ICT Literacy of Library Professionals working in Jayakar Library, Savitribai Phule Pune University, Pune: A study

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ABSTRACT
The purpose of the study is to find out the Information and Communication Technology (ICT) literacy among the library professionals working in Jayakar Library, Savitribai Phule Pune University. Attempt was made to reveal the professionals literacy towards handling of ICT tools, ICT based resources, ICT based services etc. A structured questionnaire based survey was conducted to analyze the ICT literacy among library professionals working in Jayakar Library. The paper gives a representative overview of the ICT literacy among library professionals and it helps to know the need of training and orientation in ICT based resources, services and tools to the library professionals working in Jayakar Library. The paper suggests that the ICT literacy among library professionals working in library is satisfied but still many library professionals need training and orientation in ICT based resources, services, and tools.

Key Terms: Information and Communication Technology (ICT), Literacy, ICT Literacy, ICT skills, University Library, Library Professionals.

INTRODUCTION
Information and communication technology has drastically changed the entire activities of library and information field. Now a day libraries are deeply engaged in modernizing operations and activities to provide fast, integrated, interactive and comprehensive services to the user community. The developments in field of information and communication technology have posed many challenges to LIS professionals. It has become inevitable for the LIS professionals to change their attitudes and approaches, be up to date with the latest development, adopt new skills and techniques for better and sophisticate services to user community.

In order to cope up with the information challenges in 21st century and to meet the changing needs and requirements of the users more effectively and efficiently, the library and Information professionals must possess adequate ICT skills to manage the modern libraries and to provide better library services to users, more specifically in the academic libraries. Professionals with right ICT skills and expertise will have plenty opportunities in future and will be crucial to the management of technology intensive libraries in order to meet the ever changing demand of users.

Generally university libraries are positive towards library automation and application of ICT in library operations and services. However, no library can render ICT-enabled services without qualified and competent library professionals. ICT literacy is very essential for being productive information professional in a knowledge driven society.

About Library
The Jaykar Library of Savitribai Phule Pune University, Pune was established in January 1950, named in the honor of the first Vice-
Chancellor Dr. M.R. Jayakar. Library is a part of Universal Digital Library program since 2002. The library is the first library in the country to implement RFID technology. The Jayakar library is very positive towards application of ICT in library operations and automated the library services and activities using LIBSYS software.

Information and Communication Technology (ICT) Literacy

Information and Communication Technology Literacy (ICTL) came into view in 2002 and comprises literacy of both Information technology and communication technology. In an academic or research Institution, it increases the skills of teachers, students and librarians for problem solving and appropriate decision making. Information literacy can be understood as the overarching term to describe the skills needed to use information and communication technologies (ICTs) effectively, and to access appropriate digital information resources.

ICT literacy is still new and difficult to define because of the constantly changing nature. ICT literacy is defined in different ways in the literature, but the most comprehensive definitions of ICT literacy given by International ICT literacy Panel as follows:

"ICT literacy is a ability to use digital technology, communications tools, and/or network to access, manage, integrate, evaluate and create information in order to function in a knowledge society."

In general ICT literacy means having the required knowledge to use the ICT in the professional life. This covers the use of ICT as encountered in the daily activities of their professional life. The Specific areas where professionals become literate include basic concepts of ICT, using computers and managing files, word processing, spreadsheets, databases, creating presentations, finding information and communicating with computers, social and ethical issues, and library routine activities using ICT.

Statement of Problem

The application of ICT is posing a particular challenge to library professionals in developing countries. Despite the high penetration rate of ICT and exponential growth of Internet, many library professionals in India lack the ICT literacy skills. There is a growing concern over library professionals' insufficient level of ICT literacy. The ICT literacy skills are necessary for library professionals in the emerging knowledge driven society which is continuously changing.

The present study attempts to investigate the ICT literacy among the library professionals and analyze the need of training and orientation so as to become more ICT literate.

OBJECTIVES

- To judge the literacy of the library professionals.
- To find out the awareness of the staff towards various ICT based tools, resources and services.
- To take a review of their confidence level in handling various ICT tasks.
- To find out the methods and means by which the library professionals acquire ICT skills.
- To find out the problems if any faced by the professionals while acquiring ICT skills.
- To find out whether the professionals are in need of training and orientation so as to become more ICT literate.

SCOPE & METHODOLOGY

The study is limited to the Jayakar library attached to the Savitribai Phule Pune University, Pune and considers the library professionals which include Librarian, Deputy Librarians, Assistant Librarians and Technical Assistants working in Jayakar library.

The quantitative research methodology was used for the study. A structured questionnaire based survey was conducted. The study population comprised of 22 library professionals working in Jayakar Library. The library professionals were classified according to their designation into four categories: Librarian, Deputy Librarians, Assistant Librarians and Technical Assistants. The structured questionnaire was designed and distributed among these library professionals. The data collected through the questionnaires were converted into machine readable form and imported into the Statistical Package for the Social Sciences (SPSS).

DATA ANALYSIS

A survey was conducted to analyze the ICT literacy among library professionals. Study populations of 22 library professionals were surveyed under study to assess the ICT literacy among the library professionals. A detailed analysis of the data and its interpretation is presented below in the form of tables and graphs & figures.

- Designation Wise Response Rate of the Sample

Out of 22 library professionals, all 22 (100%) library professionals have responded to the research study.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Numbers</th>
<th>Questionnaires</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Librarian</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Deputy Librarian</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Assistant Librarian</td>
<td>7</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>Technical Assistant</td>
<td>13</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>22</td>
<td>100</td>
</tr>
</tbody>
</table>

The data collected and tabulated in table 1 shows the designation wise response of library professionals. All the library professionals working in the Jayakar library responded to the survey i.e. 100% response was received. These 22(100 %) responses become the base for the further analysis.

- Computer Education Possessed by the Library Professionals

In order to cope with the information challenges in 21st century and to meet the ever-changing demand and rising needs of the users, it is necessary that the library professionals should possess certain type of computer education to prove own self adventitious in tendering ICT based services in the library. To know the computer literacy of library professionals, question was asked to library professionals to indicate whether they possessed any type of computer education.
The data collected and tabulated in fig. 1 depicts that maximum library professionals 14 (63.63%) possessed certain type of computer education but still many library professionals 8 (36.36%) need to take formal or informal computer education to cope up with pace of information explosion in the Information and Communication Technology (ICT) era.

### Literacy of ICT based Resources/Services/Tools

Library professionals today need to acquire knowledge and skills in information and communication technology (ICT) as the resources and services of most of the libraries are now centering on information and communication technology. Also as a part of modern librarianship, it is vital for every library professionals to be well versed with ICT applications to cope up with the increasing information demands of the clients. Hence in order to investigate the literacy of ICT based resources, services and tools, the library professionals were asked to indicate the current literacy of ICT based resources, services and tools and the responses received are described in the following tables.

### Literacy of ICT based Tools and Devices

In order to cope with the information challenges in 21st century and to meet the ever-changing demand and rising needs of the users, library professionals should get acquainted with the use of ICT based tools and devices to provide ICT based services in the library. Hence to investigate the literacy of ICT based tools and devices among library professional the question was asked to indicate the current literacy of ICT based tools and devices such as computer technology, storage devices, printing and scanning technology, audio visual technology and communication media technology among library professionals.

#### Table 2: Literacy of ICT based Tools and Devices

<table>
<thead>
<tr>
<th>ICT based Tools and Devices</th>
<th>Total</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literacy of Computer Technology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desktop Computer</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>Laptop</td>
<td>13</td>
<td>59.09</td>
</tr>
<tr>
<td>Mobile</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>Smart Phone</td>
<td>9</td>
<td>40.90</td>
</tr>
<tr>
<td>Web Camera</td>
<td>11</td>
<td>50</td>
</tr>
<tr>
<td><strong>Literacy of Storage Devices</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB Modem</td>
<td>10</td>
<td>45.45</td>
</tr>
<tr>
<td>Pen Drive</td>
<td>21</td>
<td>95.45</td>
</tr>
<tr>
<td>CD/DVD</td>
<td>20</td>
<td>90.90</td>
</tr>
<tr>
<td>Portable Hard Disk</td>
<td>10</td>
<td>45.45</td>
</tr>
<tr>
<td>SD Card</td>
<td>5</td>
<td>22.72</td>
</tr>
<tr>
<td><strong>Literacy of Printing and Scanning Technology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser Printer</td>
<td>19</td>
<td>86.36</td>
</tr>
<tr>
<td>Barcode Printer</td>
<td>10</td>
<td>45.45</td>
</tr>
</tbody>
</table>

Data collected and tabulated in table 2 shows the literacy of ICT based tools and devices among the library professionals. It could be clearly seen that all 22 library professionals i.e. 100% professional have the literacy in using Desktop Computer and Mobile phones. Since desktop computers have become an essential part of their daily work and mobiles as an essential device for communication their literacy is obvious. One could also find majority of the library professional literate in using printing and scanning technology, audio visual technology and also some of the communication media technology. Whereas when it comes to the computer technology such as smart phones; printing and scanning technology such as barcode reader and e-book reader; communication media technology such as extranet, voice mail teleconferencing, Wi-Fi technology and Bluetooth technology, it is not satisfactory. It can be extracted here that majority of library professionals were well versed with the computer 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.

### Literacy of Electronic Resources and Social Media

![Fig. 2: Literacy of Electronic Resources and Social Media](image-url)

![Fig. 1: Computer Education Possessed](image-url)
The data collected and tabulated in fig. 2 clearly indicates that e-books and e-journals stood as the backbone of the e-collection and ranked top as the 19 (86.36%) library professionals literate of e-books, followed by 17 (77.27%) library professionals literate of e-journals and e-newspapers, 15 (68.18%) literate of e-database, 14 (63.63%) literate of e-magazines and e-thesis and only 12 (54.54%) literate of e-publisher. It can be diagnosed that maximum library professionals are well literate of different electronic resources. In regard to online discussion groups and social media highest 19 (86.36%) library professionals are literate of Email/Instant Messaging/Chat followed by 14 (63.63%) Audio/video sharing/webcasting (e.g. Flicker, Skype, You Tube etc.) and Social networking (e.g. Orkut, Facebook, Whatsapp etc.), 13 (59.09%) literate of Wikies, 12 (54.54%) Discussion Groups, 11 (50%) RSS Feeds and only 9 (40.90%) literate of Listserv, 7 (31.81%) CMS & 2 (9.09%) literate of Social book marketing. It can accumulate that library professionals actively participate in online discussion groups and social media and through this participation they keep themselves update with the new developments in libraries.

- **Literacy of ICT based Library Services**

![Fig. 3: Literacy of ICT based Library services](image)

Fig. 3: Literacy of ICT based Library services

It is evident from the data collected and tabulated in fig. 3 that out of 22 respondents highest 20 (90.90%) of library professionals are literate of Internet Service followed by 19 (86.36%) literates of Web OPAC, 17 (77.27%) CAS, 16 (72.72%) Reprographic Service, 13 (59.09%) library professionals literate of CD-ROM service. It can be summed up that, maximum library professionals are literates of Internet Service, Web OPAC, Reprographic Service, CD-ROM service, Digital Library and archives services as they use these services as a part of their day to day working schedule whereas other services like Indexing Services, Abstracting Services, SDI, Bibliographic Services and Institutional Repository etc. are being preferred for research purpose hence the literacy of these services is low among library professionals as compared to other services.

- **Literacy of Software**

Since all the libraries are automating their functions and are going for the development of institutional repository and digital libraries it is necessary for the library professionals that they must be well versed with the different software’s used for automating library and for developing institutional repository & digital library etc. Sufficient knowledge of different software’s helps professional to work and generate ICT based information services effectively when working in an automated or digital library environment. The literacy of different types of software among the professionals has been summarized in the following sections:

- **Library Automation Software**

To reveal which kind of Library Automation Software are being more preferred by library professionals to automate the library services and activities, the library professionals were asked to indicate their current literacy of different library Automation Software.

![Fig. 4: Literacy of Library Automation Software](image)

Fig. 4: Literacy of Library Automation Software

The data collected and presented in the fig. 4 shows that maximum 22 (100%) library professionals are literates of LIBSYS automation software, followed by 4 (18.18%) literates of KOHA, 3 (13.63%) literates of SOUL and CDS/ISIS, 2 (9.09%) literate of SLIM and NEWGENLIB whereas only 1 (4.54%) literates of E-Granthalaya, Winisis, Libsuit, Evergreen and Easy Lib library automation software. It can be extracted that maximum library professionals are literates of LIBSYS software as it has been installed in the Jayakar library for automating library services and activities.

- **Literacy of Institutional Repository & Digital Library Software**

Greenstone, Dspace, E-print and Fedora are mostly used for developing the institutional repository and Digital library. To assess the literacy and awareness of different software’s used for developing Institutional repository and Digital library, hence the professionals were asked to indicate their current literacy of these software’s and the responses received is depicted in fig. 5.

![Fig. 5: Literacy of Digital Library & Institutional Repository Software](image)

Fig. 5: Literacy of Digital Library & Institutional Repository Software

The data collected and presented in the Fig. 5 shows that, out of 22 respondents majority 12 (54.54%) library professionals were found literate of D-Space, 5 (22.72%) were literate of Greenstone, 2 (9.09%) were found to be literate of E-print and only 1 (4.54%) library professional was found to be literate of Fedora software. It can be stated here that the literacy of institutional repository and digital library software’s was found low among library professionals. One of the reasons for not having all the staff literate might me that the platform for digital library is made
The data collected and presented in the fig. 6 reveals that maximum 22 (100%) library professionals preferred Google search engines followed by 17 (77.27%) preferred Yahoo, 6 (27.27%) use Rediff, 5 (22.72%) preferred MSN and only 4 (18.18%) preferred other search engines i.e. Scirus and Khoj search engine. It could be clearly seen from the above discussion that maximum library professionals are very much literate of different search engines. Google is the most preferred search engine among all library professionals.

- Literacy of Search Engines

The data collected and presented in the fig. 6 reveals that maximum 22 (100%) library professionals preferred Google search engines followed by 17 (77.27%) preferred Yahoo, 6 (27.27%) use Rediff, 5 (22.72%) preferred MSN and only 4 (18.18%) preferred other search engines i.e. Scirus and Khoj search engine. It could be clearly seen from the above discussion that maximum library professionals are very much literate of different search engines. Google is the most preferred search engine among all library professionals.

- Literacy of Search Techniques

To get acquainted with the awareness of different advance search techniques among library professionals, the library professionals were asked to indicate their current literacy of different advanced search techniques.

The data collected and presented in the fig. 7 denotes that maximum 17 (77.27%) of library professionals are aware of Boolean Operator Searching followed by 14 (63.63%) aware of Keyword Searching, 11 (50%) aware of Phrase searching. It can be stated that maximum library professionals are literate and aware of basic search techniques i.e. Boolean Operator, Keyword Searching and Phrase searching, whereas the literacy of other advance search techniques like truncation, field searching, wildcard searching, proximity searching is very low among library professionals.

- Means and Methods of Acquiring ICT Skills

Library professionals use different means and methods for acquiring ICT Skills and knowledge, these preferences should be considered in the ICT training. The library professionals were asked to indicate which means and methods are being acquired by library professionals to update the ICT skills and knowledge.

The data has been collected and presented in the fig. 8 reveals as high as 20 (90.90%) responses indicate that the primary method of acquiring ICT skills by library professionals is Self-Study. It is followed by other methods such as trial and error method and formal education and training 17 (77.27%). It can be diagnosed that the maximum library professionals acquire the ICT skills and Knowledge themselves through self-study and trial and error method. The library authority should take initiative and organize in-house workshops, Seminars, Conferences and ICT trainings at workplace more frequently to increase the ICT skills of library professionals.

- Constraints and Obstacles in Acquiring ICT Skills

To get acquainted with the constraints and obstacles faced by library professionals in acquiring ICT skills, the library professionals were asked to indicate the constraints and obstacles faced by them in acquiring ICT skills.

The data depicted in fig. 9 shows that the main constraint in acquiring ICT skills by LIS professionals was tight working schedule as 14 (63.63%) respondents out of 22 have responded to this; followed by 6 (27.27%) for Inadequate training, lack of experience with ICT and Lack of awareness was stated by 5 (22.72%) as the main obstacle in acquiring ICT skills. It can be extracted here that majority of library professionals do not get opportunities to enhance their ICT skills and knowledge due to their day to day busy working schedule and lack of proper ICT training at workplace. Encouragement by the library authority and deputation to attend seminars, workshops, conferences and training programmes on ICT based resources, services and tools can be useful in enhancing ICT literacy.

- Need for Training and Orientation

To know the Training and Orientation Needs among library professionals they were asked to indicate their Training or Orientation Needs in ICT based resources, services and tools.
The data collected and presented in the fig. 10 indicates that the highest 20 (90.90%) of library professionals responded that they need training and orientation in use of ICT based resources, services and tools, whereas only 2 (9.09%) library professionals responded that they do not need any training in use of ICT based resources, services and tools. It clearly shows that maximum library professionals need training and orientation in use of ICT based resources, services and tools. The library should organize in-house workshops, Seminars, Conferences and ICT training at workplace more frequently to enhance ICT skills of library professionals.

Training and Orientation Area

To get acquainted with the training and orientation area in which library professionals need training and orientation, the library professionals were asked to indicate the area in which library professionals need training and orientation.

The data collected and tabulated in fig. 11 clearly shows that majority of 16 (72.72%) library professionals indicated the need for training in digital library and institutional repository software; followed by 13 (59.09%) indicated the need of training in ICT based Resources and Services, 12 (54.54%) in E-resources, 11 (50%) library professionals shows training need in library automation software. It can be stated that the existing ICT training and orientation provided by the Jayakar Library, Savitribai Phule Pune University, Pune are not fully sufficient to create ICT literacy among maximum library professionals.

Suggestions for Updating the ICT Knowledge & Skills

To know the suggestions for updating the ICT knowledge and skills from library professionals, the library professionals were asked to give the suggestions for updating the ICT knowledge and skills.

The data has been collected from library professionals and presented in the fig. 12, it indicates that out of 22 library professionals 19 (86.36%) library professionals suggest that regular attendance of relevant Conferences, Workshops and In-house training programmes for staff development are the most effective way for updating the ICT knowledge/skills, whereas 15 (68.18%) feels that going for higher studies/formal courses can enhance the ICT knowledge/skills of library professionals. It clearly suggests that regular attendance of relevant Conferences, Workshops and In-house training programmes are prerequisite for library professionals to enhance their ICT skills/ ICT knowledge and effective use of ICT based resources services and tools.

Findings

- Majority of library professionals working in Jayakar Library, Savitribai Phule Pune University, Pune are computer literate and possess the computer education and have sound knowledge of the computer technology.
- Maximum library professionals are well versed with the computer technology, storage devices, printing and scanning technology, audio visual technology and communication media technology hence the literacy about these emerging ICT technologies is high among maximum library professionals.
- Maximum library professionals are literates of different types of electronic resources and actively participate in Online Discussion Groups and Social Media.
- Most of library professionals are literates of ICT based services like Internet Service, Web OPAC, Reprographic Service, CD ROM service, Digital Library and archives services whereas other services like Indexing Services, Abstracting Services, SDI, Bibliographic Services and Institutional Repository etc. are being preferred for research purpose hence the literacy of these services is low among library professionals as compared to other services.
- Majority of library professionals are literates of LIBSYS software as it has been installed in the Jayakar library. Few library professionals are also aware and have sound knowledge of KOHA, SOUL and CDS/ISIS library automation software whereas the literacy of digital library and institutional repository software among library professionals is very low.
- Most of library professionals are literate of different search engines and Google is the most preferred search engine among all library professionals.
- Maximum library professionals are literate and aware of basic search techniques i.e. Boolean Operator, Keyword
Searching and Phrase searching, whereas the literacy of other advance search techniques like truncation, field searching, wildcard searching. Proximity searching is very low among library professionals.

- Self-Study and formal education/training are the main methods of acquiring ICT skills by maximum library professionals. The main constraints faced by library professionals in acquiring ICT skills is the tight working schedule of the libraries, followed by inadequate training and lack of experience with ICT.

- Maximum library professionals suggest that regular attendance of relevant Conferences/Workshops and In-house training programmes for staff development are most effective ways for updating the ICT knowledge and skills.

SUGGESTIONS

- Few library professionals need to take formal or informal computer education to cope up with pace of electronic information explosion in the Information and Communication Technology (ICT) era.

- Many library professionals need to actively participate in Online Discussion Groups and Social Media.

- The library professionals should take initiatives to increase the literacy of different digital library and institutional repository software and contribute towards the development of digital libraries and institutional repositories in the library.

- The existing ICT training and orientation provided by the Jayakar Library, Savitribai Phule Pune University, Pune is not fully sufficient to create ICT literacy among the library professionals.

- Library professionals need training and orientation in ICT based resources, services and tools as maximum library professionals have indicated the need for training in digital library and institutional repository software and ICT based Resources and Services.

CONCLUSION

The present study reveals that the ICT literacy among library professionals working in Jayakar Library is satisfactory and majority of library professionals have acquired considerable basic ICT skills to manage the library. But still there is enough scope to enhance their ICT skills and to implement these skills in libraries to provide new ICT based library services to users. In spite of good knowledge of ICT based library resources and services the library professionals must possess sufficient knowledge and skills of emerging ICT technology such as Content management system, Digital libraries and institutional repositories software, web based library services, Database Management Systems Social media technology and free digital reference services etc. The existing ICT training and orientation provided by the Jayakar Library, Savitribai Phule Pune University, Pune is not fully sufficient to create ICT literacy among the library professionals. Majority of the library professionals need training or orientation in ICT based library resources, services and tools.

REFERENCES


