Annals of Library and Information Studies
Vol. 61, June 2014, pp. 132-141

A study of ICT skills among library professionals in the Kerala University Library System

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Received: 20 February 2014; revised: 8 May 2014, accepted: 26 May 2014

The study was conducted to investigate the awareness, skill and attitude towards Information and Communication Technologies (ICT) among library professionals in Kerala University Library, Thiruvananthapuram. The study is based on a questionnaire survey of library professionals employed in the central and departmental libraries of the University of Kerala. The analyses revealed that the library professionals in the Kerala University library system have relatively average level skills in various ICT related tasks in libraries. Libsys software was more used in libraries and a good number of professionals indicated that the main constraint in the application of ICT in libraries is inadequate training in ICT applications. All the professionals expressed a positive attitude towards the application of ICT in libraries.

Keywords: Information and Communication Technologies (ICT) skills; Attitude; Library professionals; Kerala University library system

Introduction

Information and Communication Technology (ICT) is a term that has various meanings. ICT refers to technology that provides access to information through telecommunications. According to Seenivasulu[1] ICT skills or IT skills can be referred to as the overall competencies (knowledge, know-how, skills and attitudes) necessary to create, store, analyze, organize, retrieve and disseminate digital information (text, images, sounds) in digital libraries or any type of information. In recent years, work for the information profession has become characterized by fast-paced change and new skills requirements. ICT has provided library with new opportunities to improve their resources and services.

In the early seventies library automation processes were started to automate and smoothen the workflow of the library services. In the late nineties, Internet changed this automation process with the emergence of web based services. In the last 8-10 years, the web 2.0 has revolutionized information communication by faster information sharing, networking, and enabling multimedia services. The evolution of social network and social sharing has forced libraries to adopt this technology in their routine services to meet user's expectations and achieve immediate information delivery[2]. Information professionals are now expected to be aware and capable of using and demonstrating emerging ICTs. Application of ICT is posing a particular challenge to library professionals in developing countries. There is need for additional training to augment the traditional skills so as to develop competency in ICT use. These issues make it necessary to study the ICT skills needed for the information professionals in this changing scenario. Here an attempt has made to assess the Information and Communication Technology (ICT) skills among library professionals in the University of Kerala.

The University of Travancore, which later became the University of Kerala, was established in 1937. The university departments offer a wide range of teaching and research at post-graduate, M.Phil and Ph.D. levels. The 42 departments in the university have now been reorganized into eleven schools. The UGC has identified the University as one of the 26 institutions

selected for promotion of India Studies by foreign students. The Kerala University Library (KUL), established in 1942, is the oldest and biggest university library in Kerala and is situated adjacent to the University Senate Hall campus in the Thiruvananthapuram city. Kerala University Library system comprises of the central library located at Palayam, the Campus Library at Kariavattom campus, and the Departmental libraries at Kariavattom and within the city, the Study Centre libraries at Alappuzha, Pandalam, Kollam and College of Engineering Library at Kariavattom. The Kerala University Library has over 3 lakh books and over 1000 bound volumes of journals. It is a depository of UN and World Bank publications and provides access to over 9000 on-line journals[3]. The Campus Library at Kariavattom also offers similar services. Kerala University library is now the major centre of study and research in the state.

Review of literature

Literature establishes that a number of studies have been conducted to explore needed competencies of librarians to meet the challenges of digital age. Mathew and Baby[4] in their study of technological skills for academic librarians among university libraries in Kerala, observed that ICT based services are being provided by a small group of trained library professionals or computer professionals and majority of the qualified library professionals don't get an opportunity to be familiar with ICT services or they are mostly unaware of the facilities in their own institution. The study also revealed that a good majority (88.6%) of the library professionals is skilled in operating system Windows and management of electronic resources is reasonably known to 51.9% of professionals. Among web 2.0 technologies, email/instant messaging or chat was frequently used by 85.9% of professionals, and Wikis was frequently used by 69.1 %.

Kumar and Murali[5] highlighted the concepts of literacy, information literacy and information and communication technologies (ICTs) and its purpose, scope and appropriateness among library professionals in the 21st century. They identified the areas where the ICTs can be applied in library and information centers and pointed out several ways to make library professionals ICT literate.

Haneefa and Shukkoor[6] highlighted the ICT literacy among the library professionals of Calicut University. The questionnaire survey revealed that the use of ICT based resources and services, library automation software, and general purpose application software is high among the Professional Assistants than the Junior Librarians and Assistant Librarians. In a study of ICT skills among librarians in engineering educational institutions in Tamil Nadu, Babu, Vinayagamoorthy and Gopalakrishnan[7] found that the librarians of these institutions have acquired basic skills in ICT, but they lacked knowledge about network-based services and digital library services. Thanuskodi[8] studied ICT literacy among the Engineering College library professionals in Tamil Nadu and found that 95.12 percent of professionals have knowledge in computer fundamentals, 81.07 percent in Internet, 42.68 percent in multimedia and only a very few professionals 29.26 percent have knowledge in computer programming.

Kattimani and Naik[9] in a study looked at the librarianship, ICT skills, and constraints to acquire ICT skill of library professionals working in the engineering college libraries in Karnataka state. A structured questionnaire was used to collect data. Results showed that deputy librarian and librarian category showed relatively high skills in ICT related tasks compared to assistant librarian, library assistant and others. Results also showed that work overload of the professionals (82.2 per cent) is the most important constraint in acquiring ICT skills. In another study Adomi and Anie[10] assess the computer literacy skills/competencies of professional librarians in Nigerian university libraries. Results revealed that a majority of the librarians are not yet very competent in computer use. Eighty six percent of library professionals have taken advantage of training and consultancy programmes. Electric power supply and connectivity problems are the main constraints identified by 73.7% of professionals.

Satapthy and Maharana[11] studied the ICT skills of LIS professionals in engineering institutions of Orissa. Maximum number of respondents have knowledge of LibSys automation software (62.13%). The analysis also revealed that the most of the professionals possess knowledge of e-mail, followed by e-resource, search engines and use of OPAC. About seventy eight percent of the respondents indicated that the primary method of acquiring ICT skills is by formal

education/training and 95.58% responded the main constraint to skills acquisition was the tight working schedule. Knowledge on ICT skills among LIS professionals of engineering institutions of Andhra Pradesh State was studied by Kumar[12] using questionnaire method. The results showed that, with regard to operating systems, librarians possess awareness on Windows with Weighted Arithmetic Mean (WAM) of (20.4%) and UNIX (8.4%) and for software packages they possess awareness as 20.53% for MS-Word followed by MS-Excel (19.53%). Author concluded with suggestion that the educational universities offering courses in LIS need to change their syllabus focusing more on ICT's and providing practical classes to gain expertise in ICT skills.

Availability, use and barriers of ICT in Library and Information Centers in Noida were studied by Singh, Sharma and Negi[13]. The data was collected through a structured questionnaire from 25 LICs. It is found from the results that majority of the LICs of Noida have basic hardware, software, internet services, OPAC, and SDI. The main barrier to ICT application in libraries is found as the lack of awareness, interest and initiation of library professionals towards ICT application. The librarians showed their positive attitude towards the application/use of ICT in their libraries. In a study on impact of ICT on library staff training, Talab and Tajafari[14] compared the impact of ICT on training of library human resources in university libraries of India and Iran. Data collection was made by e-mail questionnaire. The finding showed that both Indian and Iranian library staffs believe that introduction of ICT in libraries has created a need for training. Library staffs from Iran have perceived the effect of ICT on their training needs more than their Indian counterparts. The article concludes with the view that university libraries in both countries nave to get their library staff trained in ICT.

In a paper Sivakumaren[15] examined the various attitudes of library professionals on ICT in the libraries. The questionnaire method was used to collect data from the respondents working in universities and colleges in Chennai. The study found that the majority of library professionals have positive attitude on ICT and some of them were not able to update their knowledge and skills on ICT. Braj and Sahoo[16] attempted to reveal the ICT infrastructure in the university libraries of Madhya Pradesh based on librarians' view. Questionnaire and observation methods have been used to collect data for the study. The results showed that none of the university libraries have independent website, however all university libraries use university's website for display of information about the library. All university libraries of the state have Local Area Network (LAN) and Internet while Campus Wide Network (CWN) is available in 62.5% university libraries.

Objectives of the study

- To assess the level/extent of different types of ICT skills possessed by the library professionals;
- To evaluate the attitude of library professionals towards the application of ICT in University libraries;
- To identify the constraints in acquiring ICT skills by library professionals under study; and
- To suggest the measures for the improvement of ICT skill development and ICT enabled services.

Methodology

The study is based on a questionnaire survey of library professionals employed in the central and departmental libraries of the University of Kerala. The library system follows a decentralized pattern with a central library and department libraries attached to the teaching departments of the universities. A structured questionnaire was designed to collect data keeping in mind the basic objectives of the study. The questionnaire consists of both optional type questions and statements in five point Lickert scale. The collected data was analysed using latest version of MS-Excel for appropriate statistical analysis and description.

The study includes the library professionals of the central, campus, college of engineering and departmental libraries in the University of Kerala. Out of 112 questionnaires, 102 responses were received. Study centre libraries located at Alappuzha, Pandalam and Kollam are not included in the present study sample. The study is confined to the library

professionals. Other categories such as para-professionals, university administrators and library users are excluded. The data collected through the questionnaires was scrutinized, classified, and tabulated for better understanding and clarity. The collected data were entered into Microsoft Excel spread sheet for further analysis. The first part of the questionnaire is structured to get information of variables like age, gender, qualification, designation, experience, etc.

Analysis

Age and gender-wise distribution of respondents

Table 1 shows that most of the library professionals, fall in the age group between 36 and 45 years (42.16%) at the time of survey. Only 28.43% of the professionals are below 35 years of age. The remaining 29.41% are above 46 years of age. Gender-wise analysis showed that the majority of library professionals in the University of Kerala are females (60.78%) and 39.22% are males.

Basic qualification of respondents

Table 2 reveals the professional qualifications of library professionals under study. It was found that 61.76% of the respondents have a Post Graduate degree and 38.24% has degree in their basic subject. It is clear from the table that 37.25% of the respondents possess MA as basic qualification. Only a few respondents possess B Com (6.86%) and M Com (6.86%) qualifications. A few of the professionals have additional technical qualifications like DCA (18.63%), and PGDCA (9.80%), in addition to the basic qualifications.

Professional qualifications of respondents

It is evident from Table 3 that the LIS professionals in the University of Kerala have high average of professional qualification. The basic qualification for entry cadre as a library professional in Universities being Degree with BLISc, it can be seen that professionals having only BLISc degree is 9.80%, while 57.84% of professionals have MLISc, 23.53% have MPhil degrees, and 8.82% are PhDs.

Professional experience of respondents

Table 4 presents the overall experience of the library professionals. Out of 102 respondents 50 professionals have experience ranging 6-15 years and 34 professionals have 16-25 years of experience. A few 2.94% have above 26 years and 14.71% has below 5 years of experience.

Table 1—Age-wise distribution

Sl. no.	Age Group	No. of respondents
1	25-35 years	29 (28.43%)
2	36-45 years	43 (42.16%)
3	46-55 years	30 (29.41%)
	Total	102 (100%)

Table 2—Basic qualification of respondents

Sl. no.	Qualifications	No. of respondents
1	BA	22 (21.57%)
2	BSc	10 (9.80%)
3	BCom	7 (6.86%)
4	MA	38 (37.25%)
5	MSc	18 (17.75%)
6	MCom	7 (6.86%)
	Total	102 (100%)

Table 3—Professional qualification of respondents

Sl. no.	Qualification	No. of respondents
1	BLISc	10 (9.80%)
2	MLISc	59 (57.84%)
3	MPhil	24 (23.53%)
4	PhD	9 (8.82%)
	Total	102 (100%)

Table 4—Professional experience of respondents

Sl. no.	Experience	No. of respondents
1	Below 5 years	15 (14.71%)
2	6-15 years	50 (49.02%)
3	16-25 years	34 (33.33%)
4	Above 26 years	3 (2.94%)
	Total	102 (100%)

Extent of different types of ICT skills

Awareness of ICT based applications

Table 5 presents the respondents' level of knowledge in ICT based applications. It is found from the table that the respondents relatively possess a higher level of awareness in using Windows (49.02%), Linux (46.08%) and MS Office package (46.08%).

Table 5—Awareness of ICT based applications

Sl. no.	Technology	Extremely Poor	Below Average	Average	Above Average	Excellent	Total
1.	Operating system Windows	4 (3.92%)	10 (9.80%)	50 (49.02%)	28 (27.45%)	10 (9.80%)	102 (100%)
2.	Operating system Linux	15 (14.71%)	28 (27.45%)	47 (46.08%)	9 (8.82%)	3 (2.94%)	102 (100%)
3.	MS office package	5 (4.90%)	15 (14.71%)	47 (46.08%)	29 (28.43%)	6 (5.88%)	102 (100%)
4.	Photoshop	15 (14.71%)	38 (37.25%)	40 (39.22%)	6 (5.88%)	3 (2.94%)	102 (100%)
5.	Web page design	25 (24.51%)	43 (42.16%)	29 (28.43%)	5 (4.90%)	0 (0%)	102 (100%)
6.	Create metadata /tag	30 (29.41%)	48 (47.06%)	19 (18.63%)	3 (2.94%)	2 (1.96%)	102 (100%)
7.	Installation and customization of software	26 (25.49%)	45 (44.12%)	25 (24.51%)	6 (5.88%)	0 (0%)	102 (100%)
8.	Database Management System	18 (17.65%)	30 (29.41%)	43 (42.16%)	9 (8.82%)	2 (1.96%)	102 (100%)
9.	RFID Technology	35 (34.31%)	42 (41.18%)	20 (19.61%)	3 (2.94%)	2 (1.96%)	102 (100%)
10.	Barcode technology	19 (18.63%)	29 (28.43%)	38 (37.25%)	11 (10.78%)	5 (4.90%)	102 (100%)

Table 6—Awareness of library automation softwares

Sl. no.	Library Automation Softwares	Extremely Poor	Below Average	Average	Above Average	Excellent	Total
1.	LIBSYS	5 (4.49%)	8 (7.84%)	54 (52.94%)	30 (29.41%)	5 (4.90%)	102 (100%)
2.	SOUL	10 (9.80%)	25 (24.51%)	46 (45.10%)	19 (18.63%)	2 (1.96%)	102 (100%)
3.	WINISIS	24 (23.53%)	30 (29.41%)	38 (37.26%)	8 (7.84%)	2 (1.96%)	102 (100%)
4.	KOHA	26 (25.49%)	32 (31.37%)	38 (37.26%)	5 (4.90%)	1 (0.98%)	102 (100%)
5.	NEWGENLIB	41 (40.20%)	33 (32.35%)	27 (26.47%)	1 (0.98%)	0 (0%)	102 (100%)
6.	EVERGREEN	55 (53.92%)	29 (28.43%)	17 (16.67%)	1 (0.98%)	0 (0%)	102 (100%)

Awareness of library automation softwares

Table 6 shows the level of awareness of library automation software among the library professionals**.** Out of 102 respondents in University of Kerala, respondents seem to be familiar more with LIBSYS software (52.94%) followed by SOUL (45.10%). Among open source software, the professionals have more skill in using KOHA (37.26%). The professionals expressed their skills as poor in two of the software such as NEWGENLIB (40.20%) and EVERGREEN (53.92%). In addition to these softwares the professionals are average in the use of some of the other software such as E-Granthalaya (3.92%), Alice for Windows (1.96%), LIBSOFT (6.86%) and LIBMAS (3.92%).

Table 7—Awareness of digital library softwares

Sl. no.	Digital library software	Extremely Poor	Below Average	Average	Above Average	Excellent	Total
1.	Greenstone	33 (32.35%)	37 (36.27%)	29 (28.43%)	2 (1.96%)	1 (0.98%)	102 (100%)
2.	D-Space	21 (20.59%)	31 (30.39%)	41 (40.20%)	8 (7.84%)	1 (0.98%)	102 (100%)
3.	E-Print	32 (31.37%)	38 (37.25%)	30 (29.41%)	2 (1.96%)	0 (0%)	102 (100%)
4.	Fedora	32 (31.37%)	47 (46.08%)	20 (19.61%)	3 (2.94%)	0 (0%)	102 (100%)

Table 8—Skill for managing electronic resources

Sl. no.	Electronic resources	Extremely poor	Below average	Average	Above average	Excellent	Total
1.	Use of OPAC/Web OPAC	2 (1.96%)	4 (3.92%)	36 (35.29%)	48 (47.06%)	12 (11.77%)	102 (100%)
2.	Library website	5 (4.90%)	8 (7.84%)	44 (43.14%)	37 (36.28%)	8 (7.84%)	102 (100%)
3.	E-books	6 (5.88%)	9 (8.82%)	55 (53.92%)	25 (24.51%)	7 (6.86%)	102 (100%)
4.	Online journals	5 (4.90%)	4 (3.92%)	53 (51.96%)	32 (31.37%)	8 (7.84%)	102 (100%)
5.	Online databases	7 (6.86%)	5 (4.90%)	54 (52.94%)	29 (28.43%)	7 (6.86%)	102 (100%)
6.	ETD	13 (12.75%)	12 (11.76%)	52 (50.98%)	22 (21.57%)	3 (2.94%)	102 (100%)
7.	Digital archives/ Subject gateways	10 (9.80%)	19 (18.63%)	48 (47.06%)	20 (19.61%)	5 (4.90%)	102 (100%)
8.	Open Access Journals	9 (8.82%)	4 (3.92%)	58 (56.86%)	23 (22.55%)	8 (7.84%)	102 (100%)
9.	Library Networks	7 (6.86%)	26 (25.49%)	42 (41.18%)	19 (18.63%)	8 (7.84%)	102 (100%)
10.	Library Consortium	9 (8.82%)	22 (21.57%)	47 (46.08%)	17 (16.67%)	7 (6.86%)	102 (100%)

Awareness of digital library and repository software

The level of knowledge of digital library software among the library professionals is illustrated in Table 7. It is clear from the table that most of the library professionals have more skill in D-Space software (40.20%). The skills are below average level in the use of other digital library software such as Greenstone (36.27%), E-Print (37.25%) and Fedora (46.08%). About thirty two percent professionals expressed that they are poor in the use of Greenstone digital library software.

Skill for managing electronic resources

Table 8 presents the respondent's skill of managing e-resources. From the table it is evident that the respondents possess a higher level of skills in the use of e-resources. The analysis of data shows that the library professionals are above average in the use of OPAC/Web OPAC (47.06%) followed by library websites (36.28%) and online journals (31.37%). The professionals have average skill in use of almost all the e-resources.

Skill for managing ICT based library services

Table 9 gives the result of analysis of professionals' skills for managing various ICT related library services. A consistent percentage (31.37%) of professionals has above average skills only for ICT based Information retrieval (accessing, searching and use of e-documents). Below average skills are shown for inter library loan through networking (39.22%), online indexing and abstracting services (33.33%) and development of institutional repository (32.35%). Respondents also have a significant average level of skills in Information retrieval (accessing, searching and use of e-documents) (51.96%), electronic document delivery system (49.02%), online indexing and abstracting services (48.04%) and current awareness services (46.08%) etc.

Attitude towards the impact of ICT

Table 10 shows that the library professionals have a positive attitude towards the application of ICT in libraries. Majority of the library professionals agreed that ICT application facilitates quick access to current data (52.94%), improves quality of library services (53.92%), helps to enhance knowledge and skills of library professional (50.98%) and reduces workload of library professionals (55.88%). Of the negative aspects listed, to the variables 'ICT disturbs routine work of the library' majority of the respondents (57.84%) disagreed and only 9.80% agreed. Similarly respondents replied with disagreement to the variables, 'ICT affects regular budgeting provision' (44.12%) and 'Difficult to cope with all the ICT jargon' (37.25%). Most of the professionals agreed with the variables 'Not able to update the technology of ICT in time' (47.06%) and 'The utility of ICT in my institution is good' (43.14%).

Constraints in acquiring ICT skills

The respondents were asked to mark their ranks against the main problems faced by library professionals in the effective use of ICT applications. A significant number of library professionals identified that the main issue relating to the application of ICT in libraries is the lack of training (40.20%) which is followed by lack of infrastructure & network facility (17.65%). Lack of cooperation of authority in implementing the technology is another problem faced by library professionals. The result is depicted in Table 11 which shows that the least

Table 9—Skill for managing ICT based library services

Sl. no.	Information services	Extremely poor	Below average	Average	Above average	Excellent	Total
1.	Information retrieval (accessing, searching and use of e-documents)	2 (1.96%)	6 (5.88%)	53 (51.96%)	32 (31.37%)	9 (8.82%)	102 (100%)
2.	Electronic document delivery system	9 (8.82%)	20 (19.61%)	50 (49.02%)	18 (17.65%)	5 (4.90%)	102 (100%)
3.	Online indexing and abstracting services	12 (11.77%)	34 (33.33%)	49 (48.04%)	4 (3.92%)	3 (2.94%)	102 (100%)
4.	Digital reference service	20 (19.61%)	24 (23.53%)	44 (43.14%)	10 (9.80%)	4 (3.92%)	102 (100%)
5.	Inter library loan through networking	18 (17.65%)	40 (39.22%)	38 (37.25%)	3 (2.94%)	3 (2.94%)	102 (100%)
6.	Online bibliographic services	19 (18.63%)	31 (30.39%)	40 (39.22%)	7 (6.86%)	5 (4.90%)	102 (100%)
7.	Development of institutional repository	15 (14.71%)	33 (32.35%)	46 (45.10%)	4 (3.92%)	4 (3.92%)	102 (100%)
8.	Current awareness services	13 (12.75%)	23 (22.55%)	47 (46.08%)	16 (15.69%)	3 (2.94%)	102 (100%)
9.	SDI services	16 (15.69%)	26 (25.49%)	42 (41.18%)	15 (14.71%)	3 (2.94%)	102 (100%)
10.	Circulation of new additions list	8 (7.84%)	28 (27.45%)	45 (44.12%)	15 (14.71%)	6 (5.88%)	102 (100%)

Table 10—Attitude towards the impact of ICT

Sl. no.	Attitude	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Total
1.	ICT application facilitates quick access to current data.	45 (44.12%)	54 (52.94%)	2 (1.96%)	0 (0%)	1 (0.98%)	102 (100%)
2.	ICT application improve quality of library services	55 (53.92%)	45 (44.12%)	2 (1.96%)	0 (0%)	0 (0%)	102 (100%)
3.	ICT application help to enhance knowledge and skills of library professional	44 (43.14%)	52 (50.98%)	3 (2.94%)	2 (1.96%)	1 (0.98%)	102 (100%)
4.	ICT application reduce workload of library professional	29 (28.43%)	57 (55.88%)	8 (7.84%)	7 (6.86%)	1 (0.98%)	102 (100%)
5.	ICT application increased job satisfaction of Library professional	29 (28.43%)	56 (54.90%)	9 (8.82%)	7 (6.86%)	1 (0.98%)	102 (100%)
6.	ICT disturbs routine work of the library	8 (7.84%)	10 (9.80%)	10 (9.80%)	59 (57.84%)	15 (14.71%)	102 (100%)
7.	ICT affects regular budgeting provision	5 (4.90%)	20 (19.61%)	25 (24.51%)	45 (44.12%)	7 (6.86%)	102 (100%)
8.	Difficult to cope with all the ICT jargon	5 (4.90%)	30 (29.41%)	20 (19.61%)	38 (37.25%)	9 (8.82%)	102 (100%)
9.	Not able to update the technology of ICT in time	3 (2.94%)	48 (47.06%)	10 (9.80%)	38 (37.25%)	3 (2.94%)	102 (100%)
10.	The utility of ICT in my institution is good	5 (4.90%)	44 (43.14%)	18 (17.65%)	31 (30.39%)	4 (3.92%)	102 (100%)

Table 11—Constraints in acquiring ICT skills

Rank	Problems	No. of Respondents
1.	Inadequate training in ICT applications	41 (40.20%)
2.	Lack of infrastructure & network facility	18 (17.65%)
3.	Lack of support from authorities for implementing ICT applications in library	14 (13.73%)
4.	Lack of budget for ICT	12 (11.76%)
5.	Lack of co-ordination among library staff	6 (5.88%)
6.	Non availability of consultation services	4 (3.92%)
7.	Lack of updating ICT strategy	3 (2.94%)
8.	Fear of ICT applications	2 (1.96%)
9.	Lack of interest for Library professionals in learning ICT applications	2 (1.96%)
10.	Overload of working hours	0 (0%)
	Total	102 (100%)

important constraint is the lack of interest for Library professionals in learning ICT applications and fear of ICT applications (1.96%).

Suggestions

The numerous views and comments offered by the library professionals have enabled the investigators to offer some feasible suggestion for the successful application of ICT in libraries.

- Sufficient funds should be made available by the authorities for developments of ICTinfrastructure, digital resource development, and application of ICT enabled services in university libraries.
- The authorities need to review their policies regarding the implementation of technological developments in libraries.

- Libraries should promote ICT awareness to the professionals as well as users by providing short–term courses, in-house training programmes, organizing workshops, seminars, conferences and public lectures.

- Library users should also be given motivation by organizing orientation programmes and user awareness programmes in ICT.

- A new model curriculum for information science courses in universities should be devised by integrating the traditional and modern knowledge and applications.

- ICT should be a core component of formal Library and Information Science education incorporating the skill and expertise in handling the digital libraries and application of ICT in libraries.

Conclusion

ICT provides libraries an opportunity to give value-added information services and access to a wide variety of digital based information resources to their clients. In this current situation, whereby ICT are being continuously updated, and the traditional formats are being replaced by digital formats, regular training for the library professionals in changing technology is inevitable. In-house training programmes are more effective in libraries. From the present survey it is clear that most of the ICT technologies which are taken for this study are not yet been introduced in the Kerala University library system. Therefore the library professionals are not in a position to use these technologies in their work. This will create a low level of technological skill development among the professionals working in this library system. Concerning the implementation of the technologies, lack of support from the authority is the major issue in university library. The study concludes that the university library needs proper ICT infrastructure and training to the professionals in using the digital resources effectively.

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