

ICT Skills among the Departmental Library Professionals in Aligarh Muslim University, India

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ABSTRACT

The purpose of this study was to know the information and communication technology (ICT) skill among departmental library professionals in a range of Aligarh Muslim University (AMU). A questionnaire based survey was conducted among the professionals of different cadres of 6 faculties' libraries. Analysis of the data depicted that, on a self-assessment basis, the Professional Assistants are more ICT literates than the Semi Professional Assistants and Assistant Librarians because of they are very young in comparison of the high cadre professionals. It is revealed that most of the departmental library professionals have a good proficiency in using different ICT based applications. The use of ICT-based resources and services, library management software is higher among the Social Science Faculty's Library Professionals than the other faculties' professionals. The findings of the study reveal that, most of the professionals are positive look on professionals development activities and agree with the effectiveness of training programmes particularly, on-the-job training. Library professionals are not facing the problems in the effective use of general ICT applications. In-house training will be helpful to improve professionals job performance and effort to develop new services from what they had learned.

Keywords: computer, information and communication technology, departmental libraries, e-resources, India.

INTRODUCTION

Information and Communicatiuon Technology (ICT) has changed the universe in the field of communication world. Now a days ICT play an important role in every field of life. Without it the work has been becoming impossible day by day. Every day man is becoming to be dependent on the ICT. In the last few decades, information and communication technologies have provided society with a vast array of new communication capabilities. For example, people can interact in real-time with others in different corners of the world with the help of information technologies such as instant messaging, voice over IP (VoIP), and video-conferencing. Now a days to communicate with each other has become so easy, that

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we can communicate to a person sitting at a far distance in less time than a person sitting just next to our door. Any Social networking Site like Google plus, Facebook, Twitter, etc. allow users from all over the world to remain in contact and communicate on a regular basis. Information and communication technologies have created a "global village," in which people can communicate with others all over the world even if they are living to the next door. For this reason, ICT is often studied in the context of how modern communication technologies affect society.

“Information technology has been evolving rapidly during the last half of the 20th century, particularly since the 1960’s and 1970’s. The current era has acquired the name “information era” It has revolution the media and modes of computing, storing and communicating information. Man’s infinite capacity for invention and desire for discovery, exploration and research has led to rapid growth of technologies and there by information technology, Information explosion has created problems for proper processing and dissemination of information, which can only be solved, with the aid of this information technology” (Chidnandappa, and Dharnendra, 2006).

It is the responsibility of library faculties that they train their scholars to tackle problems related to the information and communication. It is also their responsibility that how they organize their library so that in future any ICT changes do not disturb library sources or any new ICT related queries may fit in the present scenario. ICT basically changes selection, assessing user needs, access, storage, and dissemination of information, as well as documents dissemination and facilitates libraries’ interconnectivity, and accelerated documents exchange in library world.

LITERATURE REVIEW

It is found that out of about 370 professional librarians, only 179 of them were ICT literate while the remaining 191 professional librarians were ICT non-literate (Adeyoyin, 2006). Resonances are to be found across the academic disciplines in terms of an ecological or holistic view of the person with ID as a user of a learning environment. This is what binds the multi-disciplinary perspective together (William, Bunning and Helen, 2007). The Social Science Faculty’s library professionals are more ICT literates than the Arts Faculty’s library professionals. The ICT literacy levels of the professionals are much influenced by the levels of ICT use in their seminar libraries. The author suggested to the librarian that they should provide state-of -the-art ICT skills including software, hardware, and e-resources with in full bloom Internet access (Mohd, and Mehtab, 2013). The younger professionals showed more interest in emerging technologies and ICT based services. But infrastructure facilities in University Libraries in Kerala are not enough to provide the library staff valuable experience in the emerging technologies and support professional development which in turn will help in providing enhanced technology based services to the users (Mathew, Ms and Baby, 2012). Employers seek ICT-literate workers, yet business schools might not be teaching these skills. Faculty should work closely with library staff, who traditionally have been the primary instructors of information literacy and ICT literacy skills, to develop course activities and assignments that

provide critical ICT literacy training (Ali and Katz, 2010). A well-designed information literacy program benefits the library and its staff, faculty, and students; librarians should play a leading role in the design and operation of programs (Chen and Lin, 2010). The use of ICT by the female respondents is somewhat higher than that of male respondents (Dhanavandan and Mani, 2008). A low level of automation because only two of the meteorological and weather stations in Nigeria are automated. The study also revealed that CLICOM software is very effective in weather information management (Efe and Adogbeji, 2006).

OBJECTIVES OF STUDY

- i. To ascertain how skillful and knowledgeable the professionals are in the use of ICT resources.
- ii. To judge the current use of ICT-based resources and services by the departmental library professionals of Aligarh Muslim University.
- iii. To find out the different activities of the library professionals related to ICT.
- iv. To evaluate the professionals development activities of library professionals in the departmental library.
- v. To conclude the problems faced by library professionals in the effective use of ICT applications.
- vi. To recommend the ideas to improve the ICT skills of departmental library professionals.

METHODOLOGY

A questionnaire was constructed to elicit the opinion regarding ICT skills. This questionnaire was distributed in more than 48 departments of Aligarh Muslim University (AMU) covering 7 faculties and 2 colleges of the university. The author of the present paper has personally handed over the questionnaires among staffs of the departmental libraries. Total numbers of questionnaires that have been distributed were 70 and 59 filled in questionnaires were returned back by the staff of these libraries. Subsequently the data was processed using simple arithmetic calculation. The Aligarh Muslim University (AMU) is one of the first purely residential educational institutions set up either by the government or the public in India. Over the years it gave rise to a new educated class of Indian Muslims who were active in the political system of the British Raj (amu, 2015). AMU is not just one of the oldest universities in India but also in Asian continent founded in 1877. Many departments are very old, even from the British time. The questionnaires distributed among departmental library professionals were as follows assistant librarians 7, professional assistants 18, semi professional assistants 34.

RESULT AND DISCUSSION

Result of every study is very important, because whole the study have its power or quality in the result. So it is necessary to discuss it. Following study's result elaborated and discusses as follows.

(i) Frequency to Accessing Computer

Computers were originally used by scientists for calculating numbers, and have gradually become useful in offices and industries. In recent times, simplified models that can be used by almost everybody have become common in schools and homes for accomplishing many varied tasks and applications (Madu 2000). Here an effort was done to know the regularity of computer use among the library professionals. It is revealed here that while in every profession computer abundance use is going on, library professionals are not using it regularly. The table-1 shows that most of the departmental library professionals daily access to computer is 84.74%, while 8.47% access to computer weekly and 1.69% use computer fortnightly as well as monthly. The departmental library professionals' access to computer daily may be attributed to the fact that they are trained and their departmental library is computerized. The library professionals' access rare, weekly, fortnightly and monthly may be due to non availability of computer in their library or at their respective homes. It is observed that due to increasing use of computer, it is access daily by the users to accomplished their routine work.

Table 1: Frequency to Access Computer

Frequency	No of Respondents (N=59)	Percentages
Daily	50	84.74
Weekly	05	08.47
Fortnightly	01	01.69
Month	01	01.69

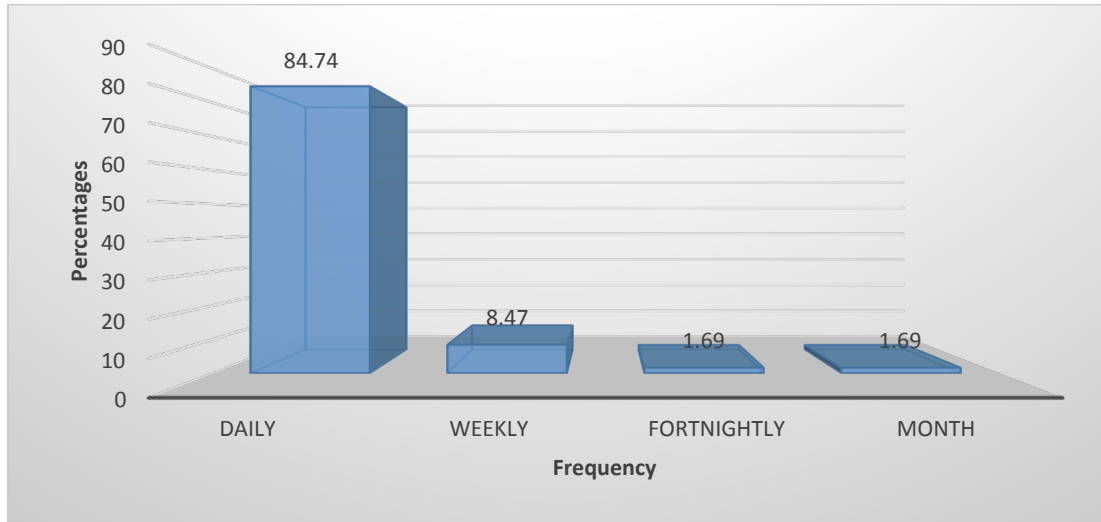


Fig:1 Frequency to Access Computer

(ii) Location of use of computer

It is important to know that whereabout computer is used by the professionals, if professionals are also using computer at their home then it may ascertain that they are more interested to fulfill the work using by computer. The table 2 depicts that almost 83.05% use computers in the department because most of the departments have computer facility for the staff. There are also high percentages of the professionals who are using computers at their home i.e. 42.37%. Very least numbers are using computers in cybercafé as well as in computer lab.

Table 2: Location to Access Computer

Location	No of Respondents (N=59)	Percentages
Home	25	42.37
Department	49	83.05
Cybercafé	01	01.69
Computer Lab	01	01.69

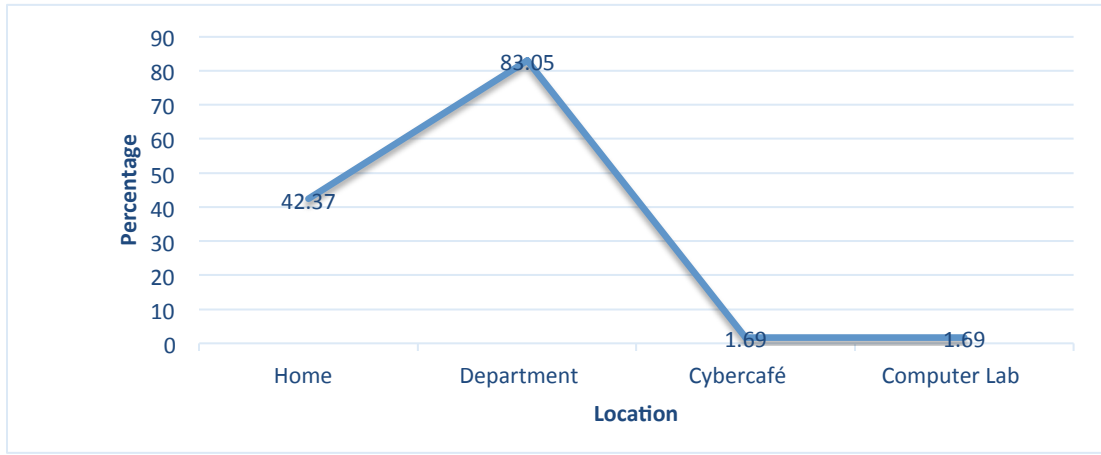


Fig: 2 Location to Access Computer

(iii) Training Courses Undertaken

The main purpose of asking this question was to know the percentage of the departmental library professionals who have taken training related to computer applications already. Table 3 indicates that most of the departmental library professionals have already taken training courses related to the computer applications. Only 27.11% have not been taking any training related to computer applications.

Table 3: Training Courses Undertaken

Response	No of Respondents (N=59)	Percentages
Yes	43	72.88
No	16	27.11

(iv) ICT Related Training Courses Undertaken

The departmental library professionals were questioned to point out the nature of computer training course gets hand on by them. The data in table 4 reveals that mostly professionals possessed Short term as well as DCA training course i.e. 30.50% and 25.42%. While PGDCA and CCA were possessed by only 6.77%. 13.55% of professionals are those who have short term training course, while very nominal i.e. only 1 professional possessed informal training course. Overall it may be said that library staff is not well trained in ICT applications. According to Iwhiwhu and Eyekpegaha (2009) the library staff are intellectually handicapped when it comes to full integration of information and communication technologies and digitization of library operations.

Table 4: ICT Related Training Courses Undertaken

Courses	No of Respondents (N=59)	Percentages
PGDCA	04	06.77
DCA	15	25.42
CCA	04	06.77
Informal	01	01.69
Short term course	18	30.50
No formal course	08	13.55

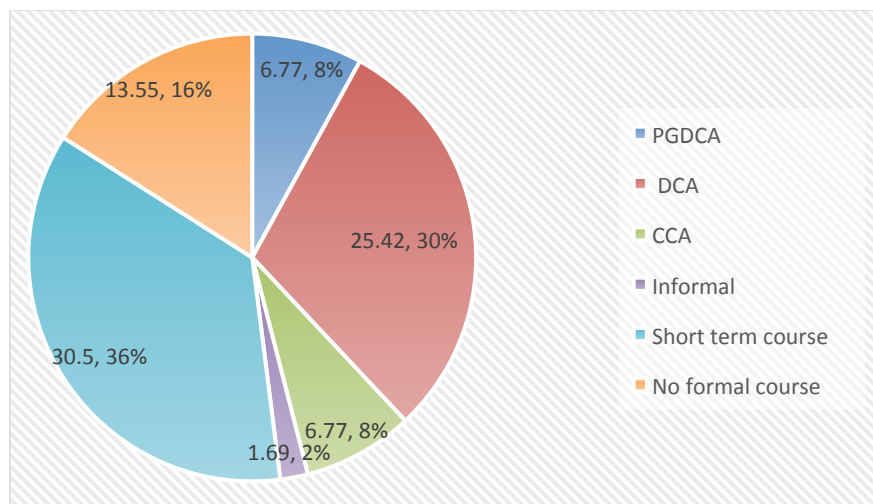


Fig: 3 ICT Related Training Courses Undertaken

(v) Purpose of Using Internet

Table 5 shows that 86.44% professionals had keen interest in searching required information by surfing internet in comparison to the professionals who prefer to use internet for e-mail service i.e. 35.59%. A sizeable percentage of the professionals 15.25% also acknowledged that they are surfing on internet for Communication like chatting, video conference, tweets etc. A very small number of professionals use internet only for entertainment. Therefore, it may feature that most of the professionals are engaged in searching required information. It may be reasoned out that professionals have chaotic schedule and they have not much time for other activities.

Table 5: Purpose of Using Internet

Purpose of Using Internet	No of Respondents (N=59)	Percentage
Communication like chatting, video conference, tweets	09	15.25
Searching Required information	51	86.44
Entertainment	07	11.86
E- mail	21	35.59

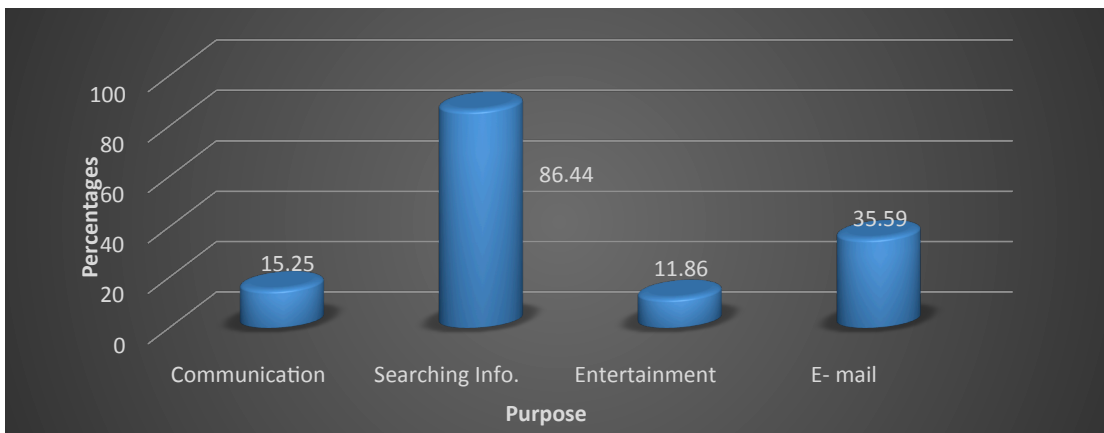


Fig: 4 Purpose of Using Internet

(vi) Search Engines Used

The Internet is the interconnection network of the web pages which can be surfed through different search engines like, Google, MSN, Yahoo, Bing etc. They are called Search Engines. To ascertain that which search engine is mostly used by the library professionals of AMU, respondents were asked to mention their choice. Table 6 shows that Google.com is the leading search engine of the library professionals with 91.52%, followed by yahoo with 25.42%. Other search engines are also nominally used by the respondents as Rediff 8.47%, Bing 1.69%.

Table 6: Favorite Search Engines

Search Engine	No of Respondents (N=59)	Percentages
Google	54	91.52
Yahoo	15	25.42
MSN	00	00.00
Bing	01	01.69
Rediff	05	08.47
HotBot	00	00.00
Khoj	00	00.00
Not Specified	02	03.38

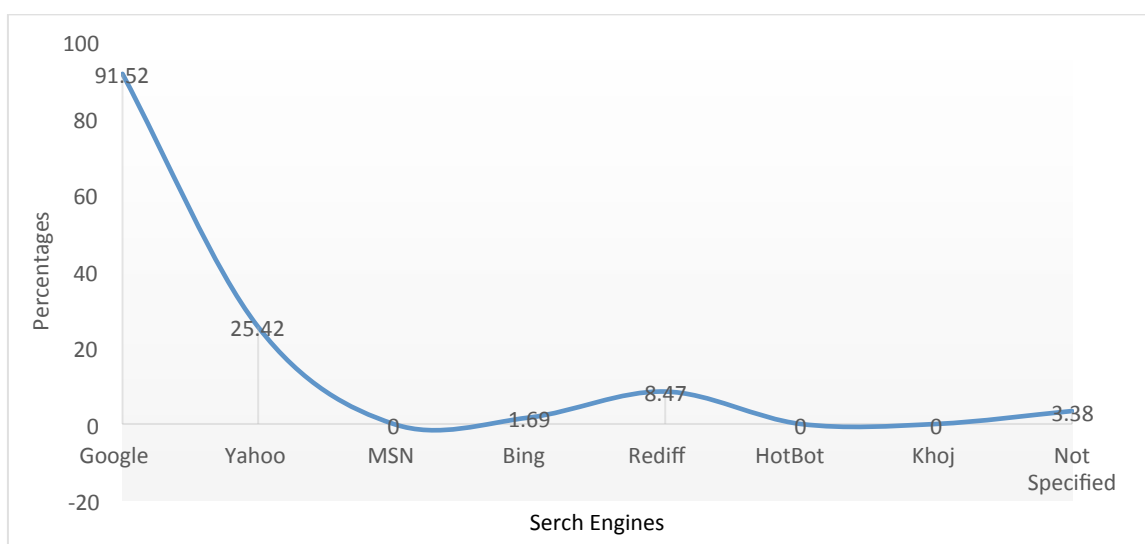


Fig 5: Favorite Search Engines

(vii) Problems Faced by the Professionals

Internet literacy depend on the computer literacy, which is generally ascertain as the basic knowledge, skills and attitudes needed by all citizens to be able to deal with computer technology confidently in their daily life. (Chou, and Chan, 2006). The Internet skills are becoming very important for all library professionals so that more and more library operations and services can be performed effectively by using the Internet. The departmental library professionals were asked the problems faced by them in handling internet task. It is found that in table 7 that there are very low percentage of the library professionals who are facing problems in internet task as only 22.03% of professionals are facing problems in Copying/ downloading files from internet. While in installation of software the percentage is slightly high in comparison to copying/downloading files from internet i.e. 33.89. On the other hand problem is also faced in attaching a file to an e-mail message as well as in writing and sending e-mail as 15.25% and 11.86%.

Table 7: Problems Faced by the Professionals

Problems	No of Respondents (N=59)	Percentages
Copying/downloading files from internet	13	22.03
Attaching a file to an e-mail message	09	15.25
Installation of any software	20	33.89
Writing and sending e- mail	07	11.86

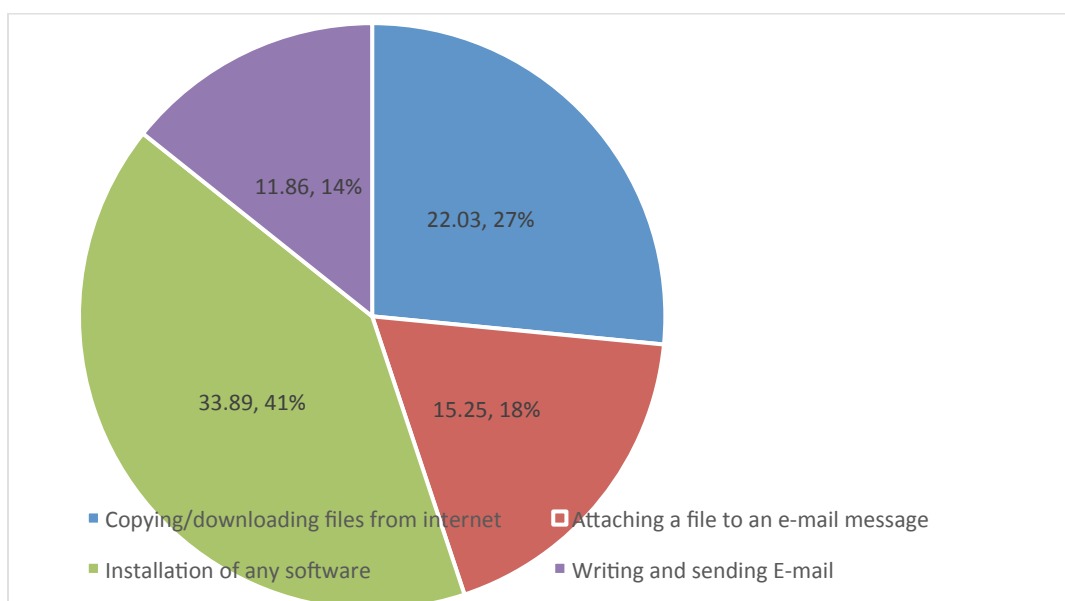


Fig:6 Problem Faced by the Professionals

(viii) E-mail Accounts Service Uses

E-mail account service is one of the services where people can mail each other without delay. According to table 8 it is founded that most of the departmental library professionals are registered on Gmail.com i.e. 59.32%, while the yahoomail.com is the second leading mail account services with 44.06% used by professionals. Other e-mail accounts services are also used by professionals as Rediffmail.com by 16.94%.

Table 8: E-mail Account

E-mail Accounts	No of Respondents (N=59)	Percentages
Gmail	35	59.32
Rediffmail	10	16.94
Yahoo mail	26	44.06
Others	03	05.08

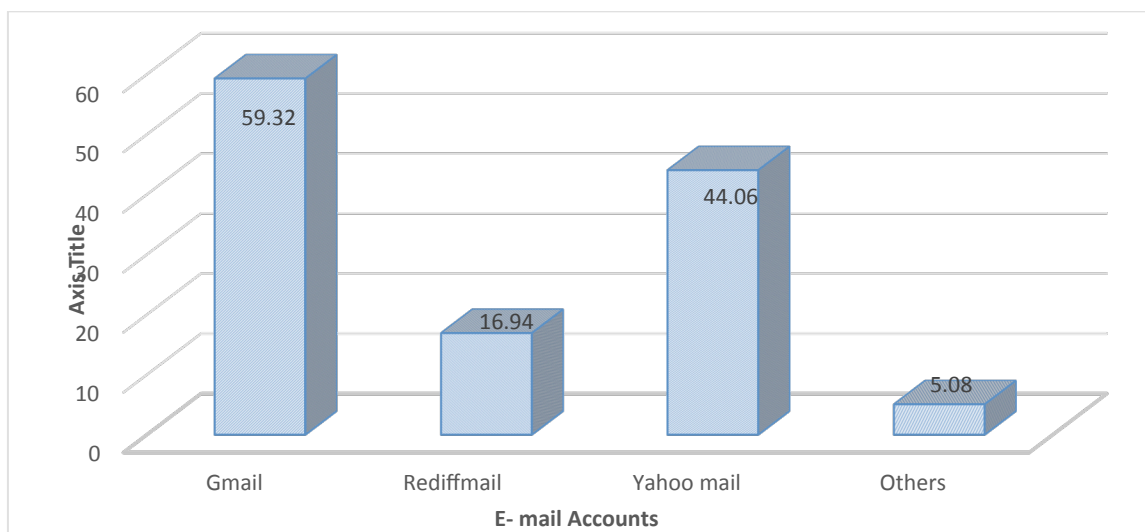


Fig 7: E-mail Accounts Use

(ix) Social Networking Medium

The term Social Media refers to the use of web-based and mobile technologies to turn communication into an interactive dialogue. Social media takes on many different forms including magazines, Internet forums, weblogs, social blogs, microblogging, wikis, podcasts, photographs or pictures, video, rating and social bookmarking (Baruah, 2012). Table 9 reveals the reality of using social networking site for communication or for other purpose by the professionals that shows that the Facebook is on the top usage by the library professionals i.e. 72.88%, while the Google Plus is second topper in the list with 15.25% as a social medium used by professionals. If we talk about the LinkedIn and Twitter, these are least preferred by the professionals.

Table 9: Social Networking Site

Social Networking Site	No of Respondents (N=59)	Percentages
Google Plus+	09	15.25
Ning	00	00.00
Twitter	03	05.08
Facebook	43	72.88
Flicker	00	00.00
LinkedIn	06	10.16

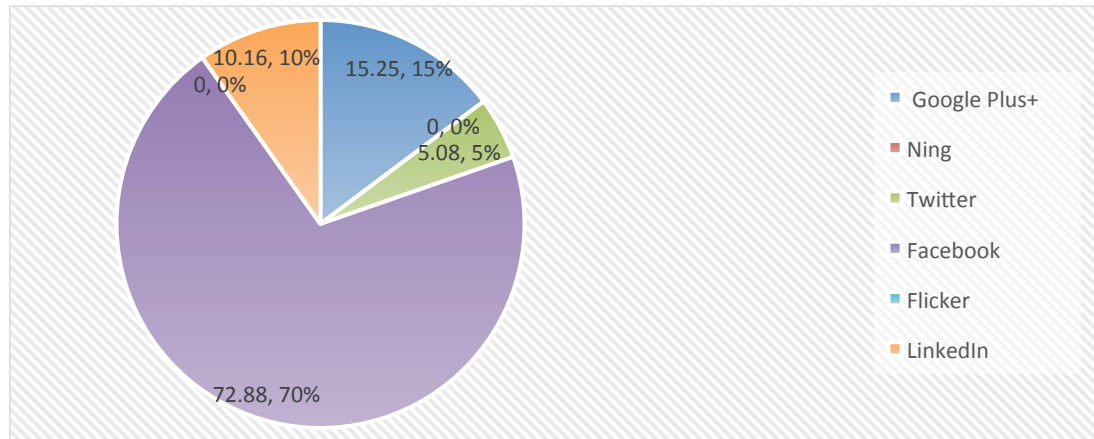


Fig 8: Use of Social Networking Site

(x) Messaging service

Research and development is going on and every day new creation or invention is coming in knowledge. These days most of the activities are dependent on ICT and most of the new generation is being involved in ICT related activities.

“Whatsapp is one of the changes in technology that is commonly used on specific mobile phones and computers. Since the Smartphones became popular, many messaging services were launched but Whatsapp has become very popular among them. The service is free for one year and after that a very small amount is charged yearly. Besides all, this Application is highly addictive and can create a great impact on regular users, and apart from that it can leave a trace that becomes difficult to control and cure.” (Krubu, and Osawaru, 2010, pp. 157).

Table 10 highlights the number as well as the percentages of professionals who are using Whatsapp messaging service for the communication from each others. It indicates that there are less than 50 percent professionals who are using this service i.e. only 44.06.

Table 10: Whatsapp Messaging service

Respondents	No of Respondents (N=59)	Percentage
Yes	26	44.06
No []	33	55.93

(xi) Favorite Activities on Whatsapp

Respondents were asked to specify their most popular activity whenever they accessed Whatsapp. Table 11 reveals that a majority of the departmental library professionals of AMU are engaged in text messaging activity on Whatsapp which is 32.20% , while the just

half percentage i.e. 13.55% professionals are involved in sending images through this service. Video and audio activities are also common among professionals.

Table 11: Favorite Activities on Whatsapp

Activities	No of Respondents (N=59)	Percentages
Text messaging	19	32.20
Sending images	10	16.94
Video	08	13.55
Audio	06	10.16

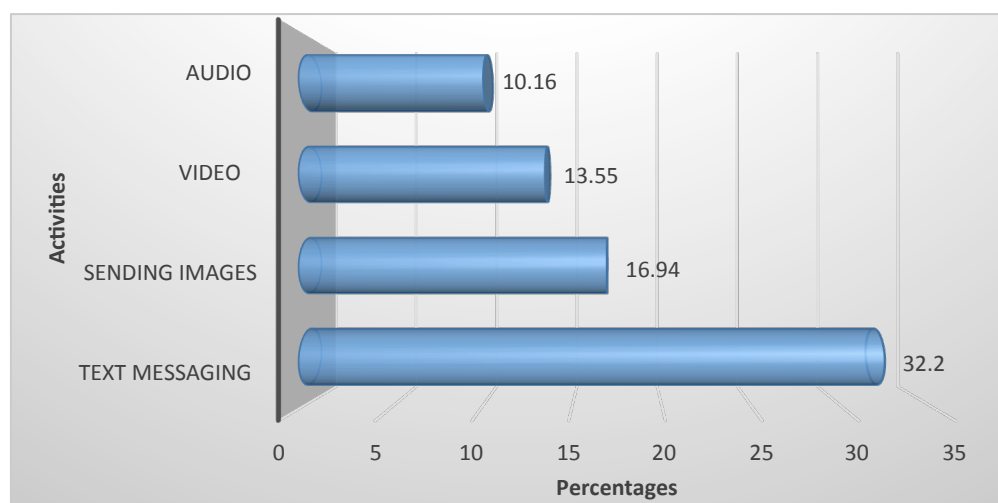


Fig: 9 Activities on Whatsapp

(xii) Using of Operating System

The departmental library professionals were Popped up the question to reveal the degree of use of operating system. It is indicated in Table 12 that *Microsoft Windows* is the most extensively used operating system by the departmental library professionals of the AMU. It does not happen in AMU it also same in the other universities libraries. *Linux, Unix* and *other operating systems* are also in use, while *sunsolaries* is the single operating system which is not in use among the library professionals in AMU. *Windows operating system* being user friendly and relatively new version, is used frequently by the departmental library professionals.

Table 12: Operating Systems

Operating Systems	No of Respondents (N=59)	Percentages
Windows	54	91.52
Sunsolaries	00	00.00
Linux	03	05.84
Unix	01	01.69
Others	03	05.08

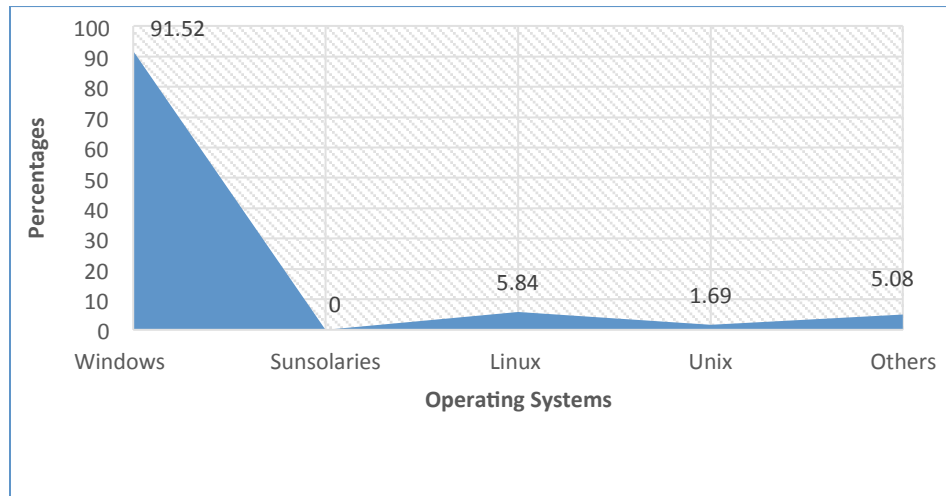


Fig: 10 Operating Systems Used in the Libraries

(xiii) Library Managemnt Software Using in the Departmental Library

As in every organization the work is managed by using software. So in the same way libraries are also managing their resources using by library management software. To ascertain it author try it by asking a question during the survey. This study reveals that for departmental library, the majority of the libraries are using *Libsys Library Management Software* i.e. 71.18%, on the other hand *Alice for Windows* as well as *other management softwares* are minorly used for libraries management. As we talk about the *Soul* and *Koha* library managment software, it is not in use in AMU’s departmental libraries. The libraries which are not automated they are facing inadequate of funding by the university. This problem is also faced in other universities of the world. The most serious problem militating against the application of ICT resources in the Nigerian University Library was inadequate funding by the government and some of the parents organizations of the private owned universities which attracted 16 (33.3%) responses by the respondents (Krubu, and Osawaru, 2010).

Table 13: Library Management Software

Library Management Software	No of Respondents (N=59)	Percentages
Libsys	42	71.18
SOUL	00	00.00
Alice for Windows	03	05.84
Koha	00	00.00
Others	03	05.84

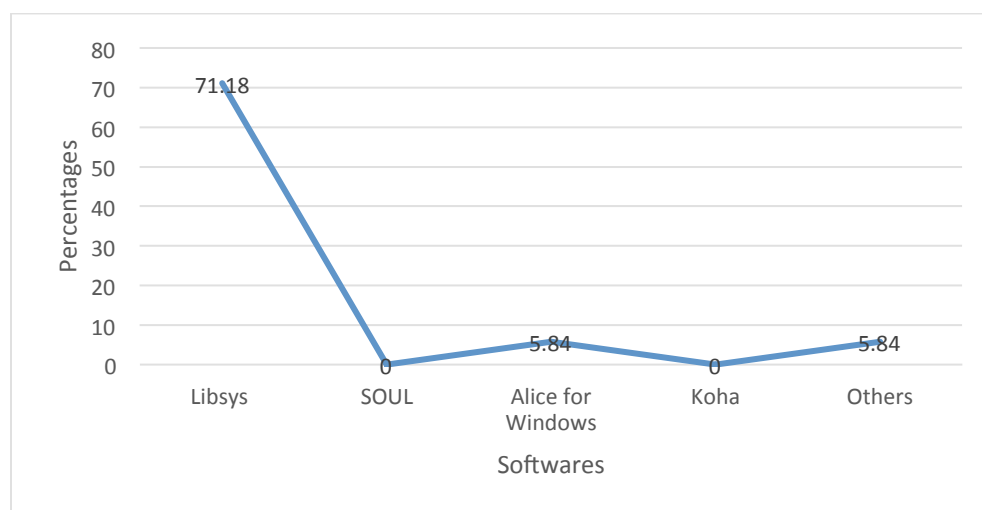


Fig 11: Library Management Software in Use

(xiv) Digitization of the Departmental Library Resources

This era is for the digital libraries, because of due to information explosion it is very hard to access reliable information emmediate. So with the help of digital libraries anyone may locate his/ her information related to the person. Varatharajan and Chandrashekara (2007) have emphasized the effect of the information explosion in the new information era. Digital technology, internet connectivity, and physical content can now be dovetailed, resulting in a digital library.

A digital library enables users to interact effectively with information distributed across a network. These network information systems support search and display of items from organized collections. In the historical evolution of digital libraries, the mechanisms for retrieval of scientific literature have been particularly important. (Mathew, and Baby, 2012)

But the digitization of library is not so easy that we are discussing, it has many challenges. As stated by (Greenstein, 2000)In the higher education sector, the digital library's challenges are not its own.They belong to its host institution and need to be resolved at an appropriate institutional level.

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The question was asked to library professionals if their library has started digitization of the resources, hundred percent responses was in negative. On the other hand in the central library of AMU i.e. Maulana Azad Library, digitization of the library resources has already been started.

Table 14: Digitization of the Library

Response	No of Respondents (N=59)	Percentages
Yes	59	100
No	00	00.00

Table 15: Proficiency in Using Different ICT Based Application

Applications	Excellent		Good		Fair		Poor		No Using	
	No.	%	No.	%	No.	%	No.	%	No.	%
Word processing–prepare document	09	15.25	20	33.89	08	13.55	03	05.84	14	23.72
Spreadsheets	03	05.84	15	25.42	12	20.33	03	05.84	12	20.33
Presentation Tools	04	06.77	19	32.20	07	11.86	02	03.38	14	23.72
E-mail	22	37.28	17	28.81	06	10.16	03	05.84	04	06.77
Chat	11	18.64	17	28.81	03	05.84	05	08.47	13	22.03
Blog	02	03.38	05	08.47	08	13.55	03	05.84	25	42.37
Internet Browsing	22	37.28	17	28.81	09	15.25	02	03.38	07	11.86
Web Page Designing	01	01.69	02	03.38	07	11.86	03	05.84	30	50.84
Wi- Fi	10	16.94	10	16.94	06	10.16	02	03.38	23	38.98
Total	84	143.07	122	206.73	66	112.56	26	47.81	142	240.62

(xv) Proficiency in Using Different ICT Based Applications

The departmental library professionals were questioned to denote the proficiency in using of various ICT based applications. Table 15 shows that even though the professionals claims that they use different ICT based applications, but proficiency of using these applications was normal. Few professionals were almost excellent in using these applications. The table indicates that most of the departmental libraries professionals have a *good proficiency* in ICT based tasks i.e.206.73% (22.97% average). Most of the professionals are good in *Word processing–prepare document* and *Presentation Tools* i.e. 33.89% and 32.20%. The professionals have less *excellent proficiency* in ICT based applications, the percentage of

professionals are 143.07 (15.89% average), most of the professionals are *excellent proficient* in *e-mail* and *Internet browsing* i.e. 37.28. On the other hand professionals *fair proficient* in ICT based applications are 112.56% (12.50% average). The highest percentage of the departmental library professionals is *not using* ICT based applications.

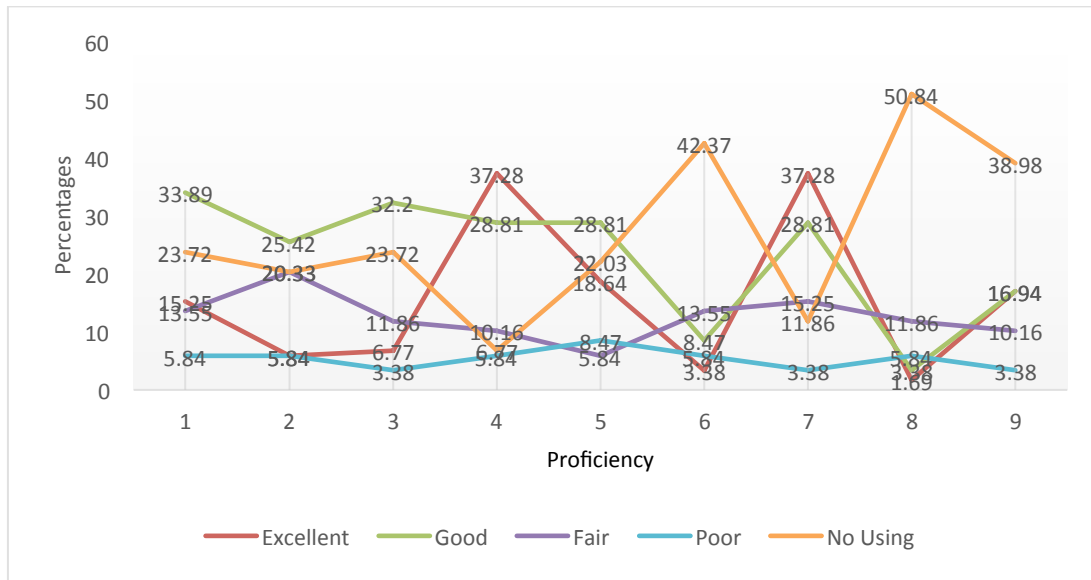


Fig 12: Proficiency in Using Different ICT Based Applicatio

CONCLUSION

Form the analysis of ICT skills it is found that the professionals are good efficient in using ICT related task of the departmental libraries. Though the departmental library professionals affirmed that different ICT based resources and services is used by them, the frequency of use of these resources and services is slightly low. It isn also indicated that ICT literacy degrees of the professionals are much impacted by the levels of ICT use in their departmental libraries. It is obligation for the departmental library professionals to boost up their level of ICT literacy. The younger library professionals are more skilled than elders. It has also been observed that the library professionals who ever have taken training course related to computer use are more skilled in ICT activities and their response is also better than those they have not done. It also ascertained that the use of ICT-based resources and services is better among the professionals . The findings of the study reveal that the Social Science Faculty’s departmental library professional are more ICT literates than the other faculties in the AMU. On the other hand in colleges Jawaharlal Nehru Medical College (AMU) library professionals are highly literate in ICT in comparison of others. It is reveled that most of the departmental library professionals have a *good proficiency* in using different ICT based applications. It also clear here is that the professionals development activities of library professionals is not regular. The findings of the study reveal that, most of the professionals are positive look on professionals development activities and

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agree with the effectiveness of training programmes particularly, on-the-job training. But institution is not providing them professional development training. library. Departmental library professionals are not facing the problems in the effective use of ICT applications.

The University should provide skills development programmes for the professionals in ICT infrastructure enclose with hardware, software and e-resources with fullied Internet access. In-house training will be helpful to improve professionals job performance and effort to develop new services from what they had learned. The duration for professionals development programme should be one week. The contemporary library and information science programmes in universities of India are not supporting the proper skills and expertise of LIS professionals to be able to handle the application of ICT. Therefore, ICT literacy skills are needed to be integrated properly into the curricula to ensure improved ICT literacy among library and information professionals.

REFERENCES

- Adeyoyin, S. O. 2006. ICT literacy among the staff of West African university libraries: A comparative study of Anglophone and Francophone countries. *The Electronic Library*, vol. 24, no. 5: 694-705.
- Ali, R. and Katz, I. R. 2010. Information and Communication Technology Literacy: What Do Businesses Expect and What Do Business Schools Teach?. Retrieved July 15, 2011, from: <http://digitalcommons.kennesaw.edu/facpubs/1416>
- Baruah, T. D. 2012. Effectiveness of Social Media as a tool of communication and its potential for technology enabled connections: A micro-level study. *International Journal of Scientific and Research Publications*, vol. 2, no. 5: 1-10. Available at: http://www.ijsrp.org/research_paper_may2012/ijsrp-may-2012-24.pdf
- Chen, K. and Lin, P. 2010. Information literacy in university library user education. *Aslib Proceedings: New Information Perspectives*, vol. 63, no. 4: 399-418. Available at: DOI 10.1108/00012531111148967.
- Chidnandappa, S and Dharnendra, P. U. 2006. *DRTC – ICT Conference on Digital Learning Environment*. Bangalore.
- Chou, C, Tsai, C. and Chan, P. 2006. Developing a web-based two-tier test for internet literacy. *British Journal of EducationalTechnology*, vol. 38, no. 2: 369- 72.
- Dhanavandan, S., Ismail, S. M. and Mani, V. 2008. A Study of the Use of Information and Communication Technology (ICT) Tools by Librarians. *Library Philosophy and Practice* .Retrieved August 3, 2011.
- Efe, S. I. and Adogbeji, O. B. 2006. The assessment of the use of information and communication technology (ICT) in data storage and information dissemination in Nigerian meteorological stations. *The Electronic Library*, vol. 24, no. 2: 237-242.
- Greenstein, D. 2000. Digital Libraries and Their Challenges. *Library Trends*, vol.49, no. 2: 290-303.
- Iwhiwhu, B. E. and Eyekpegba, E. O. 2009. Digitization of Nigerian university libraries. *The Electronic Library*, vol. 27, no. 3: 529-536.

- Krubu, D. and Osawaru, K. 2010. The Impact Of Information And Communication Technology (ICT) in Nigerian University Libraries. *Library Philosophy and Practice (e-journal)*, vol. 515: 2-31. Available at: <http://digitalcommons.unl.edu/libphilprac/515>
- Mathew, S. K. M. and Baby, M.D. 2012. Developing Technology Skills for Academic Librarians: A Study Based on the Universities in Kerala, India. *Library Philosophy and Practice (e-journal)*, vol. 702.
- Muzzammil, M. and Mehtab, A. A. 2013. ICT Literacy among Library Professionals in Faculty of Arts and Social Sciences in Aligarh Muslim University, Aligarh. *KIIT Journal of Library and Information Management*, vol. 1, no. 1: 52-64.
- Varatharajan, N. and Chandrashekara , M. 2007. Digital Library Initiatives at Higher Education and Research Institutions in India. *Library Philosophy and Practice (e-journal)*, Vol. 157. Available at: <http://digitalcommons.unl.edu/libphilprac/157>.
- William, P., Bunning, K. and Helen, K. 2007. ICTs and learning disability: multidisciplinary perspectives on Project @pple. *Aslib Proceedings: New Information Perspectives*, vol. 59, no. 1: 97-112.

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