ICT Literacy among Library Professionals Working in the University Libraries in Maharashtra, India : A Study

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ABSTRACT

The purpose of this study is to assess the information communication technology (ICT) literacy of the library professionals working in university libraries in Maharashtra. The study gives an overview of the present level of ICT literacy among library professionals and it helps to know the need for training and orientation in the areas such as ICT-based resources, services and tools to the library professionals working in university libraries in Maharashtra. A structured questionnaire based survey was conducted to analyse the ICT literacy among library professionals. The findings of the study reveal that, the ICT literacy level of the library professionals working in university libraries in Maharashtra is satisfactory. Majority of library professionals have acquired the basic ICT literacy skills which is required to handle day to day library operations, but still few library professionals need to enhance their literacy level in the area of open source library automation software, digital library software and institutional repository software etc. The study suggests that, university libraries should organise in-house training and orientation programs on ICT-based resources and services or depute their library professionals to attend the training and orientation programs on regular intervals, in order to enhance the ICT Literacy level of library professionals.

Keywords: ICT literacy; Information and communication technology literacy

1. INTRODUCTION

Information communication technology (ICT) has made great impact on the every field of the society such as agriculture, health, education, business, industries, and so on[1]. Libraries are not exception to these fast pace changes happen in the society. ICT has changed the overall functioning of the libraries. To provide relevant information within short span of time it become essential for libraries to adopt an ICT-based information system and ICT infrastructure[2]. In early days when manual library system was in existence, they faced many problems due to consistently growing size of information sources and lack of storage space, this has forced libraries to adopt the ICT-based library systems to overcome these difficulties[3].

Since the implementation of ICT has transformed the operation, functions and services of the libraries, it has become indispensable for the library professionals to enhance their ICT literacy by acquiring new ICT skills and knowledge, to fulfil the changing information need of the user community[4]. In this changing ICT environment the library professionals needs to acquire the skills of using various ICT tools, Internet and Intranet, e-resources, ICT-based services, operating systems, application software, library automation software, digital library and institutional repositories, database management and programming[5]. ICT literacy has become essential for the library professionals to adopt the emerging technological

changes and fulfill the digital information need of the users within short span of time[6].

2. ICT LITERACY

Wijaya and Sunrendro[7] described that, the literacy comprises of two different terms i.e. ICT and literacy. ICT is considered as the fusion of computer technology and telecommunication technology, while literacy is considered as an ability to learn and improve individual's capability. In broad-spectrum ICT literacy is considered as the necessary skill are required to use the ICT to perform the day-to-day professional work. ICT literacy enables the library professionals to use digital information resources effectively in their place of work. This includes the use of ICT to perform routine professional tasks most efficiently and effectively including word processing, using spreadsheets, creating databases and presentations, manage networks, using Internet, performing automated activities, providing ICT based services, managing social and ethical issues in the library[8].

3. STATEMENT OF PROBLEM

The advancement in ICT has transformed the way of functioning and operation of library and information centers. The services and facilities being provided by the modern libraries totally depends upon the ICT skill level of the library professionals. ICT literacy is prerequisite for the library professionals to perform the day-to-day operations and activities in the libraries[9]. It has become very difficult for the library

professionals to survive in the present ICT era without ICT literacy, as the application of ICT has changed the mind set and approach of users towards the library. Hence it is prerequisite for the library professionals to possess the contemporary ICT Literacy skills and uphold the practical approach while working in the digital information age[10]. University libraries in Maharashtra are well equipped with ICT infrastructure and procured various e-resources to cater the electronic information need of its users. But on the other hand it is also essential that, the libraries should have competent library staff to handle these ICT-based resources, services and tools more effectively and efficiently. The present study attempts to investigate the present ICT literacy among library professionals and identifies, if needed the need of training and orientation in ICT-based resources and services to the library professionals working in the university libraries in Maharashtra.

4. OBJECTIVES

The objectives framed for the study are:
(i) To assess the present levels of ICT literacy among library professionals.
(ii) To identify the training methods used by library professionals for enhancing ICT literacy.
(iii) Find out the hindrance faced by the library professionals to enhance the ICT literacy.
(iv) To provide the suggestions for the enhancement of ICT literacy level of library professionals.

5. SCOPE AND LIMITATIONS

The present study is limited to 17 state universities and 149 library professionals working in the university libraries in Maharashtra. The selection of the universities in Maharashtra was done based on the UGC list and are covered under section 12 (B) of UGC Act 1956. The study considers only regular full time library professionals who are working at the time of survey, which include Librarian, Deputy Librarian, Assistant Librarians, Information Scientist, Technical Assistant, Professional Assistant, and Library Assistants.

6. METHODOLOGY

Survey method has been deployed to carry out the present study. To meet the specific objectives of the study, structured questionnaires was designed and the same was distributed among library professionals to collect the necessary data on literacy of using ICT based tools, resources and services among library professionals, means and methods of enhancing ICT literacy, the hindrances faced by library professionals in enhancing ICT literacy and training and orientation needs of library professionals in ICT-based tools, resources, and services. The questionnaires were personally distributed among 149 library professionals. Out of 149 library professionals, 134 library professionals have responded to the research study. The data collected through the questionnaires has been converted into machine readable format and imported into the statistical package for the social sciences (SPSS).

7. DATA ANALYSIS AND INTERPRETATION

The data has been analysed and inferences are made based on standard statistical methods. A detailed analysis of the data and its interpretation has been presented in graphs.

7.1 Designation-wise Response

The responses received from the library professional are categorised according to their designations which has been represented in the Fig. 1. Figure 1 shows the designation-wise response of library professionals. Out of 134 library professionals majority 82 (61.19 %) are Semi Professional Staff, which constitutes 24 (29.27 %) Technical Assistant, 2 (2.44 %) Professional Assistants and 56 (68.29 %) Library Assistant; whereas 52 (38.81 %) are Professional Staff, which comprises of 10 (19.23 %) Librarian, 8 (15.38 %) Deputy Librarian, 29 (55.77 %) Assistant Librarian and 5 (9.62 %) Information Scientists.
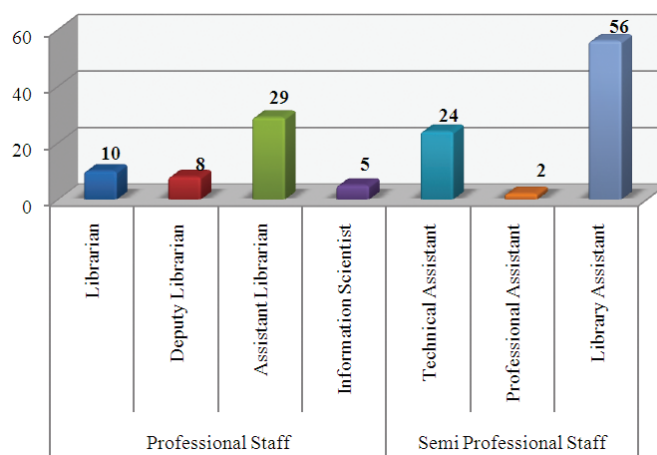

Figure 1. Designation-wise response rate.

7.2 ICT-based Tools and Technology

Resources and services being provided by libraries are centred towards the ICT, hence it has become necessity for the professionals to be literate with technical skills and expertise in using ICT-based tools and technology most effectively. To investigate the literacy of ICT-based tools and technology among the professionals, professionals are asked to indicate their current literacy of ICT-based tools and technology; the responses received from the library professionals has been described and has been depicted in Fig. 2.

Figure 2 shows the literacy of ICT-based tools and technology among the professionals. It could be clearly seen that, the literacy of desktop computer among 131 (97.76 %) professionals and mobile/smart phone among 124 (92.54 %) professionals was found high, as majority of professionals preferred basic computing technology which is being commonly use and easily get available at libraries, where as literacy of laptop among 107 (79.85 %) professionals, web camera among 83 (61.94 %) professionals and USB modem among 74 (55.22 %) professionals was found low, because these devices are more preferred for the personal use by professionals. As far as storage devices are concerned literacy of pen drive among 131 (97.76 %) professionals and CD/DVD among 123 (91.79 %) professionals was found high, because of the compatibility, portability and low operating cost of these storage devices, whereas literacy of portable
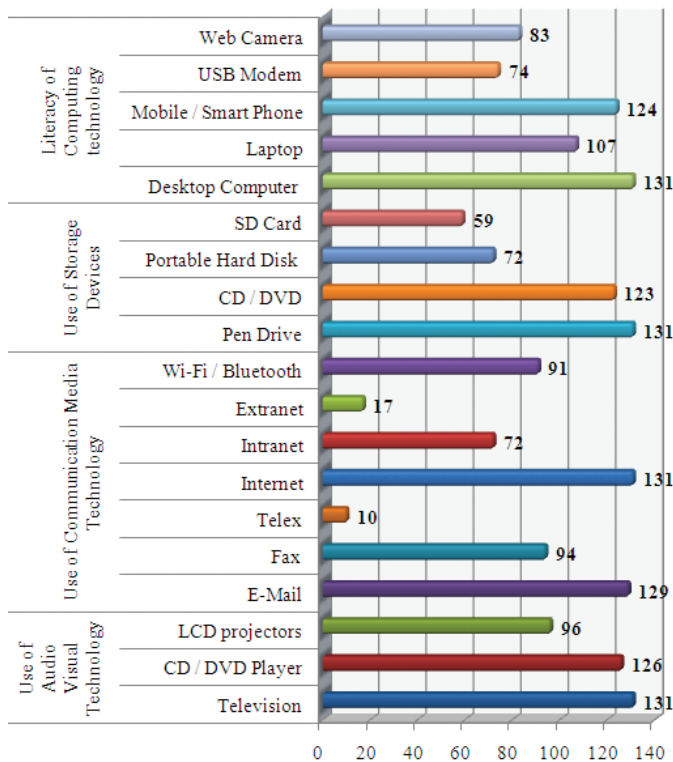
Figure 2. Literacy of ICT-based tools and technology.

hard disk among 72 (53.73 %) professionals and SD Card among 59 (44.03 %) professionals was found low due to its portability, compatibility and high operating cost of these devices. The literacy about Television among 131 (97.76 %) professionals, CD/DVD player among 126 (94.03 %) professionals was found very high, whereas the literacy of LCD projector among 96 (71.64 %) professionals was found low. As far as communication media technology literacy is concerned, the literacy of Internet among 131 (97.76 %) professionals and E-mail among 129 (96.27 %) professionals was found high as compared to the literacy of fax among 94 (70.15 %) professionals, Wi-Fi/bluetooth among 91 (67.91 %) professionals, intranet among 72 (53.73 %) professionals, extranet among 17 (12.68 %) professionals and telex among 10 (7.46 %) professionals because of its accessibility and widely preferred communication media technology by the academic as well as non-academic community for official purpose. It can be extracted here that majority of library professionals are well versed with the computing technology, storage devices, printing and scanning technology, audio visual technology and communication media technology, hence the literacy about these emerging ICT technologies is found high among majority of library professionals.

7.3 Electronic Resources

Use of electronic resources has become very common and the library professionals need to be well versed with the use of various e-resources. To reveal the literacy of using various electronic information resources; professionals are requested to indicate their literacy pertaining to various electronic resources. The responses received from the

professionals have been represented in Fig. 3.

Figure 3 clearly indicates that majority of the professionals i.e. 115 (85.82 %) are literate in using the e-journals, followed by 114 (85.07 %) e-newspapers, 111 (82.84 %) e-books, 106 (79.10 %) e-database, and 98 (73.13 %) in using e-thesis. It can be diagnosed here that majority of professionals are found well literate of different electronic resources. Amongst all electronic resources E-journals are found most preferred e-resources among majority of library professionals, it may be because E-journals are becoming increasingly a valuable source of electronic information in university libraries, therefore majority of libraries procured E-journals through various consortia as well as through individual subscription.
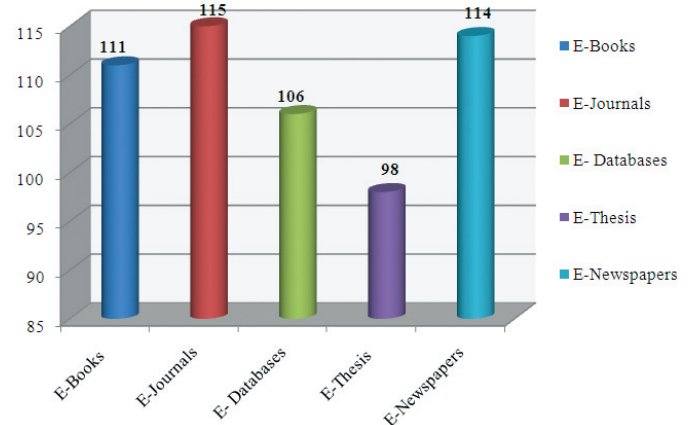

Figure 3. Literacy of electronic resources.

7.4 ICT-based Services

To reveal literacy of ICT-based services among professionals; the professionals are asked to indicate their current literacy of various ICT-based library services. The responses received from the professionals have been represented in Fig. 4.
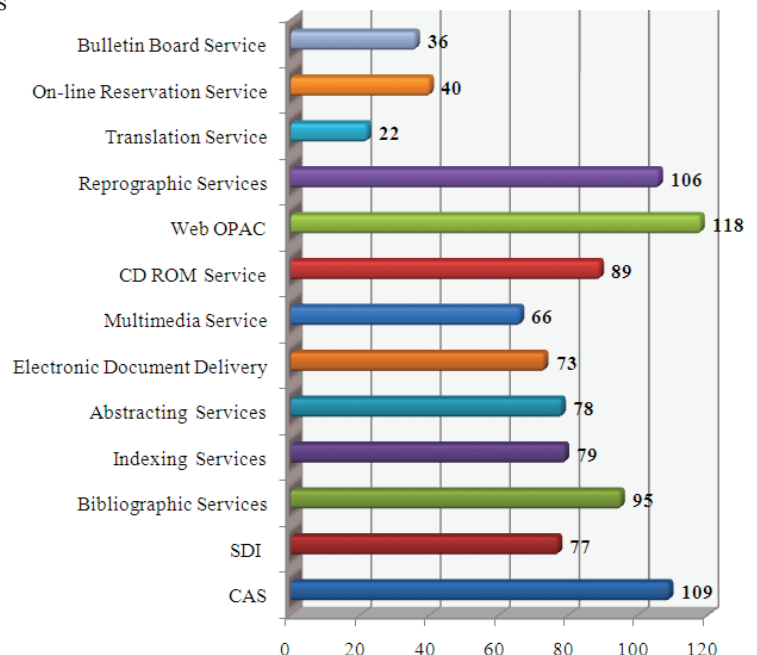

Figure 4. Literacy of ICT based library services.

Figure 4 reveals that, out of 134 respondents majority 118 (88.06 %) of professionals are found well literate of Web OPAC, followed by 109 (81.34 %) CAS, 106 (79.10 %) reprographic service, 95 (70.90 %) bibliographic service, 89 (66.42 %) CD-ROM service, 79 (58.96 %) indexing service, 78 (58.21 %) abstracting service, 77 (57.46 %) SDI, 73 (54.48 %) e-document delivery service, 66 (49.25 %) multimedia service, 40 (29.85 %) online reservation service, 36 (26.87 %) bulletin board service, whereas only 22 (16.42 %) professionals are found literate of translation service.

It can be summed up here that majority of library professionals are found well literate of web OPAC, reprographic service, C-ROM service and CAS. Since these services are provided by them on a regular basis to the users, whereas literacy of bulletin board service, e-query service and translation service was found low among library professionals due to lack of knowledge and expertise to use these ICT-based services.

7.5 Online Discussion Groups and Social Media

Library and information professionals needs to play an intermediary role between the information resources and information users and expected to communicate with the diverse groups of people through e-mail, fax, web sites, blogs, discussion group, bulletin board, etc. Hence it is necessary for the professionals to be literate of various online discussion groups and social media tools. To reveal which kind of online discussion groups and social media technology being most preferred by professionals for the information communication, the professionals are asked to indicate their literacy of various online discussion groups and social media. The responses received from the professionals have been represented in Fig. 5.

Figure 5 clearly indicates that, out of 134 professionals majority 119 (88.81 %) professionals were found to be literate of e-mail/instant messaging/chat followed by 101 (75.37 %) social networking (e.g. Orkut, Facebook, Whatsapp etc.), 87 (64.93 %) discussion groups, 69 (51.49 %) wikis, 58 (43.28 %) blogging, 43 (32.09 %) Listserv, 39 (29.10 %) RSS Feeds, and only 18 (13.43 %) professionals are found to be literate of social book marking. It can be accumulated here that majority of professionals are actively participative in online discussion groups and social media and with this participation the professionals keep themselves update with
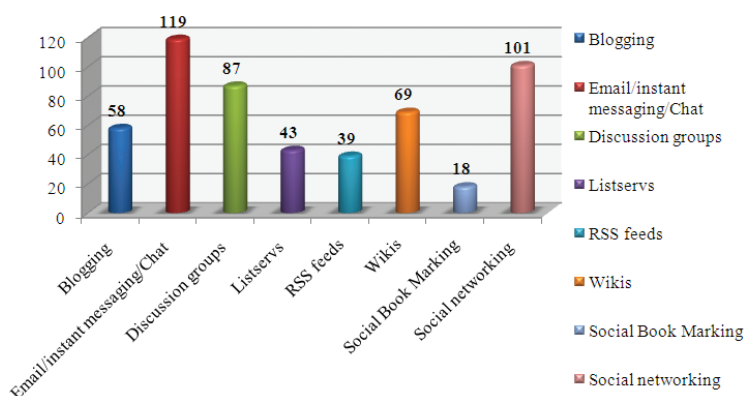

Figure 5. Literacy of online discussion groups and social media.

the current developments in libraries and information centres, but still few professionals are lacking with the literacy of Blogging, Listserv, RSS feeds and Social book marking.

7.6 Software

Library professional needs to be well verse with the set of technological skill required to manage the software applications in the field of library, because the comprehensive operating knowledge of different software leads to the effective implementation of computer based information system in libraries. The literacy of different types of software among the professionals are summarised as:

7.6.1 Library Automation Software

To reveal the literacy of library professionals pertaining to library automation software, they were asked to indicate their current literacy of different automation software. The responses received from the library professionals have been represented in Fig. 6.
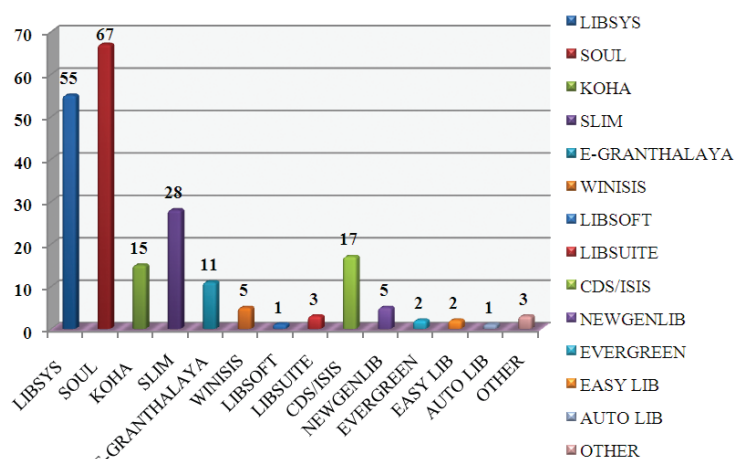

Figure 6. Literacy of library automation software.

Figure 6 shows that majority 67 (50 %) of professionals were found literate of SOUL automation software, followed by 55 (41.04 %) LIBSYS, 28 (20.90 %) SLIM, 17 (12.69 %) CDS/ISIS, 15 (11.19 %) KOHA, 11 (8.21 %) E-GRANTHALAYA, 5 (3.73 %) WINISIS and NEWGENLIB, 3 (2.24 %) LIBSUITE and Other, 2 (1.49 %) of EVERGREEN and EASYLIB, whereas only 1 (0.75 %) of LIBSOFT and AUTOLIB library automation software. It can be extracted here that majority of professionals are found well literate of SOUL and LIBSYS software as it has been installed in their respective libraries. Few library professionals felt that they do have sound knowledge of SLIM, KOHA, SOUL and CDS/ISIS as many organisations are conducting training programmes for these software's.

7.6.2 Digital Library Software and Institutional Repository

Literacy of digital library software and institutional repository has become very essential for professionals to embark upon the problems and challenges raised in constructing and managing a digital web based library. To assess the literacy about digital library and institutional

repositories, the library professionals were asked to point out their literacy about digital library and institutional repositories. The responses received from the library professionals have been represented in Fig. 7.

Figure 7 shows that, out of 134 respondents majority 57 (42.54 %) professionals were found literate of DSpace, 21 (15.67 %) Greenstone, 6 (4.48 %) E-print and only 3 (2.24 %) Fedora digital library software. It can be stated here that the literacy of institutional repository and digital library software's is found low among professionals.
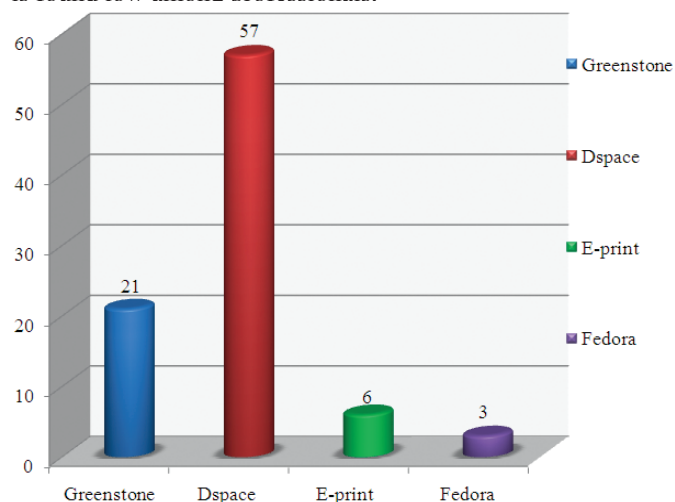

Figure 7.   Literacy of digital library and institutional repository software.

7.7   Training Methods used for Enhancing ICT Literacy

To know various training methods of enhancing ICT literacy skills by the library professionals, they were asked to point out which training methods are obtained by them to enhance their ICT literacy skills. The responses received from the professionals have been represented in Fig. 8.

Figure 8 reveals that, 117 (87.31 %) professionals have enhanced their ICT literacy through self study followed by other methods such as trial and error method 76 (56.72 %) and formal education such as undertaking the computer course 74 (55.22 %). It can be diagnosed that the majority of professionals acquire the ICT skills and knowledge themselves through self study and trial and error method. The library authority should take initiative and organise in-house workshops, seminars, conferences and ICT training at workplace more frequently to increase the ICT skills of library professionals.

7.8   Hindrances Faced in Enhancing ICT Literacy

To understand various hindrance faced by the professionals while enhancing ICT literacy skills, the professionals were instructed to point out the hindrances faced by them in enhancing ICT literacy skills. The responses received from the professionals have been represented in Fig. 9.

Figure 9 indicates that the major hindrance in enhancing ICT skills by professionals is their day-to-day busy working schedule as 74 (55.22 %) professionals out of 134 have responded to this. It is followed by the other hindrance such as
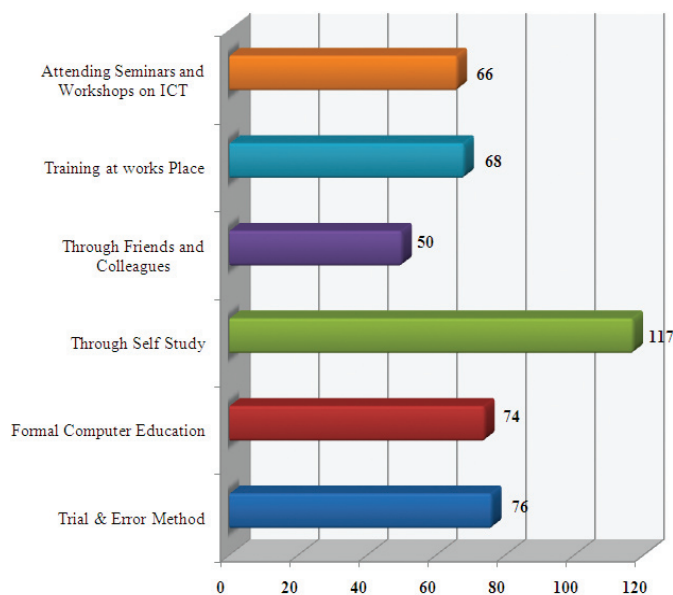

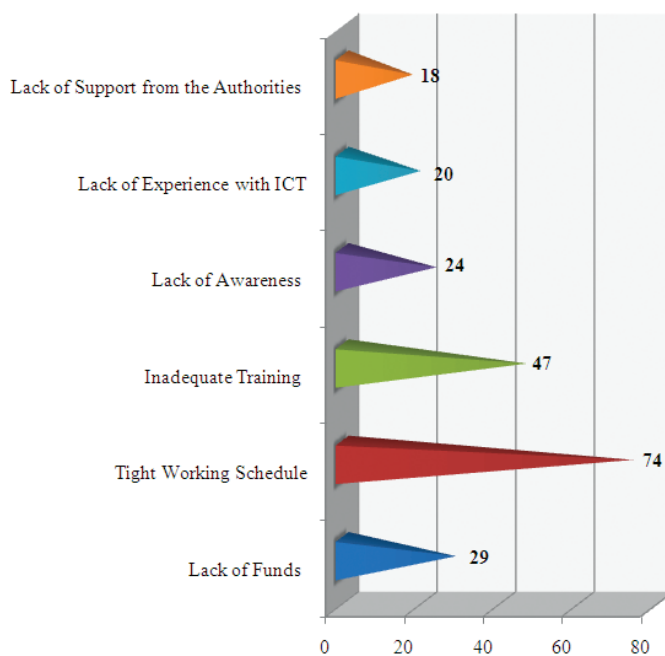**Figure 8.   Training methods of enhancing ICT literacy.**

Figure 9.   Hindrances faced in enhancing ICT literacy.

Inadequate training 47 (35.07 %), lack of funds 29 (21.64 %) and lack of awareness 24 (17.91 %) are the other constraints and obstacles in acquiring ICT skills. It can be inferred that majority of library professionals could not acquire the sufficient ICT skills due to their day-to-day busy working schedule and do not get opportunities to enhance their ICT skills and knowledge.

7.9   Suggestions for the Enhancement of ICT Literacy

To overcome the difficulties and problems faced by the library professionals in enhancing ICT literacy level, the suggestions were invited from the library professionals through an open ended question to get the real time feedback

for enhancing ICT literacy. The various responses received from the library professionals have been collated together and represented in the Fig. 10.

Figure 10 indicates that out of 134 library professionals, 118 (88.06 %) professionals suggested that in-house training programmes for staff development are the most effective ways for updating the ICT knowledge/skills, 103 (76.87 %) suggested that attending conferences, workshops in the relevant area and whereas 82 (61.19 %) feels that going for higher studies/formal courses can enhance the ICT knowledge/skills of professionals.
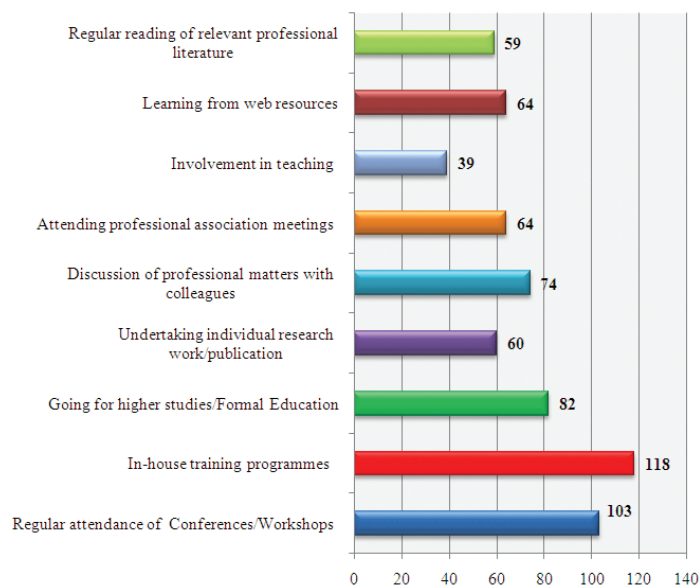

Figure 10. Suggestions for the enhancement of ICT literacy.

8. FINDINGS OF THE STUDY

- Majority of library professionals were well versed with the computing technology, storage devices, printing and scanning technology, audio visual technology and communication media technology, hence the literacy about these emerging ICT technologies was found high among majority of library professionals.
- Amongst all electronic resources E-journals was found most preferred e-resources among majority of library professionals, it may be because E-journals are becoming increasingly a valuable source of electronic information in university libraries, therefore majority of libraries procured E-journals through various consortia such as UGC INFONET, DELNET, INDEST etc as well as through individual subscription.
- Majority of library professionals were found well literate of Web OPAC, Reprographic Service, CD-ROM service and CAS. Since these services are provided by them on a regular basis to the users, whereas literacy of bulletin board service, e-query service and translation service was found low among library professionals due to lack of knowledge and expertise to use these ICT based services.
- Majority of library professionals were actively participative in online discussion groups and social media and with this participation the professionals keep themselves update with the current developments in

libraries and information centres, but still few library professionals are lacking with the literacy of blogging, Listserv, RSS feeds and Social book marking.

- Majority of library professionals are found well literate of SOUL and LIBSYS software as it has been installed in their respective library for automating library activities and services and all library professionals are using the same to carry out various library activities. Few library professionals felt that they do have sound knowledge of SLIM, KOHA, SOUL and CDS/ISIS as many organisations are conducting training programmes for these software's and possibly the library staff must have undergone the same.
- Literacy of institutional repository and digital library software's was found low among library professionals. One of the major reason for lack of literacy might be that the few library professionals usually look after the digital library section even though majority of them might have flexibility to access the digital library software.
- Majority of library professionals acquire the ICT skills and Knowledge themselves through self study and trial and error method.
- Majority of library professionals could not acquire the sufficient ICT skills due to their day to day busy working schedule and do not get opportunities to enhance their ICT skills and knowledge. Library professionals lack the proper ICT training at work place.

9. SUGGESTIONS

Based on the findings of the study the suggestions have been made to viz. library professionals and library authority.

9.1 For Library Professionals

- To cope up with the technological changes adopted by the libraries, library professionals needs to uplift their literacy of various ICT-based tools and technology by undergoing various computer courses.
- Library professionals entail to make use of E-thesis most regularly and frequently in order to increase their literacy of using E-thesis and E-publisher.
- Library professionals needs to increase their literacy of various ICT based services such as bulletin board service, e-query service and translation service, etc. by adopting the practical knowledge of these services or needs to visit other libraries which are providing these ICT-based services in order to provide these services to their users more effectively and efficiently.
- Library professionals need to uplift their literacy of using various online discussion groups and social media technology by attending various training programme and short-term courses on web-based technology and social media technology to keep themselves updated, to interact professionally with the groups of diverse people and to market their library services among social media users.
- To enhance the literacy of library professionals about open source automation software, university libraries needs to arrange in-house training and orientation programmes on various open source automation software or needs to send

their library professionals to attend the various training and orientation programs, workshops on various open source automation software.

• Library professionals need to attend various workshops, seminars, conferences and training programmes on digital library and institutional repository to uplift their literacy towards the digital library and institutional repository.

9.2 For Library Authority

• Library authority should take an initiative and organise in-house training programmes, workshops, seminars, conferences at workplace more frequently and needs to encourage their library professionals to attend the training programmes on various ICT aspects conducted by other institutions/organisations to enhance the ICT literacy level.

• Library authorities needs to acknowledge the benefits of ICT in libraries and always strive to raise the level of ICT literacy among the library professionals by organising in-house ICT training programmes, workshops, Seminars and conferences on regular intervals to enhance the ICT literacy of library professionals and facilitate the effective utilisation of ICT-based tools, resources and services by library professionals.

10. CONCLUSIONS

Based on the present study, it can be sum up here that, majority of library professionals working in university libraries in Maharashtra are ICT literate, which is required to perform day to day library work, but still few library professionals have lack the literacy of ICT-based tools, resources and services. In spite of having good literacy level, the library professionals need to enhance their literacy in various open source library automation software, digital library software and institutional repository software, etc.

The existing ICT training and orientation provided by the university libraries in Maharashtra is not fully sufficient to create ICT literacy among the library professionals. Library professionals need to attend various workshops, seminars, conferences and training programmes on ICT more frequently in order to enhance their level of ICT literacy. Library professionals need to undergo various short-term computer courses in order to increase their literacy and confident in performing ICT related works more effectively and efficiently.

The university library authorities needs to acknowledge the benefits of ICT in libraries and always strive to raise the level of ICT literacy among the library professionals by organizing in-house ICT training and orientation programmes, workshops, Seminars and conferences on regular intervals in order to enhance the ICT literacy of library professionals and facilitate the effective utilisation of ICT-based tools, resources and services by library professionals.

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The present study is the outcome of his PhD topic carried out on ICT Literacy under the supervision of Dr Sadanand Bansode.