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A Study of Skill Requirements and Perception of Knowledge Managers Towards Competencies in the New Normal

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Skills and competencies of employees are essential component of any profession. This study identified significant skills and described importance of various skills that LIS professionals require to work exponentially in modern library system. The structured questionnaire is devised to collect primary data to study the phenomena. The informants were LIS professionals working in libraries of 23 IITs (Indian Institutes of Technology) at different positions. The study surveyed views of respondents regarding level of requirement of various skills. Based upon data analysis, the paper described recommendations to enhance library scenario.

Keywords: *Competencies, Employability, Information Science, Library Science, LIS Professionals, Skills, Training, Qualifications*

1 INTRODUCTION

The study suggests employability skills of Knowledge Managers working in library and information centers. The usage of ICT (Information and Communication Technology), mobile devices and availability of internet service have redefined functions and responsibilities of LIS professionals. The LIS is the fastest growing profession and enormous opportunities are available in digital environment for its professionals. But the gap between library science education system of India and job requirements of academic, research and public library system is witnessed remarkably.

The visible growth of LIS Schools is observed during post-independence era in India. “The intake capacity of library science students and researchers

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have increased unimaginably which is producing a large amount of qualified but unskilled LIS professionals' hence there is a great concern of employability." (Singh & Shastri, 2021) The same condition of LIS education system is observed in other parts of the world. "Despite the enormous value of digital literacy abilities, the majority of Nigerian licensed librarians lack basic digital literacy skills due to the limited availability and use of digital resources in many Nigerian libraries." (Sambo, Imran, A. &Akanbi, M, 2022) So, the study attempts to indicate skill requirements of jobs for LIS professionals that lead towards better employability and enhance library and information service scenario. The study also aims to examine perception of LIS professionals working in libraries of IITs. The MoE (Ministry of Education, formerly MHRD) invested considerable amount to establish 23 IITs (till 2021) in India. Libraries of IITs adopted technologies to manage resources and provide valuable library and information services timely to patrons. The circulation of documents service, CAS, SDI, internet facility, cyber zone, ILL (Inter Library Loan), reprography service, reading room facility, book bank, remote access to use e-Resources, e-Alert service etc. are offered by libraries of IITs.

Figure 1 clearly indicates details of year of origin of libraries of IITs. It is observed that library of IIT Roorkee is the oldest, established first in the year of 1852, followed by library of IIT Dhanbad which is established in the year of 1926.

Whereas, the Central Library of IIT Kharagpur is set up in the year of 1851, followed by library of IIT Bombay that is established in the year of 1958.The information of year of origin of libraries of IITs is mentioned in chronological order in Figure No. 1.

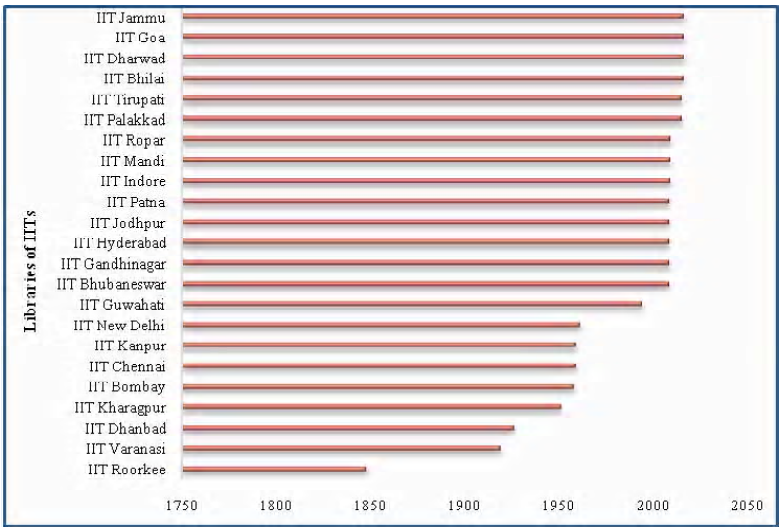

Figure: 1 - Name and Year of establishment of Libraries of IITs

The library of IIT Madras is established in 1959, followed by library of IIT New Delhi which is established in 1961. The libraries of IITs of Kanpur and Guwahati are set up in 1962 and 1994 respectively. There are 5 libraries of IITs namely IIT Bhubaneswar (BBS), IIT Gandhinagar (GN), IIT Hyderabad, IIT Jodhpur and IIT Patna are established in the year of 2008, followed by libraries of IITs of Indore and Mandi established in the year of 2009. Whereas, libraries of IITs of Ropar and BHU (Banaras Hindu University) are established in the year of 2010 and 2012 respectively. Moreover, the libraries of IITs of Palakkad, and Tirupati are established in the year of 2015, followed by libraries of IITs of Bhilai, Dharwad, and Jammu established in the year of 2016. The library of IIT Goa is established in the year of 2018.The libraries of IITs of Bhilai, BBS, Bombay, Chennai, Dhanbad, Dharwad, GN, Guwahati, Hyderabad, Indore, Jammu, Jodhpur, Kharagpur, Mandi, New Delhi, Palakkad, Patna, Tirupati and Varanasi are established since the inception of IITs. The IIT Roorkee is established in the year of 1848, IIT Kanpur is established in the year of 1959, IIT Ropar is established in the year of 2009 and IIT Goa is established in the year of 2016.

2 SIGNIFICANCE OF THE STUDY

The disruptive technologies, omnipresence of internet and emergence of mobile technology have revolutionalized library service scenario. The role of Knowledge Managers also becomes significant due to information overload in digital and print format. The usage of various advanced technologies started in libraries to manage e-Resources and to serve patrons efficiently. The usage of mobile technology and smartphones also increased among patrons and professionals to access and disseminate information. So, the need of skilled workforce arises to take benefits of technology and to provide effective library and information services to patrons. IITs in India are remarkable to provide quality education in field of S&T. The libraries of IITs adopted technologies to provide valuable resources and services to support teaching and research activities of patrons. Inadequate ICT skills is crucial concern regarding employability of LIS professionals in the market. So, the study highlights skill requirements of LIS professionals of recent times. The study also indicates awareness of skills among professionals and views of LIS professionals regarding level of skill requirements.

3 OBJECTIVES

- To identify skill-requirements of knowledge professionals in the digital era.
- To suggest areas of updation in LIS education system to meet with requirements of job markets.

- To survey views of informants regarding need of level of skills of LIS professionals.
- To identify skills which gain maximum attention of informants.
- To provide recommendations regarding skill-development to enhance library service scenario.

4 RESEARCH METHODOLOGIES

The literature review and observation methods are used to identify need of various skills in the context of libraries. The data collection of the study involves survey and descriptive research methods. The sample of the study consists of informants working in libraries of 23 IITs. The structured Questionnaire (in Google Form) is used to collect data from respondents. The questionnaires were distributed through e-mail and social media. The informants have classified level of skills using the Five-Point Likert Scale and filled questionnaires (100% response) received from library professionals of 23 IITs.

5 LITERATURE REVIEW

The authors reviewed literature about skills and competencies of LIS professionals and ICT from Google Scholar, ResearchGate, N-LIST journals and conference proceedings. The most relevant studies are referred by authors.

Varalakshmi (2006) studied expectations from LIS professionals in contemporary information environment. The authoress surveyed views of young and experienced LIS professionals about LIS courses. The study emphasizes that there should be connection between learning contents and how to apply contents. The responders informed that there is difference between ICT skills thought during formal education and application of ICT in library environment. The findings of the study suggest revision of syllabi, modification in admission criteria and respond to needs of information society.

Bhoi (2017) discussed roles and features of various technologies in the context of library. The study suggests that effective application of ICT would help to satisfy needs of library users and maximize utility of library resources. So, librarians should update themselves with emerging technologies.

Thanuskodi (2019) surveyed information literacy skills of LIS professionals of India. The study suggests that University Library and Dept. of LIS/ LIS schools should organise IL (Information Literacy) programme to educate LIS professionals. The study emphasizes upon updating ICT skills of LIS professionals and authorities should encourage them to attend workshops, seminars, and training programme at regular intervals.

Shoyel and Jalal (2019) pointed out several skills that librarians require

towork efficiently. The significance of technological skills, resource organization skills, information retrieval skills, negotiation skills, communication skills, OSS (Open-Source Software) and forecasting skills etc. are explained in the study. The authors suggested that librarians should work as an information engineer and must update their skills or develop skills to handle professional challenges.

Seena and Pillai surveyed ICT skills of LIS professionals of Kerala University Library. The study suggests that new model curriculum should be designed in the subject of information science integrating traditional knowledge and application of advanced technologies. The study recommended allocation of sufficient funds to develop ICT infrastructure, to acquire digital resources and to provide ICT based services in library.Singh, V. (2019) observed chasm between library science education and practice in Indian scenario. The study recommends to review existing curriculum of LIS and to include digital library skills to prepare efficient professionals.

6 SKILL AND COMPETENCY DEMANDS OF NEW NORMAL

The library science profession is highly influenced by emergence of ICT. The need of skilled workforce also arises due to information overload globally. The study shows that the libraries are transforming fast and becoming hi-tech, but the education imparted from LIS schools focus more upon traditional subjects rather than practical aspects. The skill-requirements of information society should be considered. The terms 'Skills' and 'Competencies' are used interchangeably, however 'Competency' is related with behaviour, attitude and knowledge that impact ability to work substantially to achieve success. Whereas, 'Skills' are developed through systematic education and training, applied to perform effectively.The table 1 indicates skills and area of application of specific skills in libraries.

Table 1: Required Skills and Area of Application in Library

Sr. No.	Skill and Competencies	Application of Skill and Competencies in Library
1.	Basic Knowledge of ComputerSystem	Use of MS Word, MS Excel, Word Processors, and MS PowerPoint
2.	Advance Knowledge of ComputerSystem	Use of Artificial Intelligence (AI), Web Tools, Metadata Management, Tasks of Social Media Coordinator and Troubleshooting
3.	Knowledge of Library AutomationSoftware	Automating House-Keeping Functions of Library, OPAC, Facilitate Document Retrieval and Library Collection Management
4.	Knowledge of Content ManagementSystem/Software	Initiate Library Website-Based Services, Promotion of Library Resources and Events, disseminate significant information, and to provide Online Services to Patrons
5.	Knowledge of InstitutionalRepository Software	To create Institutional Repository and online availability of Intellectual Works of institute provides scholarly communication platform
6.	Classification and CataloguingSkills	For organizing library documents systematically and creation of bibliographical records of documents, and updation of MARC records
7.	Knowledge of ERMS Tools	e- Resource management and handling utility statistics of e-Resources

8.	**Knowledge of Cloud Computing**	**Use of IaaS, PaaS and SaaS models of Cloud Computing Technology in Infrastructure and Services of Library Division**
9.	Knowledge ofe-Resources	e-Resource subscription management, solving problems related with e-Resource access, aware and assist users to utilize e-Resources
10.	Knowledge of RFID System	Circulation desk related works, management of book drop station and tags etc.
11.	Archival Management	Archival processing of documents in print and digital format, security, and preservation of restricted materials
12.	Knowledge of GIS Software	Management of map collection, creation of library map, organising information of location of documents, users and vendors or suppliers
13.	Ontology Development Skill	Create, disseminate, and reuse information across domain
14.	Content Preservation Skill	Preservation of digital records
15.	Documentation Skills	Recording and organizing relevant records of works and administrative documents accurately
16.	Communication Skill	Maintaining professional relationship with patrons and colleagues via effective verbal, formal and online communication
17.	Hardware-Installation Skill	Installation of input-output devices and communication devices, maintenance of ICT infrastructure

7 DISCUSSION

Table 2: Information of Respondents

Sr. No.	Designation	No. of Respondents	No. of Respondents(%)
1	Chief Librarian	01	5
2	Deputy Librarian	03	13
3	Assistant Librarian	04	17
4	Library Information Officer	04	17
5	Senior Library Information Assistant	06	26
6	Junior Superintendent/ Junior Library Information Assistant/ Junior Library Technician	03	13
7	Assistant Library Information Officer/ Library Information Assistant	02	9
Total		**23**	**100**

Table 2 indicates the designation and number of respondents. The highest no. of respondents i.e., 6 (26%) are working as 'Senior Library Information Assistant'. 'Whereas, 4 (17%) respondents are working at the Post of 'Assistant Librarian', again equal number of respondents i.e., 4 (17%) are working as 'Library Information Officer'. There are 3(13%) respondents working at the Post of 'Deputy Librarian' and again equal number of respondents i.e., 3 (13%) are working as 'Junior Superintendent/ Junior Library Information Assistant/ Junior Library Technician'. Whereas, 2 (9%) informants are working as 'Assistant Library Information Officer/ Library Information Assistant' and 1 (5%) informant is working at the Post of 'Chief Librarian'.

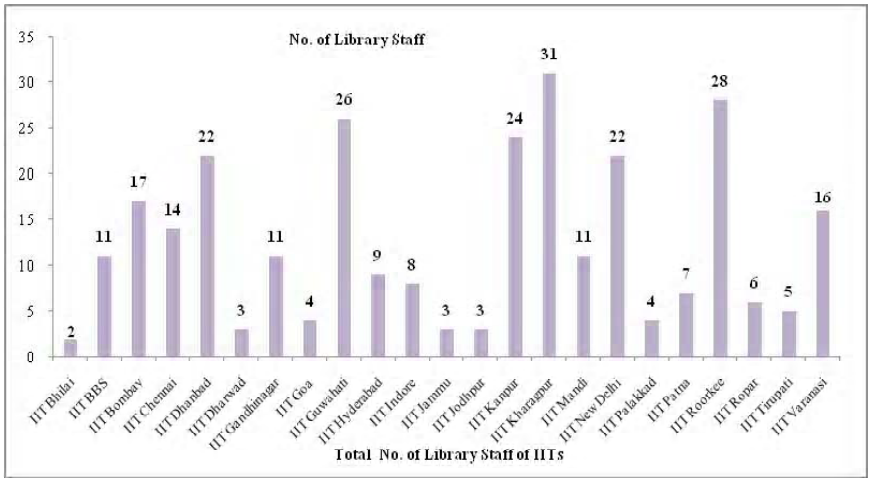

Figure: 2 Details of Total No. of Library Staff of IITs

Figure 2contains response of informants regarding total number of library staff of 23 libraries of IITs. About designation, the options offered to informants are Chief Librarian, Deputy Librarian, Assistant Librarian, IT administrator/ Scientific Officer, SLIA (Senior Library Information Assistant), JLIA (Junior Library Information Assistant), Junior Superintendent/ Junior Library Technician, ALIO/ LIA (Assistant Library Information Officer/Library Information Assistant), CLS(Clerical Staff), LT/LA (Library Trainee/ Apprentice), and AT(Library Attendant). The above table clearly indicates that library of IIT Kharagpur has the highest number of library staff i.e., 31, followed by IIT Roorkee having 28 staff members. The library of IIT Guwahati has 26 staff members followed by IIT Kanpur having 24 staff members. Whereas, libraries of IIT New Delhi and IIT Dhanbad have 22 staff members. The information of total number of library staff of other libraries of IITs is self-explanatory in Figure 2.

71 RESPONDENTS' VIEWS REGARDING LEVEL OF SKILL REQUIREMENTS

From Table No. 3 to 19 (displayed below) and from Figure No. 3 to 19 (displayed below) present views of 23 respondents' regarding level of skills required to work efficiently in libraries. There are 17 types of skills included in the Table 1 and responders ranked level of requirements of these skills to work in libraries. The Five-Point Likert Scale is used to rank views of informants about requirement of these skills.

Table:3 -Basic Knowledge of Computer System		
Sr. No.	**Response**	**Response (%)**
1	Highly Required	79
2	Required	13
3	Sometimes Required	4
4	Not Required	4
5	Undecided	0
Total		**100**

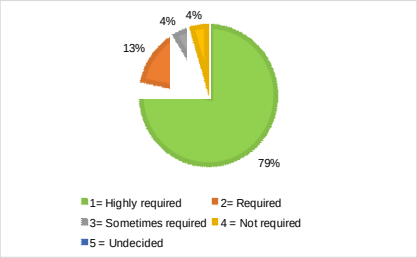

Figure 3:Basic Knowledge of Computer System

Table: 4 - Advance Knowledge of Computer System		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	52
2.	Required	35
3.	Sometimes Required	13
4.	Not Required	0
5.	Undecided	0
	Total	100

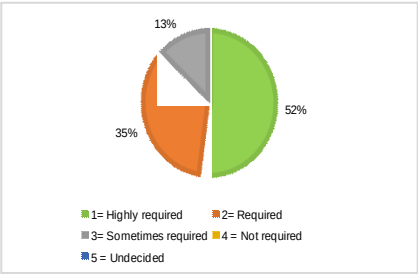

Figure 4:Advance Knowledge of Computer System

Table 4and Figure 4 indicate views of informants about‘Advance Knowledge of Computer System’. Themajority of informants i.e., 52% felt that it is ‘Highly Required’skill. Whereas, 35%of respondents have chosen this skill is ’Required’. There were 13%of respondents who chosen‘Sometimes Required’.

Table: 5 -Knowledge of Library Automation Software		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	61
2.	Required	31
3.	Sometimes Required	4
4.	Not Required	4
5.	Undecided	0
Total		**100**

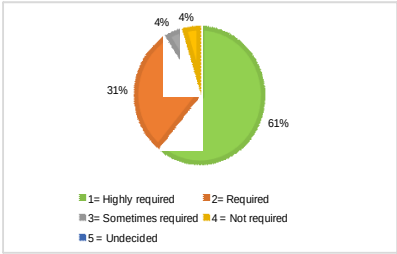

Figure 5: Knowledge of Library Automation Software

Table5and Figure 5indicateresponders’ views about requirement of ‘Knowledge of Library Automation Software’, the majority of informants i.e., 61% respondents selected it is ‘Highly Required’skill, while 31%of respondents felt it is‘Required’ to work efficiently in libraries. 4%respondentmentioned this skill is ‘Sometimes Required’ and again 4% respondent informed ‘Not Required’ about ‘Knowledge of Library Automation Software’.

Table: 6 -Knowledge of Content Management System		
Sr. No.	**Response**	**Response (%)**
1	Highly Required	52
2	Required	31
3	Sometimes Required	17
4	Not Required	0
5	Undecided	0
Total		**100**

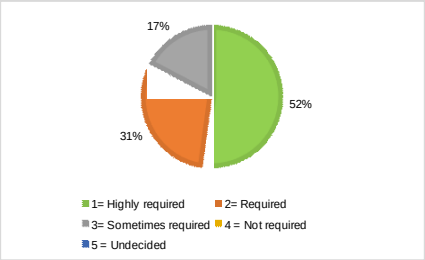

Figure 6:Knowledge of Content Management System

Table 6and Figure 6present opinions of informants regardingrequirement of 'Knowledge of Content Management System (CMS)' to work in library and information centers. The majority ofrespondents i.e., 52% felt it is 'Highly Required'skill, followed by 31% respondents who chosen 'Required'. There were17% of respondents informing knowledge of CMSis 'Sometimes Required'.

Table:7 -Knowledge of Institutional Repository Software

Sr. No.	Response	Response (%)
1.	Highly Required	61
2.	Required	26
3.	Sometimes Required	9
4.	Not Required	4
5.	Undecided	0
Total		**100**

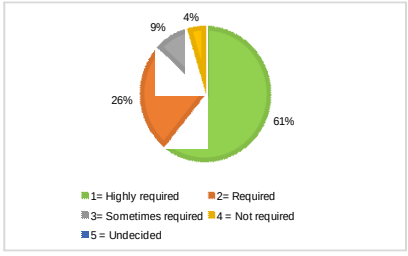

Figure 7:Knowledge of Institutional Repository Software

Table 7 and Figure 7presentopinions of informants about 'Knowledge of Institutional Repository Software'. Majority of informants i.e., 61% mentioned it is'Highly Required' skill to work efficiently in libraries. 4% respondent mentioned this skill is'Not Required'. The views of other informants are self-explanatory in Table 7 and Figure 7.

Table:8 -Classification and Cataloguing Skills		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	69
2.	Required	22
3.	Sometimes Required	0
4.	Not Required	9
5.	Undecided	0
Total		**100**

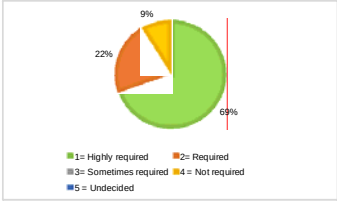

Figure 8Classification and Cataloguing Skills

Table 8and Figure 8representviews of informants about need of 'Classification and Cataloguing Skills'. According to thehighest number of respondents i.e., 69%, these skills are'Highly Required' to work in libraries effectively.Moreover, 22% of respondents mentioned these skills are 'Required'.Whereas,9% respondents surprisingly mentioned this skill is 'Not Required'.

Table: 9 - Knowledge of ERMS Tools		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	35
2.	Required	52
3.	Sometimes Required	13
4.	Not Required	0
5.	Undecided	0
Total		**100**

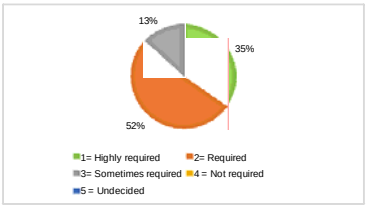

Figure 9 Knowledge of ERMS Tools

Above mentioned Table 9 and Figure 9representopinions of informants about 'Knowledge of ERMS Tools'. There are 35%of respondents felt that knowledge of these tools are'Highly Required' skill to work in modern libraries. According to majority of informants i.e., 52%mentioned it is'Required'skill. The views of other informants are self-explanatory in the above table and figure.

Table: 10 - Knowledge of Cloud Computing		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	22
2.	Required	56
3.	Sometimes Required	22
4.	Not Required	0
5.	Undecided	0
Total		**100**

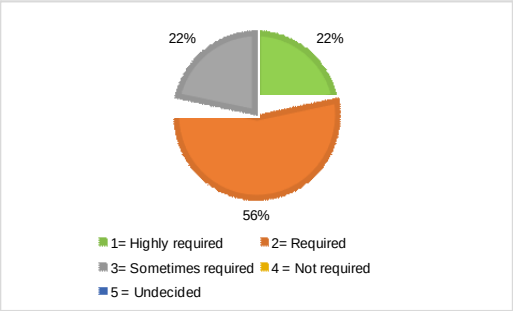

Figure 10:Knowledge of Cloud Computing

Table 10 and Figure 10indicateviews of informants aboutneed of 'Knowledge of Cloud Computing' to work in libraries.There are 22%of respondents felt that it is 'Highly Required', mostof the informants i.e., 56% felt it is'Required'to work effectively in libraries. Whereas,22% of respondents informed 'Sometimes Required'skill about 'Knowledge of Cloud Computing'.

Table: 11 - Knowledge of e-Resources		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	74
2.	Required	18
3.	Sometimes Required	4
4.	Not Required	4
5.	Undecided	0
Total		**100**

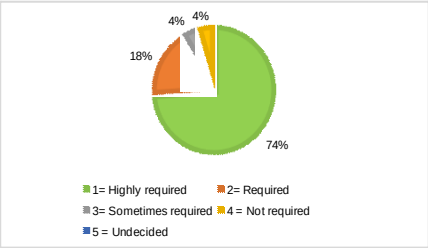

Figure 11Knowledge of e-Resources

Table 11 and Figure 11 exhibit views of informants about 'Knowledge of e-Resources' to work in libraries, majority ofrespondents i.e., 74%believed it is'Highly Required' for working exponentially in modern libraries. Whereas, 18% of respondents mentioned 'Knowledge of e-Resources' as'Required' skill for LIS professionals. The details of number of informants mentioned 'Sometimes Required' and 'Not Required' are self-explanatory in the above table and figure.

Table: 12 -Knowledge of RFID System

Sr. No.	Response	Response (%)
1.	Highly Required	48
2.	Required	39
3.	Sometimes Required	9
4.	Not Required	4
5.	Undecided	0
Total		**100**

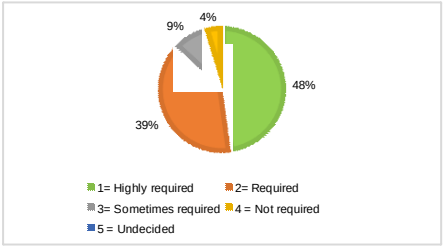

Figure 12Knowledge of RFID System

Table 12and Figure 12 exhibits opinions of informants regardingrequirement of 'Knowledge of RFID System' to work in libraries. There are48% of respondents believed it is 'Highly Required'.Moreover, 39% respondents believed it is 'Required'to work in the libraries of digital era.The details of informants who chosen 'Sometimes Required' and 'Not Required' are 9% and 4% respectively.

Table: 13 -Archival Management		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	40
2.	Required	52
3.	Sometimes Required	4
4.	Not Required	4
5.	Undecided	0
Total		**100**

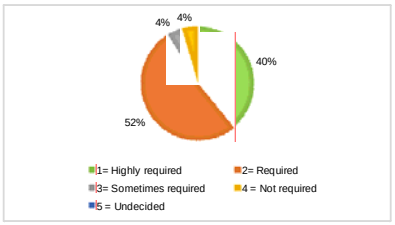

Figure 13Archival Management

In the above Table13 and Figure 13 views of informants about'Archival Management' is presented.There were 40% of respondents who felt it is 'Highly Required' skill for Knowledge Managers to work in libraries. Whereas,52% respondents believed it is 'Required' skill. The details of number of informants (in Percentage) who chosen'Sometimes Required' and 'Not Required' are described clearly in the Table 13 and Figure 13.

Table: 14 -Knowledge of GIS Software		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	13
2.	Required	57
3.	Sometimes Required	17
4.	Not Required	9
5.	Undecided	4
Total		**100**

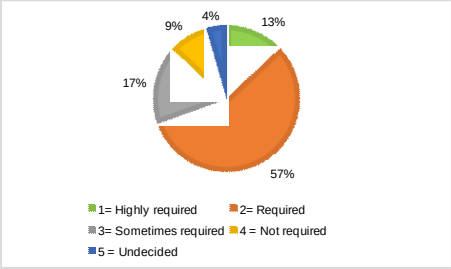

Figure 14 Knowledge of GIS Software

Table 14 and Figure 14 exhibit views of responders about requirement of‘Knowledge of GIS Software’ to work in libraries. There are 13% of respondents mentioned‘Highly Required’ about ‘Knowledge of GIS Software’, the highest i.e., 57% of respondents mentioned it is ‘Required’ skill, and 17% of respondents believed it is‘Sometimes Required’ skill. Whereas,9% of respondents described‘Not Required’ and 4% respondent remained ‘Undecided’ about GIS software.

Table:15 -Ontology Development Skills		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	26
2.	Required	48
3.	Sometimes Required	26
4.	Not Required	0
5.	Undecided	0
Total		**100**

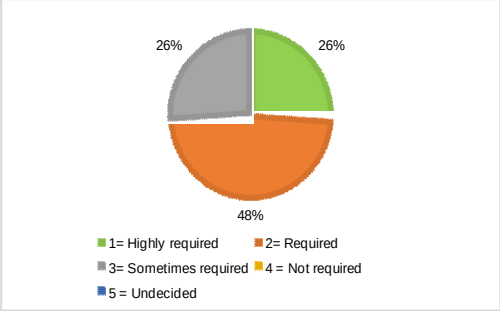

Figure 15 Ontology Development Skills

Table 15 and Figure 15 indicate that 26% of respondents mentioned‘Highly Required’ about ‘Ontology Development Skills’, 48% of respondents mentioned‘Required’, and 26% of respondentsinformed ‘Ontology Development Skills’ is ‘Sometimes Required’ to work in libraries.

Table:16 - Content Preservation Skills		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	39
2.	Required	57
3.	Sometimes Required	4
4.	Not Required	0
5.	Undecided	0
Total		**100**

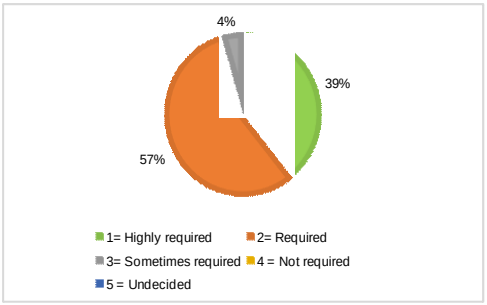

Figure 16Content Preservation Skills

Table 16is self-explanatory and describes views of informants aboutrequirement of 'Content Preservation Skills' in the context of libraries.According to Figure 16, 39% of respondents chosen'Highly Required' about 'Content Preservation Skills', 57% of respondents felt it is 'Required' skill, and 4% of respondent mentioned 'Sometimes Required' about 'Content Preservation Skills'.

Table: 17 -Documentation Skills

Sr. No.	Response	Response (%)
1.	Highly Required	66
2.	Required	26
3.	Sometimes Required	4
4.	Not Required	4
5.	Undecided	0
Total		**100**

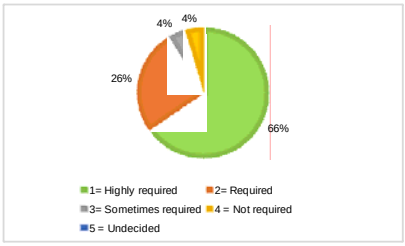

Figure 17Documentation Skills

Table 17 and Figure 17 exhibit views of responders about need of 'Documentation Skills' to workin libraries. There were 66% of respondents who felt'Documentation Skills' are 'Highly Required' to work in libraries. 26% of respondents believed it is 'Required' skill, and 4% of informants chosen'Sometimes Required' and again equal number of informants i.e., 4% mentioned'Not Required'as indicated clearly in the above figure.

Table:18 -Communication Skills		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	74
2.	Required	22
3.	Sometimes Required	0
4.	Not Required	4
5.	Undecided	0
Total		**100**

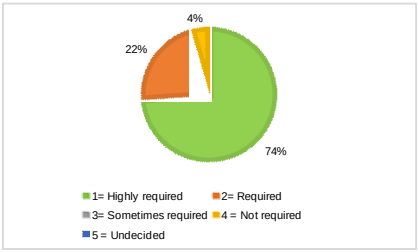

Figure 18 Communication Skills

In Table 18 and Figure 18views of respondents about need of‘Communication Skills’ in library service scenario is exhibited. According to the highest number of respondents i.e., 74% of respondents believed‘Communication Skills’ is ‘Highly Required’, and 22% of respondents mentioned ’Required’.Whereas,‘Communication Skills’ is ‘Not Required’ as informed by 4% respondent surprisingly.

Table: 19 - Knowledge of Hardware-Installation		
Sr. No.	**Response**	**Response (%)**
1.	Highly Required	39
2.	Required	44
3.	Sometimes Required	17
4.	Not Required	0
5.	Undecided	0
Total		**100**

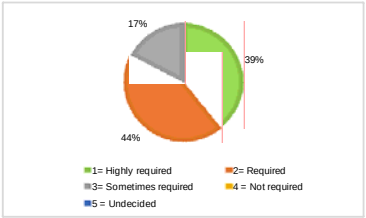

Figure 19Knowledge of Hardware-Installation

Table19and Figure 19 exhibit views of informants regarding skill requirements of 'Knowledge of Hardware-Installation'. The 39% of responders mentioned that it is'Highly Required' skill. Whereas,the highest i.e., 44% of respondents mentioned it is 'Required' skill, and 17% of respondentsmentioned 'Sometimes Required' about need of 'Knowledge of Hardware-Installation' to work in libraries.

Recommendations

- The inclusion of skill requirements of contemporary information society in LIS curriculum will lead towards better employability of LIS graduates.
- The authorities and LIS associations should allocate funds to organize trainings about usage of latest technologies in libraries for professionals.
- The Knowledge Managers must update their competencies by participating into workshops, STC, seminars etc. to take advantages of innovative technologies and provide information services effectively.

8 CONCLUSION

The study highlights competency-requirements of modern libraries of information society. The proliferation of information, omnipresence of internet and emergence of ICT influenced the library science profession.The majority of informants felt that 'Basic Knowledge of Computer System', 'Advance Knowledge of Computer System', 'Knowledge of Library Automation Software', 'Knowledge of Content Management System/ Software', 'Knowledge of Institutional Repository Software', 'Classification and Cataloguing Skills', 'Knowledge of e-Resources', 'Knowledge of RFID System', 'Communication Skills', and 'Documentation Skills' are "Highly Required" to work efficiently in the libraries of 21stcentury. The study suggests addition of skill requirements of libraries of contemporary society in LIS education system to address dynamic needs of digital library users.

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