buildings and has done a remarkable job in salary improvement of the college librarians.

Dr. D. S. Kothari, the Chairman of UGC, said, “Libraries play a vital role in the development of institutions of higher learning. The UGC attaches great importance to the strengthening of library facilities in the universities and colleges and their efficient administration. The commission has also been giving grants to institutions for books and journals construction of library building and appointment of library staff” (India, 1965).

The UGC took special interest in academic libraries and with the help of its Library Committee and its recommendations related to space, staff, equipment, collection development, services etc., followed by its curriculum development committees, establishment of INFLIBNET for the networking of academic libraries and the institutions of higher education and learning and the establishment of UGC-INFONET Digital Library Consortium.

College library is vital component of higher education institutes and need to be equipped with proper infrastructure like Space and Furniture to accommodate users, training staff to provide services to users for making use of ICT equipment as well as library collections (UGC, 2016).

2.5 ICT IN LIBRARIES

ICT has changed the traditional way of library circulation, cataloguing and services providing new dimensions for research, learning and teaching in Universities, Colleges and Research Organizations. Using ICT applications, it is possible to preserve, recover, disseminate and organize information by creating URLs. Information is published both Soft (E) and by Hard (P) making it accessible to professionals according to their need / requirements. This is important to aware / assesses and makes use of ICT applications in LIS in the context of changing user needs.
Awadh (2016) purpose of this paper is to describe the student perceptions of ICT in the American University of Kuwait Library (AUK). The study found that the quality of the ICT equipment provided by the AUK library is very good, however training in how to use the library’s ICT is lacking. It is also suggested that the academic library looks into the possibility of changing the layout of the library to incorporate more computer terminals, as clearly many students feel there are currently not enough. The academic library must offer a greater amount of ICT training for students, preferably relating to the use of electronic resources and journals for new students.

Angeline and Swaroop Rani (2015) in his study trace the origin and history of ICT in Library. The study comprised LIS professionals from Arts and Science Colleges in Trichy and Tanjore Districts. Majority of the professionals had confidence in routine ICT Skills and Internet tasks but needed training application of these skills in Libraries. All the professionals expressed a positive attitude towards the application of ICT in libraries. This study brings out the ICT literacy among library professional in selected arts and science colleges.

Bellary, Sadlapur and Naik (2015) findings present the impact of ICT on the Job Satisfaction among library professionals of the Narsee Monjee Institute of Management Studies (NMIMS) Deemed University. It was found that majority of the LIS Professionals were required training on latest developments in LIS field.

Rodrigues (2015) investigates the impact of ICT on Academic Libraries in 21st Century. She concludes with the application of ICT in academic libraries become inevitable in an era of information explosion and widespread use of digital information resources. Academic libraries can collaborate with each other and can exchange information easily and faster. The rapid development of ICT has brought in revolutionary changes in information processing, storage and dissemination of information.

Prakash, Ramanna and Rajkumar (2014) in his study demonstrate varies aspects of use of collection and services, availability of the ICT infrastructure, print and electronic resources, databases.
Mondal and Bandyopadhyay (2014) have studied the status of ICT infrastructure in the university libraries of west Bengal, India. It is concluded that the most of the libraries are in different stages of the development also they have faced lot of problems for the development of the ICT infrastructure in the libraries.

Mondal (2014) study presents the impact of ICT on job satisfaction of the technical staff of seven state funded general university libraries of West Bengal. It is found that ICT does not offer better opportunities for professional’s growth, improvement of social prestige, status of personality. Study conclude with suggestions like provision of extensive in service, in-service training and post training incentives, avenues of promotions, comfortable ergonomic design of ICT workstation, improved working conditions, arrangement of periodic health checkup and stress releasing measurements.

Tiwari and Sahoo (2013) investigated the Infrastructure & Use of ICT in University Libraries in Rajasthan state. It was found that all the university libraries are in developing stage. Also ICT infrastructure was the need of the present era for the change the status & to give the quick services to the users. The researchers stated that the library staffs have needed to get the ICT training as well as practices.

Kasalu and Ojiambo (2012) conducted the study and came across the findings indicated that ICT were available in all the three selected universities but ICT Applications / their proper use in collection development was not adequate or remarkable and in make sure that the library collections (Print and Electronic) are effective in meeting the needs of the users.

Temjen and Saraf (2012) studied the variable and identify the attitudes of LIS professionals working in the 07 states of North eastern part of India. The 05 variables identified through factor analysis are Work Performance, Use Confidence, Anxiety, Acceptance, and Efficiency. Result shows that Anxiety stand ranks highest among other 04 variables of attitude towards ICT and suggests various ICT infrastructural facilities to LIS professionals working in North-East to be at par with the main flow in research and education.
Murugesan and Laplante (2011) in his study researchers suggested that the R & D institutions (Organizations) to give priority to consortia (Resource Sharing) based subscription and boost the funds and recruitment of ICT trained staff for improve the ICT based products and services for library members.

Krubu and Osawaru (2011) carried out a study based on ICT; ICT has fulfilled its promise in academic libraries; remarkable rise in the use of ICT. This has led to the speed on library operations. Results identified that ICT resources and the use of the resources available at John Harris and Benson Idaho University libraries as search engine, online database and WWW. ICT made it possible for Nigerian academic libraries to use the internet for search engines such as Yahoo, Dogpile, Lycos, Google, etc. and to access online digital resources such as Amazon, Wikipedia etc.

Rasul and Sahu (2011) as per user perceptions need to be purchased more online databases for IIMT Library; to be provided latest computer facilities, increase the bandwidth of internet in the library, remote access of the library, E-Security system, online renewal, reservation facility & networking of the library.

However, Kumar and Dominic (2011) elaborated that whichever library have top level using total number of computers with and without internet facility, in library collection it may be print or electronic; development of Library Website and IR, digital library & its software and challenges for the developing ICT infrastructure in libraries.

Asemi et. al (2010) in his study on open source software, he comments about open source software from experts worked in university of Isfahan and it is found technical aspects such as durability, safety, original, extensibility, authority, reliability and usability of open source software based on researcher practical work with this software.

Buhle (2010) his study based on a survey of staff concerning the impact of the first six months of the service implementation and also discussed issues surrounding implementation of technology in libraries. It is observed from the study service implementation and surrounding implementation of ICT has positive impact on LIS Services.
Sampath Kumar and Biradar (2010) professionals have positive attitude towards the use of ICT applications and library automation. In a today’s ICT era when most of the library services are ICT based, it is important for LIS professionals to be well adequate, informed and updated time to time regarding developments in ICT. The use of ICT based applications by LIS professionals (College Librarians), their attitudes towards ICT, skills in handling new technologies, need for training in the new technologies etc. is very much positive.

Ejedafiru (2010) stated that the not a single library have used fully ICT infrastructure for the resource sharing (Consortia) and LIS Professionals agreed that the reasons for the failure of resource sharing in their respective libraries were poor ICT infrastructure.

Thomas (2010) conduct a study on Yale’s e-books collection increased more than 110.00% within 05 years during the 2005 to 2009 years. However, Wiley (2010) explained the impact of IT (computer technology) in University of Washington (USA) and described how University of Washington library is adopted ICT to provide effective service to the users.

Mohsenzadeh and Isfandyari-Moghaddam (2009) efforts should be made to improve their status to match with the ever-increasing demand for better library services at universities. The most important problem and serious difficulty was lack of educated librarians, which requires suitable investment and planning. Ramzan and Singh (2009) revealed that the respondent libraries needed to be fully automated using standard library software.

Singh, Sharma and Negi (2009) results show that lack of ICT awareness, interest and initiation of library professionals towards ICT application in the library are the major barriers of ICT application in the LICs even though the attitude of the librarians towards ICT application/use in the LICs was very positive. Therefore, it is essential that ICT resources should be introduced / enhanced; ICT skilled staff should be increased or trained in using and handling ICT applications.

Walmiki and Ramakrishnegowda (2009) study reveals that most of the university libraries are lacking behind sufficient hardware and software facilities and
internet with required bandwidth. The University libraries have to plan for implement and develop ICT infrastructure to exploit the benefits of digital information environment.

Dilek-Kayaoglu (2008) in his study of e-journals by faculty members at Istanbul University, revealed that majority of respondents supported the transition from print to e-resources. The truth is that literatures have shown that both complement each other.

Rana (2008) found that the traditional / conventional library services such as Circulation Services, Reference Service, CAS, SDI, Bibliographic Service, Document Delivery, Inter- Library loan (ILL), Audio-Visual Services and Customer Relations can be provided more efficiently and effectively by using ICT and its applications, cost effectiveness, faster and most up to date dissemination and end user’s involvement in the LIS processes had also been discussed.

Haneefa (2007) carried out study and indicated that library automation in special libraries in Kerala was largely commenced during 1990-2000. CDS/ISIS was used more in libraries than any other software. The library catalogue (OPAC) was found to be the most popular area for automation. Most of the libraries were hampered by lacking behind insufficient funds, lack of infrastructure, and lack of skilled LIS professionals to embark on automation of all library management activities and application of ICT.

Nath, Bahl and Kumar (2007) survey reveals that the ICT skills and knowledge of ICT to college librarians with 9 sections on respondent’s background, file management, Office Automation, databases, presentations, E-mail and Internet. Survey of 21 academic and public libraries finds the majority of the libraries have low level of ICT knowledge among librarians and serious need to provide the formal training among the academic librarians. The study suggests that library education with a balanced curriculum including both traditional as well as ICT Skills and Knowledge of ICT Applications.
Ramesh Babu, Vinayagamoorthy and Gopalakrishnan (2007) carried out a study and result shows that the librarians of these institutions are acquiring considerable basic skills in ICT. They need to concentrate more on ICT Infrastructure (network-based services) and library services in digital way.

Vinayagamoorthy and Shanthi (2007) study reveals that RFID Technology has several advantages compare with other technologies like Smart Card / Barcode technology. The college libraries use RFID Technology to save the time and operate more efficiently and effectively.

Jange and Sami (2006) researchers carried out research results indicate that the libraries of National Institute of Technology accept the significance of Internet in library activities and services. The librarians have to adopt the ICT Skills and re-orient themselves and adopt the new technology to generate library sources, services and resources where skills of structuring and organizing resources are put to its best use.

Adeyoyin (2005) study shows that Nigerian university libraries, which form the basis of knowledge for the country, do not have any professional librarians whose knowledge / skill-set is adequate to meet the ICT and its applications which are indispensable for the dissemination of knowledge, acquisition, organization and provision. ICT and raise the levels of ICT literacy for university libraries and their sister (Parent) institutions.

Obioha (2005) observed and suggest that ICT plays a significant role in information storage and retrieval, generation, sourcing, processing, dissemination and lastly entertainment. ICT to be used maximally there is needed to have regular power supply, stable infrastructure and provision of more ICT tools and centers.

Watane, Vinchurkar and Chaukande (2005) research study reveals that most of the LIS professionals were aware about computer literate and ready to make use of IT applications in their libraries. Automation of Libraries is going on (In the Progress) in all the college libraries under study and they are providing library services of which 50.00% are IT oriented.
Jeevan and Saji (2004) researcher study the 18 libraries were of the opinion that IT had a positive impact on the daily routine work of the College library. IT played a positive role in enhancing library services, members’ satisfaction, meeting users’ needs / requirements and develop overall library image. Problems faced in IT adoption included inadequacy of sufficient funds, shortage of IT skilled human resources / manpower, advancement of technology, high hardware and software costs, insufficient training of LIS professionals and absence of In House hands-on training.

Oketunji (2004) study assures that the Internet and other ICT applications provide a huge golden opportunity for the provision of value-added services by libraries. Library Automation, Indexing, Abstracting and Publication of research and their preservation and digitization are means of facilitating learning in the era of ICT.

Qun and Onwuegbuzie (2004) research carried out the study that majority of the participants were Ladies (female). Ages of the participants ranged from in between 22 - 62 years. Results of the study are those students, who have Minimum computer attitude, have high level of computer anxiety. LIS Professionals and Staff Members and other could help them improve their disposition and provide them with the skills necessary to negotiate the rapidly changing technological environment for their better position.

Mugwisi and Ocholla (2003) study highlights somewhat similar problems facing the two institutions in terms of Internet accessibility. Internet access was a major problem while using ICT concern, due to inadequate provision of number of computers and the existing connection of Internet; throws the light on highlights inadequate training in the use of Internet sources and resources and unable / lack of awareness or familiar among academics and other potential users.

Al-Qallaf and Al-Azmi (2002) shows that very few libraries have internet connectivity and this also limited use of ICT and its applications and the process of library automation / implementation of an automated library system are very slow. Factors impeding the development of ICT were planning, funding, Man power and
building structure. The study result shows that there is a positive attitude among library personnel towards IT.

Kannappanavar and Vijayakumar (2001) study reveals that not a single university library at the time of survey is having databases and full implementation of IT applications in their libraries. Suggested that the librarians should approach the VC / Registrar to train the LIS Professional / Library Staff on ICT application and approach various funding agencies like ICSSR, INFLIBNET and ICAR for their library automation and provide ICT based information services to their users.

Srivastava (1997) reveals that LIS courses must expose students and practicing library professional to various components of ICT, regularly redesigning the syllabus of LIS course to include the advancements in ICT.

Siddiqui (1997) results show that ICT used by the academic libraries were: networks, electronic mail, online searching, Library Automation, CD-ROM searching, tele-facsimile, and personal computers. The academic libraries are using these information technologies to provide excellent services to library users. In concluding remark all 07 academic libraries are using IT in performing their daily work of processing and library services.

Chisenga (1995) study and observes that there are factors that can affect the adoption and use of ICTs in libraries such as problems of acquisition of ICT equipment (insufficient funds), maintenance and sustainability of ICT equipment, inadequate financial support to libraries (Grant), lack of user education of ICTs equipment (In-house training) and software development. He further summarized that the attitude of librarians towards ICT transcends the above problems and affects the ICT adoption and use of ICT in libraries.

2.6 ICT AND LIBRARIANS (LIS PROFESSIONALS)

Ansari (2016) purpose of this study is to investigate ICT proficiency of the library professionals at the universities in Karachi, Pakistan as well as to find out their software development, system analysis, and design skills. The findings of this study
can be utilized in the design of training programs and refresher courses and also in the evaluation of librarians’ training need. The library professionals in universities in Karachi, Pakistan are not equally proficient in all areas of ICT skills. The majority are moderately proficient.

Jerry, Ramasesh and Swamy (2016) study speaks about the ICT core competencies among the LIS professionals. A study was conducted to map the ICT skill levels of the LIS professionals working in Visvesvaraya Technological University’s (VTU) Engineering College Libraries of Karnataka. Among 194 college libraries, 446 LIS professionals responded and the study revealed that a majority of them need training in ICTs for rendering better information services. Further, designation wise, qualification wise, experience wise and institution wise comparisons are made with related variables to assess the ICT skill levels of the LIS professionals in depth.

Mole, Dim and Horsfall (2016) study recommends strategies for enhancing the training of LIS professionals to meet industrial needs for knowledge societies. There is a need to review the content and method of LIS education to inject more ICT content and approaches. If implemented, this will open up new avenues not only for the user community but also for the library profession. LIS education must equip library and information professionals with relevant ICT competencies. Consequently, there is need for re-engineering of LIS education in the area of methods and content of training for the LIS profession so as to meet industrial needs for knowledge societies.

Antony and Vijayakumar (2015) aim of present study is to highlight the ICT skill among women library professionals in SSUS and CUSAT. The total numbers of women library professionals in these institutions were 35, of whom 31 respondents had completed and returned the questionnaires; this represents 88.57% of the response rate. It is therefore recommending that the librarians all over the world need to update this skills and upgrade their service to meet the rising demand of this age.

Ranjna (2015) in his conceptual paper highlights the issues related to techno stress, particularly in the library setting. This paper examines techno stress, its
effects, stress related issues and measures taken to avoid it among library professionals. She suggested that Libraries should pick software applications that fit their working environment. The easier the library professional interact with the system, the less techno stress created. Employers and organizations concerned have to handle techno stress seriously by providing training to staff that equip them with ICT exploration.

Sahu (2013) surveyed the traditional and technical skill, it involves in Collection and Development, Preparing budget, Indexing Service, Classification and Cataloguing, Reference Service, Positive Library Supervision while Technical skill emphasized on Digital projects, Website Designing, Library Automation, Open Source Software Development, and Networking. The outcome of the research study is positive attitude towards ICT.

Ramaiah and Pillai (2013) researcher study and discussed the importance of in-house training in development of the skills among the students as well as school teachers. However, Popoola and Olalude (2013) studies the symptoms of techno stress being manifested by the LIS personnel and through this symptoms they have get the level of the ICT skills among the LIS professionals from the automated university libraries in Nigeria.

Batool and Ameen (2010) study revealed that all librarians had MS-WORD (word processing) skills but not very skillful in computer hardware expertise, that they knew how to use basic Internet functions but not much more and deep / advanced services. The researchers pointed out that lack of coverage in the curriculum, lack of refresher courses / seminar sessions and lack of in-house training workshops were major problems in learning of ICT.

Jiyane and Onyancha (2010) researchers study highlighted the need of the IL and Its Skills, Information skills, Technological skills for the fulfillment of the information need is a need today’s hour.

Haneefa and Shukkoor (2010) studied the skills regarding operating system, use of Digital Library Automation Software, and use of IR software and also explored
the way of getting confidence regarding use of ICT tools and it is found that majority of the LIS professionals / personnel open a file and play a game etc.

**Eisenberg, Johnson, and Berkowitz (2010)** identified the ICT skills and its importance for information problem solving. ICT skills useful to get the right information to the right user at the right time by the LIS professionals to the end user of the library.

**Adeyinka (2009)** study emphasizes the need for libraries to embark on training their librarian who does not have knowledge of ICT; study shows that all the 04 out of the 05 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.

**Wang (2009)** describes the impact of ICT in university libraries and results revealed that majority of the library users were satisfied with their library information services using ICT; still need in-house training (professional assistance) in their using ICT for information search in the increase of e-resources.

**Valasidou (2008)** research was conducted with two main purposes. The first purpose is to investigate how familiar are the students of international and political studies with the use of ICT on and off campus. The second purpose of the research is to examine the possible relationship between the use of ICT and the gender and the students' performance (marks) at the "Introduction to Computers" module that is part of their programme of studies. The research can be divided into two main parts: the first part includes the research questions that attempt to investigate how familiar are the students of international and political studies with the use of ICT on and off campus. The second part of the research examines the possible relationship between the use of ICT and the gender as well as the students' performance on the computers module.

**Safahieh and Asemi (2008)** study indicate that majority of the LIS professionals have acquired their computer skill through informal channels. The
result shoes that 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 (Hang) breakdown of system, electric power failure (absence of power backup), inadequate computers in the libraries and librarians' inadequate computer skill. The study suggests the management of the university libraries to organize in-house training programs to update / educate librarians with the latest advancement of ICT.

*Mahmood and Ajmal (2007)* researcher argued that the majority of LIS professionals in Pakistan need to learn specialized courses of ICT like computer programming in Visual Basic, JAVA and Networking etc. besides they also need to learn of particular courses of librarianship for example designing of digital library, MARC etc. It shows that the LIS Professionals in Pakistan had a positive attitude towards ICT.

*Ramesh Babu, Vinayagamoorthy and Gopalkrishanan (2007)* study found that 45.00% fully known MS –Word (Word Processing) followed by MS – Excel (Spread Sheet) etc, and finally they have studied the constraints to acquiring the ICT skills and found that work over load of the LIS Professionals is the major constraint in acquiring ICT skills.

*Larsen (2007)* in his document of research study discussed the requirement of the ICT skills in hybrid library staff for provide the reference and information services to the library users. He said that in a present ICT era librarians of LISC professionals required Web 2.0/Library 2.0 skills, core reference skills, Marketing skills, communication skills etc.

*Tung (2007)* describes that the libraries always rely on Information Technology (IT) to systematically manage their huge collection i.e. books and journals (e.g. Digital Library (DL) and Web-Based Online Public Access Catalogue (Web-OPAC).

*Odero-Musakali (2007)* study reveals that ubiquitous presence of ICT in academic libraries, especially the internet and its potential impact on learning,
teaching, and research. This is an effort implies that any effort that would shed light on this technology is laudable.

Adomi and Anie (2006) study findings shows that librarians were not highly computer literate as most of them had recently introduced to computers in their libraries. Most of librarians use computers majority for cataloguing (OPAC) and for serials on a limited scale.

Obajemu (2006) data analysis shows that the workshops had encouraged the participants to further pursue ICT. The findings reveal that the workshops had positive impact / attitude on the participants with respect to the application of ICT to cataloguing and classification.

Adeyoyin (2006) studies come out in major findings; there was a serious need for knowledge acquisition among the librarians in Nigerian university libraries to be able to offer efficient services in the emerging ICT era. ICT literacy among the librarians was low and hands-on practical experience was lacking among the librarians in some cases.

Bakar (2005) study carried out on information professionals in Malaysia on their ICT competencies in 13 categories from basic skills / competencies like Word processing, emails, Internet and intranet, graphics, presentations, publishing, spreadsheets, and project management to system maintenance, system analysis, and programming. Results show that the majority of information professionals aware about basic competence skills.

Ashcroft and Watts (2005) researcher highlight a significant skills gap among information professionals and recommends that collaboration with strategic management of resources may be key to alleviating this problem. It shows that the LIS Professionals in Pakistan had a positive attitude towards ICT.

Adeyoyin (2005) researcher surveys the levels of ICT literacy among LIS professionals in Nigerian libraries. Survey shows that Nigerian university libraries, not having professional librarians with the skill-set is adequate to meet the requirement of
ICT applications were indispensable for the acquisition, dissemination of knowledge, organization, provision and dissemination of knowledge.

**Hoskins (2005)** research study finding shows that subject librarians generally do not have the knowledge to explore and take advantage of the opportunities technology creates. Researcher identifying the problems that subject librarians face in the use of ICT, evident from the findings that the majority of professionals face the problems like result of a lack of understanding, knowledge, skill, and a lack of training. Researcher suggested that LIS schools draw / frame a curriculum that is balanced so that it provides education in traditional librarianship with ICT knowledge.

**Ramzan (2004)** findings of the study reveals that availability of appropriate ICT and its applications and its proper utilization are important variables that are capable of increasing the LIS professionals behaviors / attitudes more positive toward ICT.

**Scherrer (2004)** survey results show that the role changes of librarians as a result of advancements in ICT. In addition to providing traditional reference services, it was found that LIS professionals engage in research, teaching, designing web pages etc. Librarians have to strive to meet their patrons' needs by developing Web pages to facilitate patrons' finding the resources they needed. LIS professionals identified areas for further in-house training in specialized databases, resources needed by researchers. Implications for library education and continuing professional development is also stressed.

**Joint (2003)** researcher made attempts to flesh out the heterogeneous skills required by library personnel by relating them to past and present practice and draw / sketch possible paths along which digital library training. **Joseph (2003)** identifies various level of IT literacy and discusses the perspectives of information literacy. It shows that the LIS Professionals had a positive attitude towards ICT.

**Naik (2003)** assessed the application of ICT components for library and information services in the selected university libraries of Karnataka during a period IT was making its inroads to the university libraries particularly with the support of
INFLIBNET center. It shows that the LIS Professionals in university libraries of Karnataka had a positive attitude towards ICT.

Singh and Garg (2002) study reveals that lot of increase in number of technologies available. The study shows that ICT based networking facilities are gaining importance in biomedical ICLs. The users were of view that all LIS staff has higher qualifications for the effective use of ICT based services.

Mundy and Sultan (2001) study state that the advent of ICT the role of librarians has also changed. It also observed that LIS professionals must acquire ICT skills and competence in the application of ICT.

Mahmood (2001) study observed the changing scenario of LIS professionals in Pakistan a huge response of library professionals to learn ICT and library automation. College librarians need to get hands on practice / expertise in use of the Internet and networking and full text databases.

Ondari-Okemwa (2000) researcher examines the need for in-house training for LIS professionals in Kenya because of the rapid development of ICT. LIS professionals must be equipped with new trends and techniques of handling and managing information. The in-house training needs as evaluated from the research study from ICT etc.

Tran and Gorman (1999) researcher intends to discover that librarians with computers and to describe current e-resources available in libraries. Study identifies knowledge and skills needed for the provision of e-services. Majority of LIS professionals indicate that they need to be trained in the use of computers, and Internet services etc.

O" Neill (1998) researcher made an attempt to survey of American library schools reveals that only a small / low percentage of the continuing education programmes (CPE) / workshops deal with technical services. Majority of the CEP / workshops are ICT oriented. A number of LIS schools offer semester long courses through various technologies. Therefore, researcher suggested that LIS professionals must be more actively involved in the CEP at schools of LIS.
Shiao-Feng (1993) study reveals that there are no significant differences existing between the attitudes of librarians in Taiwan and the USA. Student’s tests of the categorizations of attitudes indicate that majority of LIS professionals in Taiwan are significantly more negative attitude towards computers in general they are about the effects on people and services. Research study results suggested that there is huge scope for improvement in the overall ICT systems and environment in academic libraries in Taiwan.

Muirhead (1993) survey indicates that majority of LIS professionals there widening of their role. Majority LIS professionals reported that they were involved in ICT developments to managing their library housekeeping system.

Vespry and Kitiyadisai (1992) researcher made an attempt to survey the application of ICT among academic libraries in Thailand. The survey result shows that the LIS professionals are generally aware of the role of ICT in libraries and very keen and update to automate their library services. Result also shows that the growth and development of ICT implementation in libraries depend to a large extent on administrator’s support.

Sandore and Baker (1986) study reported that person has experience of working with a manual system and an automated system is introduced; ICT may have an effect in that someone with less experience in librarianship, but with superior computer skills may replace a librarian or one has to rely on younger staff with the requisite skills.

Dakshinamurti (1985) conducted a study to determine the effects of automation on library personnel and the findings reported that the early days of Library Automation, library personnel report eyestrain, backaches and headaches resulting from computer use. Researcher also analyzed that along with all barriers and filters have been introduced, people still suffer from a carpal tunnel syndrome resulting from repetitive motion.
2.7 PROFESSIONAL ATTITUDE OF LIBRARIANS TOWARDS ICT

Professionalism is a set of attitudes and behaviors appropriate for a particular profession or occupation. It is a demonstration of certain characteristics or traits in a profession. Attitudes on the other hand are positive or negative views of a person about a place, thing or a phenomenon. Professional attitude of LIS Professionals is the demonstration of his/her likes or dislikes feelings, emotions or behavior towards research, teaching and learning practices in the realm of education. Research has proved that professionals with positive attitude perform better in teaching and learning. They are more cooperative and dedicated in the dispensation of their duties as teachers.

**Abubakar and Harande (2016)** Study traces the history, current situation, challenges and future prospects and directions of library and information science (LIS) education in Nigeria. Study impose the challenge on Non-challant attitude of LIS professional bodies to LIS education in the country.

**Tiwari (2016)** studied the attitude of library professional have very much importance in the context of ICT application in the library. This paper explains the Impact of ICT on Library and Information Services. Majority of the respondents are experienced user frequently use ICT applications in computer centre. ICT help them to better informed and stay ahead. Importance of ICT in library can be realized from ICT application catalogues and audio/visual services. ICT has a great importance in each and every sphere of life; now libraries are not left apart from the impact of ICT it dependence upon the attitude of librarian and the library professional. Thus attitude of library professional have very much importance in the context of ICT application in the library.

**Chegwe and Anaehobi (2015)** study revealed that academic librarians in Delta state have a positive perception to marketing library services. Academic librarians perceived that marketing will help them identify, anticipate and satisfy customers’ needs and wants, take library services to users, change user’s perception about library and librarians as well as make users to easily identify and utilize library
services and products. The study also revealed that academic librarians have positive attitude towards marketing library services.

**Yap and Alejo (2015)** study attempts to know the level of awareness of the senior undergraduate students taking-up Library and Information Science (LIS) and those young career professionals’ ages 20-30 towards the numerous professional library associations established in the country; and gauge the perceptions and attitudes of the young professionals in choosing which professional library association they would like to affiliate themselves.

The profession of librarianship has been a proponent of the protection of intellectual freedom with a dedication to equity of access to information. Equity of access is one of the five key action areas adopted by the American Library Association (ALA) in order to help libraries fulfill their mission of providing equal access to information regardless of age, education, ethnicity, language, income, physical limitations, or geographic barriers (ALA, 2014).

**Seena and Sudhier (2014)** research study revealed that e-mail has an important impact on the level of web 2.0 use among library professionals in University of Kerala. The majority of the LIS professionals didn’t have much idea about RSS feeds, content management, social bookmarking, podcast, wikis, etc. Data analysis showed that the library professionals in University of Kerala have a positive attitude towards the implementation of web 2.0 technologies in libraries.

**Ansari (2013)** survey revealed that the library professionals in universities in Karachi, Pakistan are not equally proficient in all areas i.e. University Library of ICT skills. The majority are moderately proficient towards ICT.

**Ejedafiru and Oghenetega (2013)** researchers made an attempt to survey the professional librarians’ attitude towards the use of ICT in their library. Results show that ICT competence level of professional librarians are not in doubt, while 85.00% of respondents claimed that they can operate computer effectively, however 80.00% and 75.00% replied that they use online information for research and were capable of using www search engines respectively.

**Rattan (2013)** research studied the feedback of students towards the ICT facilities; library personnel for the ICT based library products and services, budgetary
constraints and the librarian being not the part of decision making body for the growth of the library.

Eke and Njoku (2012) result indicated that majority out of 135 librarians completed and returned the questionnaire get positive attitude towards marketing. Result of the survey, concluded that information products and services can be marketed priced and that the age-long practice of giving all manner of library information services free of charge should be reconsidered.

Susan and Baby (2012) majority of the qualified library professionals get an opportunity to be familiar with ICT services or they are mostly unaware of the facilities in their own institution. Majority of the library professionals agree with the positive aspects of ICT listed in the study. It is evident that library professionals have a highly positive attitude towards the application of information communication technology services and its applications.

Estall and Stephens (2011) in the United Kingdom carried out a study of the variables influencing academic library staff’s attitude towards marketing in sixteen University libraries in the United Kingdom. The study also revealed that academic library staff is unclear on the definition of marketing leading to a possible misunderstanding and mistrust of the terminology but however feel that it is vital in the current environment. This misunderstanding therefore creates a gap in marketing knowledge and understanding which must be addressed for the aim of marketing to be fully achieved. However, the study further showed that respondents were of the view that marketing of academic libraries is increasingly important thereby making it vital particularly in view of the economic pressure currently facing them.

Eguaroen (2011) in his study found that LIS professionals from University of Ibaddan, Nigeria have positive attitude towards the use and implementation of ICT and training did influence the positive attitude towards ICT.

Mahood (2010) respondents of this research were already familiar with Internet and email. The findings of this study, measures should be taken to provide Internet facility to all LIS professionals in the country. Library employers, LIS schools and professional associations should provide more extensive Internet training at pre- and in-service levels. Better skills of LIS professionals in using Internet technology
will definitely enhance variety, efficiency and quality of the services they render to their clients.

**Ramzan and Singh (2010)** research study found that the intensity of LIS professionals is fear in IT handling, ability to cope with the ever-changing IT innovations and their level of understanding of IT-based rules and regulations. Researcher suggested that the LIS professionals can improve their attitude towards ICT applications and their role in ICT and ownership of ICT and its application in libraries and innovations.

**Sagolsem, Purnima Devi and Vikas (2010)** research study reveals that public libraries lack sufficient professional staff with required knowledge of ICT. Majority of LIS professionals’ favorable attitude towards IT application majority were not satisfied with their opportunities to enhance qualifications. The problems in ICT application include lack of qualified professionals, high cost of ICT infrastructure and Network facility and insufficient computer facilities. The researcher suggested that the importance of CEP to upgrade professional competencies and suggests that the government provide more grants for library development in the state.

**Ramzan (2009)** researcher come out with certain findings of the study and reveals that the availability of appropriate ICT and its applications was important variables that are capable of increasing the librarians’ attitudes more positive toward ICT.

**Kari (2008)** finding of the study were that a great majority of the libraries are not connected to the internet and that academic librarians are not using the internet to make the material available for use for students and faculty members. The issue of the internet training was adequately addressed in the current study.

**Intaganok et. al (2008)** study reveals that poor skill levels are significantly associated with higher levels of anxiety in staff regarding ICT use. Negative attitude towards ICT were significantly related to higher levels of anxiety.

**Jange (2008)** results showed that about less than half 50.00% of teachers use their school libraries daily mainly to refer books, which indicates that more than 50.00% half of the teachers do not use information resources effectively. It also suggested that the faculty members typically did not collaborate with their school.
librarian in planning their lessons or other academic activities and although 61.20% agree that they collaborate with each other.

**Adeekule, Omoba and Tella (2007)** researchers reported that the research work of Klausmeir and Goodwin which state that attitude is learned emotionally while toned disposition to re-react in a consistent way favorable or unfavorable towards a person, object or idea. Attitudes affect behavior and must be considered in managing staff, especially during change and innovation. The study also revealed that LIS professionals in the study have a positive attitude toward the use and implementation of ICT in their respective libraries. In this ICT era, when new technologies are introduced almost day to day, it is essential for LIS professionals to keep up with ICT developments. In-house training is the first step, which will reduce fear when implementation of ICT begins.

**Mohana Kumar (2007)** 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.

**Ramesh Babu, Vinayagamoorthy, and Gopalakrishnan (2007)** researcher made an attempt to highlight the level of ICT skills possessed by librarians.

**Kavulya (2007)** study finds that LIS curriculum should include incorporate / draw hardware and software skills, database construction, website creation / development; digitization process; e-information, information storage and retrieval. Researcher 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.

**Islam and Rahman (2006)** researcher study the status of ICT in Bangladesh is not at par with the other developed and developing countries, but recently the situation has changed drastically / significantly. LIS professionals are expected to get immense facilities to access and cooperate with information world. Foreign collaboration with UNDP funded Program SDNP virtual library prepared a union catalogue (OPAC) of 13 libraries, all of which are using CDS/ISIS software for bibliographic record keeping.
Ramzan (2004) study discussed along with the factors affecting librarians’ attitudes toward ICT application in libraries and found their role in ICT-related decision making, in libraries and for success of library ICT projects and innovations.

Kanaujia (2004) surveyed in India that librarians have a positive attitude towards marketing of library and information products and services. The positive attitude may be because information handling which was thought to be the exclusive domain of library is today being intruded by other professionals using the Information and Communication Technology (ICT).

Aina (2004) researcher identified the negative laissez / faire attitude of faculty members, users, and LIS professionals as other factors militating against the development and use of ICT in university libraries in Nigeria. Furthermore, researcher admits the high cost of ICT in-house ICT training but replied that Library personnel and users have to do shown interest something on their own to improve their ICT skills.

According to Spacey, Guilding and Murray, (2003) noted that the huge drastic change in library practices brought by rapid development in ICT is posing challenges to the LIS Professionals in recent time, particularly in the developing countries. To cope with these challenges posed by ICT, LIS Professionals in developed countries moved quickly to learn and adopt ICT and its applications. LIS professional raised their level of knowledge of new information technologies through continuing education programs, professional training, and through revisions in their library and information school curriculums.

Janes (2002) established that reference librarians with digital reference experience had more positive attitudes than those who had no experience. Another study by Bill and Wanyama (2001) study revealed that librarians might have to handle the introduction of a new library system and use it to serve the users at the same as they themselves are learning how to operate the system. Researcher further observed that to expect the does not give enough recognition to the way users learn to use ICT especially those with no understanding of it. Shibanda (2001) stated that
information managers, especially academic librarians, must build on the positive aspects of information era.

Rosen and Weil (2000) researchers have put their arguments forward on the attitudes of librarians towards the use of ICT. Researcher further observed that human fear of technology might have emerged because its introduction or increase in use of ICT. Researchers conclude that change in daily routine work could bring both uncertainty and discomfort in people as years of routine.

Al-Zahrani (2000) researcher found a significant relationship among respondents' educational background, experience in using information technology, and their perceptions about ICT. Attitude has been used to represent perceptions of librarian on the value attached to ICT in library services.

Hudson (1999) conducted a survey on the attitudes of library professionals in public libraries of Nigeria and discovered the meaning changes involve modern library management system or acquisition of CD-ROMs and e-journals to the introduction of new technologies.

A study by Jones et al. (1999) noted that many variables which seem to have relations with or influences on the attitude of the LIS professionals towards the use of ICT. Outcome of the research is age, gender, prior knowledge and training, anxiety and educational qualification variables.

Morries and Dyer (1998) study find out the ICT fear is particularly inherent in staffs that the employee working since post for a long period and have developed to their satisfaction. Further suggested that the introduction of a new system working or those near retirements who feel that their experience is negated.

Winter, Chudoba and Gutek (1998) attitudes of library staff towards computers are positively associated with computer use. It also found a correlation between attitude toward ICT and number of hours spent using a computer. An attitude towards computers was an appropriate focus for organizations attempting to increase the number of hours that their employees use their computers.

Craghill et al. (1998) carried out research study that reinforced the importance of a positive attitude of LIS professionals on the implementation of ICT.
Ostrow (1998) researcher made an attempt to trace the attitude measurement in management information systems (MIS) research, to be informed by a specific understanding of the relationship between attitudes and behavior in their Theory of Reasoned Action (TRA).

Nair (1997) research study shows that majority of librarians showed favorable attitude towards ICT. Majority of librarians were prepared to accept modern technology in library activities. Most of Librarians engaged in different professional work were similar in their attitude towards information technology.

Bean (1996) Positive professional attitude helps LIS Professionals develop the ability to establish shared environment where everyone is an able to contribute. Be it a student, a teacher or parent. They have a decent and complete control on the teaching and learning environment and monitor it effectively.

Quinn and Jones (1995) in survey observed that more ICT results in greater demand from library users, the creation of additional tasks to be performed in a day such as switching computers (PCs) on and off or signing them on for public to use. Researcher also reported that workload increase for the same level of pay creates hostility.

Liquire (1993) study on attitudes of public library staff towards automation revealed that technology imposed on staff obliterates any sense of power and control they might have over their work. Researcher concludes that a key element variable in determining acceptance of new technology seems to be users have control over the decision to automate or not.

Yaacob (1990) study investigated the attitudes of LIS professionals in Government supported special libraries in Malaysia and examined the relationship between the librarians’ attitudes toward ICT and other variables.

Bichteler (1987) in his survey on the attitudes of staff towards ICT in the observed negative reactions to technology displayed by individuals, however library personnel become passive non-users who continue to rely on the new version of the system.
2.8 CONCLUSION

It can be concluded that to understand the attitude of LIS Professionals towards ICT, a study is essential. Consequently the propose study Attitude of College Librarians towards ICT is a significant one. The findings from this study would be relevant as one of the source of reference. The review of literature shows that scantly literature is available on Professional Attitude of LIS Professional towards ICT, based on review of literature, the data was collected and it was analyzed.
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