ICT (Information and Communication Technology) Infrastructure in the University Libraries of Tamil Nadu: Perspectives from Library Professionals

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Abstract

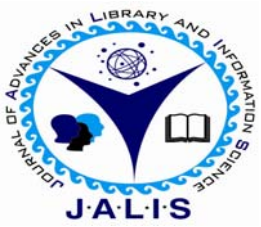
The purpose of this paper is to study how far the university libraries has adopted the modern techniques of library management in Tamil Nadu. he survey research design was adopted, with a structured questionnaire and self administered among 13 State university libraries who offered Arts and Science. In all, 80 library professionals' have responded on a random basis. Data-gathering tools used included questionnaire, observation and informal interview with selected university librarians. Application of ICT in Indian university libraries has not reached a very high level. Lack of budget, lack of manpower, lack of skilled staff and lack of training are the main constraints for not automating library activities.

Keywords

Communication technologies; Library automation; university librarie0;, Tamil Nadu; India

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INTRODUCTION

Information communication technology has become one of the major aspects causing changes in the field of library and information science which people or user can communicate, review and disseminate and used information. Today, the library science is fast changing and automation activities are picking up. There is increasing awareness of information technology and its implication among information scientist / librarians.

According to Manikandan and Prabakaran (2010), the revolutions in ICT (Information Communication Technology) in the past three or four decades have a drastic and comprehensive influence on all aspect of human life. To apprehend conceptual and concrete objectives of the "information age", we require incorporating contemporary forms of information and communication technologies (ICT) into all elements of our existence, and in the modern society libraries and information centres are playing a vital role. Libraries and information centres are under great pressure to enhance their technological capabilities in order to meet the increasing demands and complete with alternative information providing agencies for survival. This period is very crucial for library and information professionals because on the hand they are seriously adopting ICT facilities or acquiring ICT to provide efficient and effective services, this shifting requires substantial funds, technical and ICT expertise and on the other hand, they have to train their users in a proper way so they can use information as they did earlier.

In addition, there is an obvious eagerness among is the library and information centres towards IT and ICT implementation and utilization to give better services to their patrons. The utilization of IT and ICT facilities increases their capabilities to acquire, manage, analyse, retrieve and disseminate information from the point of view of users as well as that of the library staff. The term information and communication technology (ICT) refers to forms of technology that are used to transmit, store, create, display, share or exchange information by electronic means. This broad definition of ICT includes such as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as equipment and services associated with these technologies, such as video conferencing and E-mail etc. (Manikandan and Prabhakaran , 2010)

INFORMATION COMMUNICATION TECHNOLOGY IN ACADEMIC LIBRARIES

Information Communication Technology holds the key to the success of modernizing information services. Not only does ICT introduce new ways of information handling, it also brings about change in the every structure of information and its communication. Concepts like universal bibliography, accessibility to and availability of documents, irrespective of location, highly personalized services matching user needs/ interests with document databases, full text searches, storage and retrieval with speed and accuracy, etc. have all been accomplished to a great extent. Application of ICT are many but mainly it is used converting the existing paper – print records in the entire process of storage, dissemination retrieval, etc, and national and international cooperation in the free flow and exchange of information. ICT impacted on every sphere of academic library activity e.g. the form of the library, collection development strategies, library building and consortia. ICT have changed the academic library in a profound way. In academic libraries, ICTs present an opportunity to provide value – added information services and access to a wide variety of digital – based information resources to their clients. Further, libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, developed institutional repositories of digital of local content and digital libraries and initiate ICT – based capacity building programmes for library users.

ICT AND LIBRARY PROFESSIONALS

In the ICT influenced era, the academicians throughout the world are over flowed with all types of information available through books, Journals, Newspapers, Databases, TV, Cinema, Radio, Internet etc.The librarians and LIS professionals are identified as information brokers. The role of information professionals needs to change while using the traditional skills and competences in the changed environment, as we are now living in the age of increasing complexity with regard to the range and quantity of information available. Since the total library execution and dissemination of information is in the electronic era, they are expected to abreast themselves in managing the library activities in the electronic era. To fit in the emerging IT scenario, the IT professionals should train themselves in to handle the services in the digital environment. (Manikandan and Prabhakaran, 2010).

REVIEW OF LITERATURE

The study of review of literature is an important aspect of any academic research. The analysis of review of literature enables one to identify the past trends and areas of research concentration in any particular branch of science. The following are the previous studies carried out by different researchers and Academicians in related to the above studies. Omar (2009) investigates the current situation of ICT at the University of Khartoum Library System (UKLIS), and identifies the staff training programmes carried out there in order to prepare the staff and equip them with the necessary skills to cope with advances in ICT. The methods employed for data collection include interviews and document analysis. The findings reveal that although the ICT infrastructure at the University of Khartoum, the parent institution, is available, yet the ICT situation at the UKLIS is deplorable, and that the training programmes available are inadequate for this purpose. The paper finally comes up with a number of recommendations and suggestions for remedying the situation and bridging the gaps identified in the ICT situation at the UKLIS. An important recommendation is the setting up of an ICT plan, and a subsequent ICT training strategy for the UKLIS staff.

Thomas and Satpathi (2010) in their studies "Emerging challenges in academic librarianship and role of library associations in professional updating" found that the modern academic librarian, besides the common attributes, should be technology-savvy and eager to learn and adopt any technology development for the benefit of users. In the Indian context, it is found that professional bodies like IASLIC did play an important role in bringing India to the forefront of global librarianship. It is concluded that India does need a well-laid out policy and programmes of updating and equipping its librarians continuously and can benefit from the experiences of ALA and CILIP. Sampath and Biradar (2010) investigated the ICT infrastructure, current status of library automation, barriers to implementation of library automation and also librarians' attitudes towards the use of ICT in Karnataka college libraries and found that application of ICT in Indian college libraries has not reached a very high level. Lack of budget, lack of manpower, lack of skilled staff and lack of training are the main constraints for not automating library

activities. Even though library professionals have shown a positive attitude towards the use of ICT applications and library automation, they need extensive and appropriate training to make use of ICT tools.Lakshmi and Chinnasamy (2011) discuss impact of information and communication technology on library and its services and conclude that information and communication technology (ICT) have brought unprecedented change and transformation to library and information services. It has created an environment where rapid continuous change had become the norm. ICT has reduced the library from its stature as custodian of our literary heritage to being a competitor among many others in the information society.Patel and Sengupta (2012) discuss the factors that will necessitate the Engineering College Libraries of Chhattisgarh to get digitized and the role of librarian in the new environment and found that majority of the respondents' especially user's are satisfied with the ICT infrastructure availability in their institute. Many libraries are functioning in the hall specially designed ICT infrastructure availability in their institute.

OBJECTIVES

This study has developed the following objectives:

1. To know how far the university libraries has adapted the modern techniques of library management in Tamil Nadu.
2. To understand the availability of ICT infrastructure among Arts and Science university libraries in Tamil Nadu.
3. To identify the use of various ICT tools for providing services in the university libraries;
4. To determine the attitude of the library professionals towards library automation;
5. To identify the network infrastructure.
6. To trace the status of library automation and the barriers in adopting library automation;

SCOPE AND COVERAGE

In the era of electronic library management system where a person need not go to a particular place to acquire the knowledge, has even added more caliber to the management system of the libraries. So the scope of the present research is to study how far the universities in the study area have adapted with the modern techniques of library management. The present research area is Tamil Nadu State. In Tamil Nadu there are 20 State Universities which some of the university has different branches and department. Out of the total of state university libraries, the researcher has taken 13 university libraries offering in the field of Arts and Science.

METHODOLOGY

The study addresses university libraries offering in the field of Arts and Science university libraries in the Indian state of Tamil Nadu. The majority of the libraries are funded by the University Grants Commission of India. A structured questionnaire was designed to collect data from the university librarians and other library staff regarding the availability of computers, availability of the internet, automation of library, type of software used for automation, satisfactions of the facilities, etc. The researcher visited the 13 selected university libraries in Tamil Nadu and distributed the questionnaire with interviews to 13 university library of which 111 Library Professionals were working in the Arts and Sciences University Libraries. Out of these 111 Library Professionals, 80 from the Arts and Sciences University Libraries responded. However, all the 13 librarians/Library Incharge were responded and 67 other library staff working as deputy librarian, assistant librarians and library assistants to gather the required information between 2010 November and 2011 April. A simple percentage ranking analysis was used to analyse the data gathered in this survey.

LIMITATION OF THE STUDY

Though the study has been carried out with most care, it has its own limitations which are beyond the control of the investigator i.e., the findings of the study are applicable to the libraries of state universities in Tamil Nadu and it may or may not be applicable for the university libraries of other states.

ANALYSIS AND INTERPRETATION OF DATA

The data collected from the University Librarian and other Library staff are analyzed and presented below:
Incumbent population by their sex, age and Educational Qualification in LIS are shown in table 1.

Table 1: Details about sex, age and educational qualification

N = 80

Factor	No.	Percentage
Sex;		
Male	59	73.8
Female	21	26.2
Total	80	100
Age;		
21 - 30	04	5.0
31 – 40	33	41.3
41 – 50	29	36.3
51 or Above	14	17.4
Total	80	100
Educational Qualification in LIS;		
SET/NET	24	30.0
Ph.D	30	37.5
Both SET/NET & Ph.D.	26	32.5
Total	80	100

Source: Primary data.

From the Table 1, it is observed that out of the total 80 respondents 59(73.8 %) are male and 21 (26.2%) are female. Among the respondents 04 (5.0%) were in the age between 21-30, 33(41.3%) were in the age of 31-40, 29 (36.3%) were in the age between 41-50 and 14 (17.4%) respondents were in 51 years and above. About the educational qualification 24 (30.0%) of them are NET or SLET holders, 30 (37.5%) completed Ph.D., 26 (32.5%) are having both NET/SLET and Ph.D.

2. Library Automation and Type of Software Used

Our aim is to know how many university libraries has adopted the modern techniques of library management. First of all we asked about the library automation among the Arts and Science university libraries in Tamil Nadu.

Table 2: Automation level among the libraries

Automation	Number	Percentage
Automated	08	61.5
Still in process	03	23.1
Not automated	02	15.4
Total	13	100

Source: Primary data..

Table 2 shows that out of total 13, 08(61.5%) of Arts and Science University Libraries has automated their libraries, 03(23.1%) is still in the process in automation and 02(15.2%) has not decided in

Table 3: Software used for Library Automation among the university libraries in Tamil Nadu

Software used in the library	Number
SOUL	05 (38.5%)
Autolib	01 (7.7%)
NIRMALS	01 (7.7%)
Smart Campus	02 (15.4%)
Nil	04 (30.8%)
Total	13 (100%)

Source: Primary data.

Table 3 indicates the software used in the university libraries of Tamil Nadu. It has been inferred that in Arts & Science university libraries, 05(38.5% used SOUL, 01(7.7%) used AUTOLIB, NIRMALS, 02(15.4%) used Smart Campus software and 04(23.1%) are still not having any software in their library.

3. ICT Infrastructure

In any ICT oriented libraries, the library software and hardware plays a vital role in information retrieval service and automation other housekeeping operations. Table 4 indicates university libraries wise respondents about hardware, software facilities and system operating in the libraries.

Table 4: Availability of Information and Communication Technology (ICT) among the university libraries in Tamil Nadu.

Hardware:	Frequency	Percentage
Desktop Computers	11	84.6
Laser Printers	08	61.5
Systems with DVD's	08	61.5
LDC Projector	07	53.5
CD Writer	11	84.6
UPS	10	76.9
Scanners	08	61.5
Barcode Scanners	08	61.5
Software:		
Word Processing	11	84.6
Spread-Sheets	11	84.6
Presentation (Power Point)	11	84.6
Document readers (Adobe Acrobat)	10	76.9
Web Browsers	09	69.2
HTML/XML editors	06	46.2
Operating Systems:		
Windows 2000/98/95	08	61.5
Windows NT	06	46.2
Windows XP	10	76.9
Mail Server	06	46.2

Source: Primary data.

Table 4 shows types of hardware, software and operating systems in the sample university libraries taken. It is found that in ICT availability hardware, out of total 13 university libraries, 11 (84.6%) are having desktop computers and CD writer, 10 (76.9%) are having UPS and 08 (61.5%) are having Laser Printers, Systems with DVD's, Scanners, Barcode Scanners and 07 (53.5%) have LCD (Liquid Cristal Display) Projector. In software facilities 11 (84.6%) university libraries are available Word Processing, Spread – Sheets and Presentation (Power Point), 10 (76.9%) Document readers (Adobe Acrobat), 09 (69.2%) Web Browsers and 06 (46.2%) have HTML/XML editors. The availability of operating systems 10 (76.9%) are having Windows XP, 08 (61.5%) availed Windows 2000/98/95 and 06 (46.2%) Windows NT, Mail Server.

4. Network Infrastructure

The developments in information Science field mode a drastic changes in the way in which the information is collected, stored, retrieved and distributed. Linking of computers with telecommunications has revolutionized the expansion of information systems. The below table indicates the availability of network infrastructure in the Arts and Science university libraries of Tamil Nadu.

Table 5: Availability of network infrastructure among the libraries in Tamil Nadu

Network Connections and Access:		
Local Area Network (LAN)	10	76.9
Wide Area Network (WAN)	02	15.4
Virtual Private Network (VPN)	01	7.7
National level:		
INFLIBNET	08	61.5
ERNET	02	15.4
NICNET	01	7.7
DELNET	05	38.5
International level:		
Internet	11	84.6
BIOSIS	08	61.5

Source: Primary data.

Table 5 indicates the university libraries wise respondent's opinion about Network connection. It could be noted that in network connections and Access, out of 13 university libraries 10 (76.9%) of them connect LAN, 02 (15.4%) connect WAN and only 01 (7.7%) connect VPN. And in National level, 08 (61.5%) have connection in INFLIBNET, 05 (38.5%) in DELNET, 02 (15.4%) in ERNET and 01 (7.7%) in NICNET. Also in International level of connection, 11 (84.6%) of them have Internet connection, 08 (61.5%) of them connect BIOSIS connection.

5. Sources of satisfaction in ICT services

In order to know whether the ICT services are satisfied on other library staff point of views, 67 library staff excluded librarian were given a list of 08 potential sources of satisfaction on ICT facilities indicate the importance of each on a five-point Likert-type scale with a range of 5 for "Excellent" to 1 for "Poor". The data in the form of mean scores, average and standard deviations are given in Table 5.

Table 6: Sources of satisfaction on ICT facilities

Among the various sources of satisfaction on ICT facilities in the universities libraries, the top five ranked sources are Maintenance of Hardware and Software, with a mean of 4.1194, Library catalogue (Online Public Access Catalogue) 4.0597, Operating Systems Windows 2000, XP, NT, Mail Server, Linux, etc. 3.8955, Subscriptions to Web-based electronic resources, eBooks, electronic journals, databases, etc. 3.7015. Access to full-text documents in digital format; such as Research reports and newsletters 3.5075. Networking resources, ideas & contacts 3.3731. Organized access to free subject-based information gateways/portals on the Internet 3.1492. Adopting new technology such as RFID, with a mean 2.8955 considered the least important sources of satisfaction. It can be also noted that the average mean for ICT facilities in the university libraries is 13.4.

Problems and Difficulties

Respondents were asked if they faced any problems and difficulties in the library automation and services, their responses are given below:

- Lack of staff
- Lack of qualified staff in ICT among library personnel
- Lack of budget for ICT
- Lack of commitment by top management in the library
- Low skill levels of library users
- Lack of co-operation from the staff and readers

Activities & Services	Mean Score	Average Mean	Rank
Maintenance of Hardware and Software	4.1194	13.4	1
Library catalogue (Online Public Access Catalogue)	4.0597	13.4	2
Operating Systems Windows 2000, XP, NT, Mail Server, Linux, etc.	3.8955	13.4	3
Subscriptions to Web-based electronic resources, eBooks, electronic journals, databases, etc.	3.7015	13.4	4
Access to full-text documents in digital format; e.g. research reports and newsletters	3.5075	13.4	5
Networking resources, ideas & contacts	3.3731	13.4	6
Organized access to free subject-based information gateways/portals on the Internet	3.1492	13.4	7
Adopting new technology such as RFID.	2.8955	13.4	8

FINDINGS OF THE STUDY

The finding of the present study has been presented in the following few lines:

- From the findings of the survey, it is observed that among the Arts and Science university libraries of Tamil Nadu, majority of the university libraries have automated their functions but there are some university libraries which are still not automated in this digital environment.
- The availability of hardware, software and operating systems is encouraging in university libraries of Tamil Nadu.
- 11 (84.6%) of them have Internet connection, 10 (76.9%) of them connect LAN and 08 (61.5%) are the members of INFLIBNET and BIOSIS.
- Among the various sources of satisfaction by the library professionals on ICT facilities in the universities libraries, the top most ranked sources are Maintenance of Hardware and Software.
- The University libraries faces some problems and difficulties in the library automation and services such as lack of qualified staff in ICT among library personnel, lack of budget for ICT, lack of commitment by top management for the library, low skill levels of library users and Lack of co-operation from the staff and readers.

CONCLUSIONS AND SUGGESTIONS

In this information technology age, some of the university libraries are still followed the old traditional system i.e. not yet automated their library. So, all the university libraries have to automate with a view to render the service and provide effective service to the users. Use of same library automation software is recommended for easy access of the bibliographic details of the documents. As to run the libraries with zeal adequate staff should be appointed and give training in handleling ICT equipment in order to maximize use of ICT infrastructure facilities available in the library. Provision of ICT infrastructure is expensive for accessing and disseminating the information is also one of the main reasons. So, libraries should make provisions in their budgets to procure and maintain the ICT infrastructure on a continuous basis. If the suggestions given above are implemented effectively it may enhance the ICT infrastructure in the university libraries of Tamil Nadu to a large extent, with the minimal expenditure and the satisfaction of the academicians.

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