

## Emerging Technology Used in North Indian Central University Libraries: An Innovative Approach

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### ABSTRACT:

Over the past three decades the information technology based on changing environment and issues have saved the university libraries in very innovative frame with very huge resources and knowledge to the users within a minute. Although a library is the heart of the any institution of the universities and playing the major role by university library professionals in modern IT based technology. They are running to carry out their day to day work more effectively, efficiently and resourcefully with authenticity in modern globalized environment of information technology used by different central university libraries in North India. The purpose of this study is to mapping the uses of emerged IT technologies and their tremendous impact on everyday activities of university libraries of their users at present. For this purpose the required data was collected from different central university libraries through research survey for doctoral study in the period 2014-2019. This paper provides an innovative factor to think the better uses of e-resources among central university libraries in emerged digital environment due to each and every area using e-resources in day to day work, education, teaching, learning and many more. This paper also reveals the different problems facing the university libraries for promoting to their library professionals for their e-resources learning and training also. The finding of this paper proof funds, proper training and excellent globalized digital environment in North Indian university libraries which are facing many challenging environment and it may be challenged with quality management hopefully and positively for betterment of universities academic environment and governance also.

**KEY WORDS:** E-resources, Digital environment, Central Universities, North India, Information technologies, Internet, Academic libraries, Innovative approach.

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### I. INTRODUCTION

The library services are increasing day by day under the supervision of library professionals and information scientists who are trained with modern techniques and the best skills to maintain the library and their various services. User wants to get information through all possible ways. Digital environment has enhanced the initiative to get more and more information. ICT has changed our life providing vital phenomena of e-resources like internet and search based services which are affecting rapidly in the different areas of all North Indian central university libraries.

**Evangelia AEC Lipitakas (2015)<sup>1</sup>** reveals in her study the research impact of institutions of India and advance IT technology based performance for the development of their scientific research output. She has found that India's research output and their performance in the field of science and technology using publication data and quantitative and qualitative measures are increasing slowly. She also investigated the increased pace of scientific research in India, its improving quality, built of scientific capacity, competence and knowledge base for bridging scientific and technological gaps with leading countries. She also found that the growth and development of India in research output in the fields of science and technology strong and weak subject areas of research and quality of research are not remarkable as far as compared to international parameter.

IT facility for research enhancement, developing and promoting plan assessment for central university libraries and their users for essential need of information and empowering their users have moved in the way of e-resources using or emerging to take opportunities of e-resources. The services of North Indian Central University Libraries are moving gradually into the network based environment and websites have become an important service exist in many forms such as Emails, journals articles, data bases, films, web forms, e-books, CD's, videos, audio visual products, online publishing, public domain and commercial online data bases through internet and other propriety databases. **(Ghule (2014)<sup>2</sup>** rapid advances in information processing, storage and

communication–technologies have revolutionized the role of automated libraries in disseminating information services to their users.

**Rose B. Okiy (2010)<sup>3</sup> and Harpreet Kaur (2013)<sup>4</sup>** narrates adoption of ICT in academic library system revealing problems and prospects and gives of detailed analytical approach of studying impact of ICT in academic libraries of Nigeria globally. The new paradigm of Central University libraries are now connected to E-resources, terminal, printers, fax machines, modems and storage media to provide the information to their users. The flexibility of E-resources, Services and their workforce is new trend offering great help to library manager, if such poor force is educative and effectively trained to meet the changing needs of users.

### **Significance of the study**

Although, the scope and sphere of my Ph.D research work include 22 Central University Libraries but to study for this paper, only 16 central university libraries have been taken for survey and to assess the present status of IT based E-resources, availability, need, purpose, uses, impact, globalized training and their services to the users. The information about electronic resources is basically based on work done by research scholar's questionnaires data and present research scholar's effort.

**Dr. S.N Pandey and others (2015)<sup>5</sup>** reveals that objectives should be always concrete and topic related the present objectives of the study are confined only to Central University libraries of North India. E-resources and their learning have emerged as a formidable and academic global proportion, facilitating to a wealth of information on the internet for the academic society to support their all activities with research areas. Hence the libraries act as a transformer or carrier of knowledge. Utilization of e-resources in digital environment has made of tremendous improvement in disseminating practices of information, organizing and managing the libraries, acquisition of library collection in central university libraries.

### **Objectives**

1. To search and identify the problems faced by the Central University Library professionals / personal in management of electronic information resources and services.
2. To search and identify their awareness about internet and its tools in Central University Libraries.
3. To examine the draw backs in using IT for academic and research purpose.
4. To look into the awareness and seriousness for providing the required information about E-resources and services in Central University Libraries.
5. To know the E-resources and most used E-resource impact, learning method, impact of E- resources.
6. To find out the use and acceptance of E-resources, satisfaction, user preferences, determining the frequency of E-resources using, usefulness and time spent.
7. To know the training needs of users in accessing E-resources and to know the problem faced by library staff and users while browsing, evaluating etc. in two Central University Libraries.
8. To find out the availability of information regarding public awareness for preservation and digitalization and ICT.
9. To identify the available infrastructure of Electronic resources and services of sixteen Central University Libraries.
10. To make similar about the using of Digital India initiative format demanded by UGC from observed in Central University Libraries.
11. To suggest various improvement measures to increase the effective use of information technology in university academic environment as well as other institutions also.

### **Scope of the study and Limitation**

The scope of the present study reveals about sixteen Central University Libraries IT related activities, status of E-resources, need, purpose, uses, impact, awareness, training, services and how technology is used for posterity. The effective use of Information Technology based electronic resources in all North Indian Central Universities which are providing adequate ICT infrastructure and impart skills and knowledge to their users at present while they are getting more financial support than any other universities of India comparatively. The users might have acquired the knowledge and skills on their own or through other means and channels. It is to understand this aspect and is the main purpose of this study. The need is to know the extent of knowledge and skills among the users and to provide necessary training to fill up the gaps if needed. The information about information technology status, uses and services is basically based on work done by research scholar's questionnaires data and present research scholar's effort.

**Evangelia AEC Lipitakas (2015)<sup>6</sup>** reveals that objectives should always be accessed upon their national and international share of output, change in normalized field performances overtime. The topic also indicates that during 2003-2013 at the institutional level, the largest share of national output was held by university of Delhi, followed by Banaras Hindu University and Jadavpur University. All universities under

examination should and overall steady growth in their field performances during 2004-2014 when compared to 1993-2003. He noted that the results have been indicated improvement, the overall field performances of India's selected universities is below the world average; with the exception of Punjab University. The present objectives of the study are confined only to sixteen Central University libraries of India. Keeping in view of these factors, the present study has been undertaken.

**General Information of Different studied Central Universities and their Libraries are given below.**

The Central University Libraries which are taken for data collections listed below:

**A. North India Central Universities**

1. University of Kashmir, Srinagar, J & K, India
2. Central University of Jammu , Jammu, J & K, India
3. Central University of Punjab, Bhatinda , Punjab, India
4. Central University of Haryana, Mahendragarh, Haryana, India
5. University of Delhi, New Delhi, India
6. JNU, New Delhi, India
7. Jamia Millia Islamia, New Delhi, India
8. IGNOU, New Delhi, India
9. Central University of HP, HP, India
10. Central University of Rajasthan, Rajasthan, India
11. University of Allahabad, Allahabad, Uttar Pradesh, India
12. AMU, Aligarh, UP, India
13. BBA University, Lucknow, UP, India
14. BHU, Varanasi, Uttar Pradesh, India
15. HNBU, Srinagar, Tehri Garhwal, Uttarakhand, India
16. Central University of Bihar, Patna, Bihar, India

## **II. RESEARCH METHODOLOGY**

In the present study the questionnaire method has been adopted to collect primary data from the sixteen respondents. A well structured questionnaire covering all the facets of the topic has been prepared and distributed to Sixteen Central University Libraries. Although, there are different methods available for collecting the data to achieve the objectives but this methodology has been adopted to know objected problem. Here, the Scope of research methodology is wider than that of any research methods. The reasonable answers have been collected with the help of analyzing data collected by research scholar. We have tried to get conclusion through scientific and logical ways.

## **III. LITERATURE REVIEW**

A. Kaur and Waresh Nandan (2014)<sup>7</sup> expressed in their research paper that the academic libraries are mainly responsible to fulfill the need of the students regarding the use of IT based electronic resources and services. They also said that library professionals should enable the students and research scholar to improve in all the aspects of getting their academic information effectively and immediately through any modern techniques and these modern techniques are actually based on information technology and digital support.

**A. B Tham and R. Ramamaheswari (2014)<sup>8</sup>** narrated the significance of information technology in modern era in academic library environment are very important due to digital phenomenon of any country development parallel to international digital environment. He also said about the impact of IT at present need of research academic adequacy. and they have told that without using Electronic resources no one can achieve anything and without IT knowledge, no one can proceed in the academic institution because the college and the university scholars mainly depending on the information technology based infrastructure available in their library environment for their research and academic development.

**A Mohanta and S N Pandey (2017)<sup>9</sup>** revealed in their latest published research paper (IJARIIT) that computerization, digitization and automation of any academic library are the growing need of today's digital environment and need. Similarly, the tremendous development of digital technology in all spheres of educational, social phenomenon, economic need and all other intellectual areas as well as defense and security purpose also, the need of information technology based uses are very essential than any other activities due to very fast growing and quick authentic response within a minute, its uses are boon for each and every need of today.

**Kumar & Arora OP. (1996)<sup>10</sup>** stated in their research paper that electronic resources has created a revolutionary role in automation and different library activities of academic environment today.

**A Mohanta and S N Pandey (2017)<sup>11</sup>** again expressed in their research paper ( IJCR) that many other states than Southern India are now in developing stage like Uttarakhand, Uttar Pradesh, Bihar, Rajasthan MP,

HP and Haryana state also in North India in the field of IT based infrastructure development, digital training, awareness and services providing in proper way also.

**S N Pandey and A Mohanta (2015)12** expressed and investigated about the rapid advances in automation and information processing of central university libraries. They also narrated that India's manpower with access to education and technology has enabled it to emerge as a power in comparison with other countries, to improve more the planners and policy makers should implement their plans to upgrade more at the country, state and local level.

**H. S. Chopra(1999)13** revealed the Impact of Modern Information Technology on Library services that Library automation is not used in majority of the Indian library but most of all are trying the best efforts to learn IT skills and applications in their different areas of services to appreciate the advantage of using library automation. It becomes necessary to highlight the different levels of library automation

**Varsha Verma & Durga Murari (2016)14** and has narrated that no library, however big it may be is able its clientele. However, with the advent of ICT and its application in library activities, new opportunities opened up for greater - cooperation among libraries. According to Allen Kept "Resource sharing denotes a mode of operation whereby library functions is shared in common by number of libraries. The goals are to provide a positive net effect.

**M, Papegowda (2016).** In up gradation and effective management of libraries, the real challenge today in digital environment, without using any electronic resources, is very hectic and tedious with the help of digital infrastructure and services, most of all central universities can build up of quality world in their library profession in the field of education and research and development.

#### IV. DATA INTERPRETATION

**Table 1distribution Of Questionnair & Response Of Central University Libraries**

S.n	Name of the Central University Libraries	Name of the Central Univ. Libraries	Questionnaire Distributed by				Responses Received or Not
			Individual	post	Under RTI	Through On line	
1	University of Kashmir, Srinagar (J&K)	Allama Iqbal Library	NA	Yes	Yes	Yes	Not
2	Central University of Jammu (J&K)	Central Library	NA	Yes	Yes	YES	Yes through RTI
3	Central University of Punjab (Punjab)	Central Library	NA	Yes	Yes	Yes	Not
4	Central University of Haryana (Haryana)	Central Library	NA	Yes	Yes	Yes	Not
5	University of Delhi (Delhi)	Central Reference Library	Yes	No	No	No	Yes
6	JNU, (New Delhi)	Dr. B.R. Ambedkar Central Library	Yes	No	No	No	Not
7	Jamia Millia Islamia (New Delhi)	Dr. Zakir Husain Library, Central Library	Yes	No	No	No	Yes
8	IGNOU (New Delhi)	Prof. G. Ram Reddy Library	Yes	No	No	No	Yes
9	Central University of HP (HP)	Central Univ. of Himachal Pradesh Library	Yes	Yes	Yes	Yes	Yes through RTI
10	Central University of Rajasthan (Rajasthan)	Central Library	No	Yes	Yes	Yes	Yes through RTI
11	University of Allahabad, Allahabad, (UP)	Central Library	No	Yes	No	Yes	Not
12	AMU, Aligarh (UP)	Maulana Azad Library	No	Yes	Yes	Yes	Not
13	BBA University, Lucknow (UP)	Gautam Buddha Central Library	Yes	No	No	No	Not
14	BHU, Varanasi (UP)	Sayaji Rao Gaekwadb Library	Yes	Yes	No	No	Yes
15	HNB, Srinagar (UK)	Central Library	Yes	Yes	Yes	Yes	Not
16	Central University of South Bihar (Bihar)	Central Library	No	Yes	Yes	Yes	Not

**Table 1** describes the details about distribution of questionnaires to 23 central university libraries in my Ph.D work. Survey method of research has been adopted especially structured questionnaire of 16 North India based central university libraries in order to assess the present status. I have received reply of only 7 questionnaires. Efforts were also made to physically visit the libraries to collect the required information. Out of 16 questionnaires, 3 answers were obtained through RTI Act. There are 9 libraries who did not respond even after personal visit, so many times talking on mobile phone, sending E-mail through online or sending questionnaire through speed post. But, they have not given any response of my research efforts. It is proved that they have no interest and good intention to boost and cooperation for the research and research scholars. Although, they have established to boost only and only to devote for the research and academic activities for researchers, academicians of libraries.

The controlling authority and fund providers of these universities should be more aware and take necessary action to boost the research scholars so that the original and basic problems of these libraries come in front of common people, academicians, controlling authority, readers, users and lastly Government of India's UGC authority. This is required for the welfare of nation's development.

It is wonderful that their academic atmosphere is safe as well as Northern India's situated central university academic campuses which is very necessary to provide the library services for users, reader in a silent, peaceful and safe academic atmosphere. Besides, there is some good merit of this university because the library has given proper answer of my questionnaire within time.

**Table 2 Library Organizational Set Up (Section-A, A1)**

Sr. No.	Name of the Central University Libraries	Address	Name of the librarian	Working Since		Library Under the administrative control of							Year of establishment.
				In the Present position	In the Library	Office / Branch	Dept.	Ministry	Status of the Library				
									Central	Ministry	Deptt.	Autonomous	
1	University of Kashmir, Srinagar (J&K)	Central Univ. of Kashmir Nowgam Bypass, Near- Puhroo crossing Srinagar, J&K 190015 Tel-0194-2468357	Mrs. Sumaira Nabi	In charge Librarian	NM	NM	NM	NM	Yes	NM	NM	NM	2009
2	Central University of Jammu (J&K)	Main Campus Bagla, Rahya-suchani central Univ. of Jammu	S.K Khosa	2016 (Librarian In charge)	NM	Central Univ. of Jammu	NM	NM	Yes	NM	NM	NM	2011
3	Central University of Punjab (Punjab)	Central Univ. of Punjab, Mansa Road, Bathinda-151001, Email: <a href="mailto:registrar@cup.ac.in">registrar@cup.ac.in</a> Tel-+91 1642864106	Dr. Bhupender Singh	Inf. Sc. (Lib. In Charge)	NM	NM	NM	NM	NM	NM	NM	NM	2009
4	Central University of Haryana	Central Univ. of Haryana	Dr. Vinod Kumar Sigh	Assist Lib. (Lib. In	NM	NM	NM	NM	NM	NM	NM	NM	2010

	Haryana (Haryana)	Jant-Pali, Mahendergarh, Haryana-123031, Tel- 01285-249425		Charge )									
5	University of Delhi (Delhi)	Univ. of Delhi, Delhi, 110007 Tel. 2766428	Dr. Dharmveer Singh	Univ. Librarian	Since 1986	University Of Delhi	NM	NM	NM	NM	NM	NM	1922
6	JNU, (New Delhi)	J.N.U. New Mehrauli Road, New Delhi-110067 Mob.-01126704545	Dr. Ramesh C. Gaur	Univ. Librarian	NM	NM	NM	NM	Yes	NM	NM	NM	1969
7	Jamia Millia Islamia (New Delhi)	Jamia Millia Islamia, Jamia Nagar, NewDelhi-25 +91(11)26982360 Email: universitylibrarian@imii.ac.in	H.J. Abidi	Univ. Librarian	NM	NM	NM	Yes	Yes	NM	NM	NM	1920
8	IGNOU (New Delhi)	IGNOU. Maidan Garh, New Delhi- 68 Tel. 011-29571907	Prof. Jaideep Sharma	Librarian	NM	NM	NM	MHRD	Yes	NM	NM	NM	1986
9	Central University of HP (HP)	Temporary academic block, shahapur Dist – kangra (HP)	Muruli. N	July 2016 Assistant Librarian (Lib. In Charge)	July 2016	NM	Library & Information Prof. I.V Malhan (I/C) librarian	NM	Yes	NM	NM	NM	2009
10	Central University of Rajasthan (Rajasthan)	Central Univ. of Raj.Bandar sindri,N.H.-8,Tehsil Kishangarh Distt.Ajmer (Raj.) 305817. Tel.01463-238722	Vijay Kumar M.	Jan. 2016 Univ. Librarian	Jan. 2016	NM	NM	NM	Yes	NM	NM	NM	2009
11	University of Allahabad, Allahabad, (UP)	Senate House, Central Univ. of Allahabad , UP-211002, Tel.- (0532)2461	Dr. V. K Singh	Univ. Librarian	NM	NM	NM	NM	Yes	NM	NM	NM	1887



		157 Web. Allduniv.ac .in											
12	AMU , Aligarh (UP)	Alligarh, UP-202001 Tel.- 0571/27005 12 Email; nabihasan @gmail.co m	Dr. Nabi Hasan	Univ. Librari an	NM	NM	NM	N M	Yes	N M	NM	NM	1920
13	BBA Universit y, Lucknow (UP)	Baba SahebBhim rao Ambedkar University Vidya vihar Rai bareli road, luknow	K.L. Mahawar( prof.)/At present Sunil Goria,	Year NM In charge libraria n/ Univ. Librari an (2016)	In char ge Libra rian	NM	NM	N M	NM	N M	NM	NM	1997

TABLE 2(Cont.)

14	BHU, Varanasi (UP)	Banaras Hindu University (Varanasi) Tel. +915422367133	Prof. H.N. Prasad	1 <sup>st</sup> Nov. 2015	1 <sup>st</sup> Nov. 2015	NM	NM	NM	Yes	NM	NM	NM	1917
15	HNB, Srinagar (UK)	HNV Garhwal Univ. Srinagar.Mob- Email:	Dr. M.S. Rana	Univ. Librarian	NM	NM	NM	NM	Yes	NM	NM	NM	1973
16	Central University of Bihar (Bihar)	Patna Campus. BIT Campus.P.O: B.V College, Patna-800014 Mob:0612- 2226535/6333	Dr. Mayank Yuvaraj	Assit. Librarian	In charge Librarian 17-01-14	NM	NM	NM	NM	NM	NM	NM	2009

**Table 2** describes the details about the vacant position of the university libraries. Out of 16 central university libraries, only 9 libraries have the permanent university librarian but 7 libraries don't have any permanent librarian. It also shows the location and complete address of different 16 libraries with their establishment year. It also provides details of library in charge of libraries.

Out of 23 central university libraries 5 libraries were established more than 95 years ago and 6 libraries were established more than 20 years ago and 2 libraries were 17 years old. 8 universities were established less than 10 years old. 9 libraries have not responded about their establishment as they have not responded to my questionnaires. To make my analysis logical I have collected their year of establishment from their websites. Out of 16 libraries, 6 libraries don't have any permanent university librarian. Among them 5 libraries are having librarian as library in charge and 1 libraries have Assistant librarian as librarian in charge.

**Table-3** Computer Application, facilities & Services (B.4)

Sr No	Name of the Central Universit y Libraries	Com pute r facil ities avail able Yes/ No	Typ e of Co mpu ter	Services provided through the computers									
				Acce ssion list	Book order list	Current Awarenes s services	Circ ulation	Catal oguing	Docu ment Deliv ery	Retr ospe ctive Liter ature sear ch	Serial Cont rol	SDI	Others
1	Universit y of Kashmir, Srinagar	Yes	80+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	RFID RAF IRC,OPA C

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	(J&K)												
2	Central University of Jammu (J&K)	Yes	10	Yes	NM	Yes	Yes	Yes	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	Yes	4 scanner	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	EDS system
4	Central University of Haryana (Haryana)	Yes	32	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OPAC, Training
5	University of Delhi (Delhi)	Yes	NM	Yes	Yes	Yes	Yes	Yes	NM	Yes	Yes	Yes	NM
6	JNU, (New Delhi)	Yes	200+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Jamia Millia Islamia (New Delhi)	DR C 100 Computers	Yes	Yes	Yes	Yes	Yes	Yes	NM	Yes	Yes	NM	NM
			Technical Through This Client + 40 desktop										
8	IGNOU (New Delhi)	No	Pc, server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
9	Central University of HP (HP)	Yes, Comp 5, printer 3 Barcode scanner-2	Only for Lib. staff	NM	NM	NM	Yes	Yes	NM	NM	NM	Yes	NM
10	Central University of Rajasthan (Rajasthan)	Yes	NM	Yes	NM	NM	Yes	Yes	NM	Yes	Yes	NM	NM
11	University of Allahabad, Allahabad, (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM	NM
12	AMU, Aligarh (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	BBA University, Lucknow	Yes	Normal Pc	NM	Yes	Yes	NM	Yes	NM	Yes	NM	Yes	NM



	(UP)												
14	BHU, Varanasi (UP)	Yes	Desktop 500 + Laptop-3 Server-3	NM	NM	Yes	Yes	Yes	NM	Yes	NM	NM	NM
15	HNB, Srinagar (UK)	Yes	NM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	Central University of Bihar (Bihar)	Yes	NM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM	OPAC

**Table 3** describes about the Computer Application facilities and services. Out of 16 libraries almost have computer facilities and there are variations of using number of computers in different libraries. In this case information regarding area is not available with the library. Some libraries have mentioned strength or number of computer instead of type of computer. IGNOU, BBA, have mentioned that they have normal PC. BHU has 500 PC but JNU has 200+ but Jammu has 10+. All libraries have computer connected and the ICT infrastructure is gradually increasing in all the university libraries. Maximum libraries have entire campus Wi-Fi while some have completed the work partially. Only 6 libraries have OPAC system. University libraries are quite liberal in the provision of printers. 2 university libraries have mentioned that they have adopted RFID SYSTEM. CUP has EDS system. Most of the libraries have Barcode scanners, photocopy machines. Most of the libraries are in progress of installing CCTV in libraries. Some of the libraries have even gone beyond barcode based circulation to RFID system. Some have the libraries are OPAC system or arranging documents through ILL services and I am providing search result through Library portal or their Web services. It is interesting to see the impact of ICT on library services as 12-21 services which are directly linked with the use of technology. Thus, library services are provided by all the university libraries and user’s services are also increased.

**Table-4** Impact of Computerization on Library Services & Conference Participation (B4.4.3, B5-B6) of Surveyed Central University Libraries

Sr No.	Name of the Central University Libraries	Better utilization Yes/No	Reducing pressure on staff Yes/No	Nothing Definite Yes/NO	Lib. Participate any national Inf. Network as NIC/ NISST Yes/No	Lib. Participate any International Inf. Network Yes/No
1	University of Kashmir, Srinagar (J&K)	Yes	Yes	NM	No	Yes
2	Central University of Jammu (J&K)	Yes	Yes	NM	No	No
3	Central University of Punjab (Punjab)	Yes	Yes	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	Yes, e- granthalaya	NM
5	University of Delhi (Delhi)	Yes	Yes	No	Yes	No
6	JNU, (New Delhi)	Yes	Yes	NM	NM	Yes
7	Jamia Millia Islamia (New Delhi)	Yes	Yes	NM	INFLIBNET, DELNET	No
8	IGNOU (New Delhi)	No	No	NM	NIC	Yes
9	Central University of HP (HP)	Yes	Yes	NM	INFLIBNET, DELNET	No
10	Central University of Rajasthan (Rajasthan)	Impact not assessed			INFLIBNET	No
11	University of Allahabad, Allahabad, (UP)	Yes	Yes	NM	NM	NM
12	AMU, Aligarh (UP)	Yes	NM	NM	Yes	Yes
13	BBA University, Lucknow (UP)	Yes	Yes	No	No	No
14	BHU, Varanasi (UP)	Yes	Yes	NM	INFLIBNET,	Yes

					DELNET	FID, IFLA
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	Yes	NM	NM	NM	NM

**Table 4** shows the library responses on impact of computerization of library services and conference participation. 18 university libraries agreed with the opinion of the better utilization of services offered by the university libraries. It is also found that 14 university libraries are agreed that pressure on staff is reducing. The observation made on participation of national Information Network as NIC/NISST, 11 university libraries consented that they don't have such participation though IGNOU, AMU, DU, VBU, have responded to have participation with information network. 7 university libraries found significant for participation with INFLIBNET, DELNET OR e- granthalaya.

**Table-5** Computerization and automation in library activities (Section – F ,F1-F5)

Sr. No	Name of the Central University Libraries	Total no. of comp. /Internet savvy staff	Trained staff working on compt.			Type of net used		Type of storage media used			Records / archival materials stored in electronic system		
			Yes	No	Daily Sample work	Intra net	Inter net	CD ROM's	Micro Films	Extra net	Yes	No	Work in prog
1	University of Kashmir, Srinagar (J&K)	NM	Yes			Yes	Yes	NM	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	2 (Library staff)	Yes			NM	Yes	NM	NM	NM		NO	
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	32 comp. + 4 printers & Server	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	650	Yes			Yes	Yes	Yes		Yes	Yes		
6	JNU, Delhi (New Delhi)	58 Comp.	NM	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	100	Yes			Yes	Yes	Yes	NM	NDL	Yes		
8	IGNOU (New Delhi)	100+	Yes			Yes	Yes	Yes	Yes	Yes		NO	
9	Central University of HP (HP)	6			Yes	Yes	NM	Yes	NM	NM			Yes
10	Central University of Rajasthan (Rajasthan)	26	Yes			Yes	Yes	N/A	N/A	N/A	Partially		
11	University of Allahabad, Allahabad, (UP)	Internet savvy staff	Yes			Yes	Yes	NM	NM	NM	NM	NM	NM
12	AMU , Aligarh (UP)	3000 in Univ. 100 in Lib.	Yes			Yes	Yes	NM	NM	NM	Yes		
13	BBA University, Lucknow (UP)	45 computer / 65 in16-17	Yes			Yes	Yes	Yes	NM	NM		NO	
14	BHU, Varanasi (UP)	500+	Yes			Yes	Yes	Yes	NM	NM	Yes		Yes
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of	500 in Universit	NM	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM

	Bihar (Bihar)	y										
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**Table 5** describes about the computerization and automation in library activities which includes number of computers in library, internet savvy staff, and the trained staff working on computer, type of net used and storage media used in the library. Out of 16 libraries, 86.95% libraries are having computers. 34.78% have not responded to the questionnaire. But, 37% answers of these un responding universities libraries have been found searching their library portal. 13% libraries have not mentioned about their computers present in the libraries. DU and BJU are having highest number of computers in their libraries followed by CUB. 3 university libraries are having average 100 computers in their libraries. 50 computers are average in number in 5 libraries. There is variation in answers of this question of Internet savvy staff given by the university libraries. Only 5 university libraries clearly mentioned that they have 19 libraries (82%) out of 23 libraries are having trained staff except the statement of Nagaland University library that has untrained staff. 3 university CUHP, NEHU and Sikkim university have declared that they have daily sample work staff. Out of 16 libraries, 91% libraries are using net services in their libraries.

Out of 16 libraries, 8 libraries (34.78%) are using CD ROM's and not a single university is using Microfilms storage media. Only DU is using extranet services. Out of 16 libraries, 7 libraries (30.78%) are maintaining records and archival materials have been stored in electronic system. 4 university libraries have been acknowledged that they have not any such work of storing Archival materials in electronic system. Therefore, it has been found that deployment of trained staff in maximum libraries is an essential need of the hour. It is also recommended that higher-speed computer terminals should be installed in the various departments, departmental libraries or in the University campus to save the time of the users.

**Table- 6**

Digitized materials of library stored in new standards & new formats & Method to secure computer system in Central University libraries (F17-F18)

S. N	Name of the Central University Libraries	Digitized materials of library stored in new standards & new formats for longer duration			Method to secure computer system in library	
		Yes	No	In progress	Yes	No
1	University of Kashmir, Srinagar (J&K)	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	NM	NM	Yes	Yes	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	NM	NM	Yes	Yes	NM
6	JNU, (New Delhi)	Yes	NM	Yes	Yes	NM
7	Jamia Millia Islamia (New Delhi)	Yes	NM	NM	Yes	NM
8	IGNOU (New Delhi)	Yes	NM	NM	Yes	NM
9	Central University of HP (HP)	NA	NA	Yes	NM	No
10	Central University of Rajasthan (Rajasthan)	N/A	N/A	N/A	Yes	NM
11	University of Allahabad, Allahabad, (UP)	Yes	NM	of old documents	NM	NM
12	AMU, Aligarh (UP)	Yes	NM	NM	Yes	NM
13	BBA University, Lucknow (UP)	Yes	NM	NM	NM	Yes
14	BHU, Varanasi (UP)	Yes	NM	NM	NM	No
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	NM	NM	NM	NM

**Table 6** describes digitized materials of library stored in a new standard and new format & methods to secure computer system. There are 7 university (43.75%) store digitize materials of library in new standard. 4 University (17.39%) have declared that their libraries are in progress to store new formats. There are 8 University Libraries (50%) follow methods to secure computer system in library. Then 8 Libraries have mentioned that they don't follow any method to secure computer system in library.

**Table- 7** Frequency of using Electronic resources and no of users used Electronic resources (Section – G,G1)

S. No.	Name of Central Universities	Library Frequency of Users										
		No of users	Student	Research Sch.	Faculty member	Out siders	Daily users	2-3 times in	Week ly	Fort Night ly	Month ly	Occa sion ally
1	University of Kashmir, Srinagar (J&K)	NM	Yes	Yes	Yes	NM	NM	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	Lib.freq 150	Yes	Yes	NM	NM	Yes	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	5,00000	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
6	JNU, (New Delhi)	2000+	Yes	Yes	Yes	NM	NM	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	NM	Yes	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM
8	IGNOU (New Delhi)	600+	Yes	Yes	Yes	No	Yes	NM	NM	NM	NM	NM
9	Central University of HP (HP)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
10	Central University of Rajasthan (Rajasthan)	NM	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM
11	University of Allahabad ,Allahabad, (UP)	NM	Yes	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM
12	AMU , Aligarh (UP)	8000	Yes	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM
13	BBA University, Lucknow (UP)	No Idea										
14	BHU, Varanasi (UP)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	PG- 16% UG- 7%	45%	32%	NM	NM	NM	NM	NM	NM	NM

**Table- 8** Purpose of using Electronic resources (G2)

S.N o.	Name of Central Universities	Primary research	Study Refer.	Update the subj. knowl.	Seminar/ conf./ workshop	Project assignment	Teaching purpose	For publis. article	Current awareness	SDI/ others
1	University of Kashmir, Srinagar (J&K)	NM	Yes	Yes	Yes	Yes	NM	Yes	Yes	NM
2	Central University of Jammu (J&K)	NM	Yes	NM	Yes	Yes	NM	Yes	Yes	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
6	JNU, (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Jamia Millia Islamia (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
8	IGNOU (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
9	Central University of HP (HP)	Yes	Yes	NM	Yes	Yes	Yes	Yes	NM	NM
10	Central University of Rajasthan (Rajasthan)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM	NM
11	University of Allahabad ,Allahabad, (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
12	AMU , Aligarh (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	BBA Univ., Lucknow (UP)	Not for libraries								
14	BHU, Varanasi (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table- 9** Users Level awareness about Using E-Resources (G3)

S.N o.	Name of Central Universities	Gradua. level Awareness	PG. level Awareness	M. Phil. Ph. D Level Aware.	D.lit/Teaching official staff Awareness	Non teaching level Awareness	Outside users Awareness	Univ.level students Awareness
1	University of Kashmir, Srinagar (J&K)	Yes	Yes	Yes	NM	NM	NM	NM
2	Central University of Jammu (J&K)	NM	Total (670 +)	Yes	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	NM	NM	NM	NM	NM	NM	NM
6	JNU, (New Delhi)	Yes	Yes	Yes	Yes			

7	Jamia Millia Islamia (New Delhi)	Yes	Yes	Yes	NM	NM	NM	NM
8	IGNOU (New Delhi)	Yes	Yes	Yes	Yes	Yes	NM	NM
9	Central University of HP (HP)	NM	Yes	Yes	NM	NM	NM	NM
10	Central University of Rajasthan (Rajasthan)	Yes	Yes	Yes	Yes	NM	NM	NM
11	University of Allahabad, Allahabad, (UP)	Yes	Yes	Yes	Yes	NM	NM	NM
12	AMU, Aligarh (UP)	Yes	Yes	Yes	Yes	NM	NM	NM
13	BBA University, Lucknow (UP)	Not for libraries						
14	BHU, Varanasi (UP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	NM	NM	NM	NM	NM	NM

**Table 7** highlights frequent of using Electronic resources and number of users used electronic resources. From this table it has been revealed that out of 16 central university libraries, only 5 libraries have mentioned their number of users. DU has 500000 users in a year in their library. IGNOU has 600+ but Jammu university has 150 frequently users in their library. 11 university libraries have not responded to my questionnaire though some information is available in their websites. From there, JNU's users 2000+ have been known. It should be avoided for the welfare of the users and academic society because the staff of this university and the controlling authority is taking of huge amount of salary and other facilities. Therefore, they should be more conscious, responsible and keen interested with zeal to solve this problems. Table indicates that users are students, research scholars, faculty members and outsiders. Their visits are daily, or 2-3 times in a week, fortnightly, monthly or occasionally. 8 university libraries have given data that students as well as research scholars visit their library. But, 7 university libraries only have mentioned that their faculty members are the visitors of their library. Only 6 universities have mentioned that they have only daily users.

**Table 8** describes the purpose of using electronic resources. The library has provided different facilities and services to its research scholars. It is important to know from the research scholars that for what purpose they are using the library, it has been found from the table that out of 16 central library universities, 9 libraries (56.25%) have the similar purpose of using electronic resources except to the use of SDI/Others. They have mentioned their consent for primary research, study reference, update the subject knowledge, project assignment, teaching purpose or publishing article and current awareness services. For the purpose of SDI & Other the response rate is 3 university libraries (18.75%). Universities who have not given any response are 3 universities but 3 universities information has been collected from their websites.

**Table 9** shows about users level awareness about using E-resources. The response reveals that response of the graduation level awareness is given by only 7 university libraries (43.45%). PG level awareness is a major then the graduation level awareness as 9 university libraries (56.25) have given response to PG level awareness. It is also observed that D. Lit/Teaching level or Official staff awareness is very dissatisfied. Only 5 universities out of 16 libraries have given response to this level. Only IGNOU has given response to Nonteaching level whereas VBU has marked that it is rare in response for teaching level. So, I feel that it is a great concern for the university library though VBU give permit to outsiders very frequently.

**Table -10Users spend time on E-resources (G4)**

S.No	Name of Central Universities	Graduation level	PG. level	M. Phil. Ph. D. Level	Teaching- Official staff	Non teaching level	Univ. level students	Any Remarks
		Half an hour/ one hour/ two hour/ More than two hours						
1	University of Kashmir, Srinagar (J&K)	Yes	Yes	Yes	NM	NM	NM	NM
2	Central University of Jammu (J&K)	One hour/ NM	Yes	Yes	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM

5	University of Delhi (Delhi)	NM	NM	NM	NM	NM	NM	NM	
6	JNU, (New Delhi)	NM	NM	NM	NM	NM	NM	NM	
7	Jamia Millia Islamia (New Delhi)	NM	NM	More than two hour	NM	NM	NM	NM	
8	IGNOU (New Delhi)	More than two hours							NM
9	Central University of HP (HP)	Half an hour	Half an hour	Two hour	NM	NM	NM	NM	
10	Central University of Rajasthan (Rajasthan)	NM	Yes	Yes	Yes	NM	NM	NM	
11	University of Allahabad ,Allahabad, (UP)	NM	NM	NM	NM	NM	NM	NM	
12	AMU , Aligarh (UP)	Yes	Yes	Yes	Yes	NM	NM	NM	
13	BBA University, Lucknow (UP)	NM	NM	NM	NM	NM	NM	NM	
14	BHU, Varanasi (UP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	
16	Central University of Bihar (Bihar)	NM	NM	NM	NM	NM	NM	24 hrs. 7 days in a week	

**Table -11** Learning method to use Electronic resources (G5)

S.No	Name of Central Universities	Trial & Error	From Colleagues	Guidance from Lib. Staff	Courses Offered by the University	Through orientation Program
1	University of Kashmir, Srinagar (J&K)	NM	NM	Yes	NM	Yes
2	Central University of Jammu (J&K)	NM	NM	Yes	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	NM	NM	Yes	NM	Yes
6	JNU, (New Delhi)	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	NM	NM	Yes	NM	NM
8	IGNOU (New Delhi)	NM	NM	Yes	NM	NM
9	Central University of HP (HP)	NM	NM	Yes	NM	NM
10	Central University of Rajasthan (Rajasthan)	NM	NM	Yes	NM	NM
11	University of Allahabad ,Allahabad, (UP)	NM	NM	Yes	Yes	Yes
12	AMU , Aligarh (UP)	NM	NM	NM	Yes	Yes
13	BBA University, Lucknow (UP)	NM	NM	Yes	NM	NM
14	BHU, Varanasi (UP)	NM	Yes	Yes	NM	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	NM	NM	Yes	NM

**Table 10** describes time speed for E-resources. Having situated in different areas and location, central university libraries have different times for different level of users. In Graduation level, 5 universities have given 5 types of time. There is no similarity among central university libraries given times. IGNOU has revealed that more than 2 hours is required for Graduation level to university level students in their university. 5 universities have revealed that in PG level users spend time but how long? It has not been mentioned. JMI has stated that more than 2 hours is required to M.Phil and PhD level students in their university library. 5 universities again have confirmed that M.Phil and PhD level student study but how long? It has not been mentioned. For Bihar, users spend 24 hours and 7 days in a week.

**Table 11** describes about the learning method to use Electronic resources. Out of 16 central university libraries only BHU has given response of taking help from colleagues while learning electronic resources. This table clearly reveals that 10 libraries (62.50%) helps to develop the skills of E-resources with the guidance of library staff. 3 libraries (18.75%) have the opinion that users have good knowledge of electronic resources by the courses offered by the universities. Average of the universities 4 (25%) presented that orientation is the greater source of knowledge of E-resources by the universities. Therefore, I feel handling of ICT tools in real



life application is the best way to use Electronic resources. Though, development of universities level is quite helpful to the students as well as libraries to optimize the use of the E-resources. Audio-visual materials are more effective as well as short term training program, ICT tools and techniques to train the users concern and availability of literacy web-page is the demand of the present situation

**Table -12** Types of Electronic resources used (G6)

S. No.	Name of Central Universities	E books Resource	E-Journal	CD ROM	Online Database	Internet	E-news paper	Ediction ary	E-encyclo pedia	Others
1	University of Kashmir, Srinagar (J&K)	Yes	Yes	NM	Yes	Yes	Yes	Yes	NM	NM
2	Central University of Jammu (J&K)	NM	Yes	NM	Yes	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	OPAC + UGC Info net
5	University of Delhi (Delhi)	Yes	Yes	NM	Yes	Yes	Yes	Yes	Yes	NM
6	JNU, (New Delhi)	Yes	Yes	NM	Yes	Yes	Yes	Yes	Yes	NM
7	Jamia Millia Islamia (New Delhi)	Yes	Yes	NM	Yes	Yes	NM	NM	NM	NM
8	IGNOU (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NM
9	Central University of HP (HP)	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM
10	Central University of Rajasthan (Rajasthan)	Yes	Yes	NM	Yes	Yes	NM	NM	NM	NM
11	University of Allahabad ,Allahabad, (UP)	Yes	Yes	NM	Yes	Yes	Yes	NM	NM	NM
12	AMU , Aligarh (UP)	Yes	Yes	CD FOR Teaching	Yes	Yes	Yes	Yes	Yes	NM
13	BBA University, Lucknow (UP)	NM	Yes	NM	Yes	NM	Yes	NM	NM	NM
14	BHU, Varanasi (UP)	Yes	Yes	NM	Yes	Yes	Yes	Yes	Yes	Yes
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	Yes	Yes	Yes	Yes	Yes	Yes	NM	Yes	E-Reports

**Table –13**Problem faced while using Electronic resources by users (G7)

S. No.	Name of Central Universities	Lack of training problem	Technical Problem	Internet access prob.	Slow down loading prob.	Finding irrelevant information	Lack of printer prob.	Non co operative attitude of staff
1	University of Kashmir, Srinagar (J&K)	NM	Yes	Yes	NM	NM	NM	NM
2	Central University of Jammu (J&K)	NM	Yes	Yes	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM
4	Central	NM	NM	NM	NM	NM	NM	NM

	University of Haryana (Haryana)							
5	University of Delhi (Delhi)	NM	NM	NM	NM	Yes	NM	NM
6	JNU, (New Delhi)	NM	NM	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	NM	Yes	NM	Yes	NM	NM	NM
8	IGNOU (New Delhi)	Yes	Yes	NM	NM	NM	NM	NM
9	Central University of HP (HP)	Yes, students & Teaching staff	NM	NM	NM	Yes, students & Teaching staff	NM	NM
10	Central University of Rajasthan (Rajasthan)	Not assessed						
11	University of Allahabad, Allahabad, (UP)	NM	Yes	Yes	NM	Yes	NM	NM
12	AMU, Aligarh (UP)	NM	NM	NM	NM	NM	NM	NM
13	BBA University, Lucknow (UP)	No	Sometimes	Yes	Yes	NM	NM	NM
14	BHU, Varanasi (UP)	NM	NM	NM	NM	Yes	Yes	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	Yes	NM	NM	NM	NM	NM	NM

**Table 12** suggests about the type of E-resources used in the libraries of central universities. The data from the table reveals that E-books are used by 11 central university libraries (68.75%). It has been found that E-journals are used by 13 central university libraries (81.25%). The result shows that users of those central university libraries use the E-journal more as compared to other E-books. The CD ROM is used by only 3 libraries (18.75%). AMU use CD ROM for teaching purpose. It has also been found that 13 libraries (81.25%) use the online data base. Internet is used by 10 central university libraries (62.50%). 11 university libraries have not mentioned regarding the use of internet. E-newspapers and E-encyclopedia are used by 8 university libraries (50%). The use of OPAC, Wikipedia, and INFLIBNET are used very less. In this technology driven era majority of users consult OPAC/Web OPAC to locate the documents which shows that technological growth and innovations have influenced their behavior.

**Table 13** presents the problems faced while using electronic resources. Users are making use of E-resources and services provided by the central university libraries. So, they face various types of problems while using e-resources and services. From Table No. 40 it is evident that 3 university libraries (17.39%) face the lack of training problem and 8 university libraries (37.50%) admit that they face some technical problem in their libraries. It also reveals that 4 university libraries (18.75%) are facing slow down loading problem while accessing information from the internet. It has also been found that university libraries suffer lack of printer problems. Though, BHU admits such problem. They have also remarked that students are the worst sufferers due to lack of printers in the libraries. It has been found that no university libraries is ready to accept that students, research scholars are facing difficulty in conversation of information and also lots of problems while seeking information due to non co operation attitude of library staff members. The survey clearly indicates the electronic resources are highly useful for the research scholars. Various kinds of training program are required for users and research scholars that can be proved helpful to their research study. Users expecting more orientation and training program for better usage of the resources so that university libraries need to take some more initiative to enhance the utility by orientation and training program.

**Table – 14**

Satisfaction level with uses of Electronic resources & Search engines/ web browser used (G8)

S. No.	Name of Central Universities	Satisfactory level					Used search engines/ web browser					
		Fully Satisfied	Level of satisfaction	Satisfied	Not Satisfied	No comment	Google chrome	Yahoo	Rediff mail	Hot mail	Mozilla firefox	Internet Explorer
1	University of Kashmir, Srinagar (J&K)	Yes	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	Yes	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	Yes	NM	NM	NM	NM	Yes	Yes	Yes	Yes	Yes	Yes
6	JNU, (New Delhi)	NM	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	NM	NM	Yes	NM	NM	Yes	Yes	NM	NM	NM	Yes
8	IGNOU (New Delhi)	Yes	NM	NM	NM	NM	Yes	Yes	Yes	Yes	Yes	Yes
9	Central University of HP (HP)	NM	NM	Yes	NM	NM	Yes	NM	NM	NM	NM	NM
10	Central University of Rajasthan (Rajasthan)	Not assessed					Not assessed					
11	University of Allahabad, Allahabad, (UP)	NM	NM	Yes	NM	NM	NM	NM	NM	NM	NM	NM
12	AMU, Aligarh (UP)	NM	NM	NM	NM	NM	Yes	Yes	Yes	Yes	Yes	Yes
13	BBA University, Lucknow (UP)	Not for libraries					Yes, Ans. Got through phone					
14	BHU, Varanasi (UP)	NM	NM	Yes	NM	NM	Yes	Yes	Yes	Yes	Yes	Yes
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	NM	Yes	NM	NM	NM	NM	NM	NM	NM	NM

**Table – 15** Adequacy /Availability of information & advantages of using E-resources & Behavior of the staff (G9-G11)

S. No	Name of Central Universities	Adequacy of Information on E-resources				Advantages of using E-resources					Behavior of the staff			
		Always	Mostly	Sometimes	Never	Time Saving	Easy To use	More Informative	All the above	Other	Excellent	Very good	Fair	Average
1	University of Kashmir, Srinagar (J&K)	NM	Yes	NM	NM	NM	Yes	NM	NM	NM	NM	Yes	NM	NM
2	Central University of Jammu (J&K)	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	NM	Yes	NM	NM	Yes	Yes	Yes	NM	NM	NM	Yes	NM	NM
6	JNU, (New Delhi)	NM	NM	NM	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	Yes	NM	NM	NM	NM	NM	NM	Yes	NM	NM	Yes	NM	NM
8	IGNOU (New Delhi)	NM	Yes	NM	NM	Yes	Yes	Yes	Yes	NM	Yes	NM	NM	NM
9	Central University of HP (HP)	NM	Yes	NM	NM	NM	NM	NM	Yes	NM	NM	Yes	NM	NM
10	Central University of Rajasthan (Rajasthan)	Yes	NM	NM	NM	Not assessed					Not assessed			
11	University of Allahabad, Allahabad, (UP)	NM	NM	NM	NM	Yes	Yes	Yes	Yes	NM	NM	NM	NM	NM
12	AMU, Aligarh (UP)	NM	NM	NM	NM	Yes	Yes	Yes	Yes	NM	NM	NM	NM	NM
13	BBA University, Lucknow (UP)	Yes	NM	NM	NM	Yes	Yes	Yes	NM	NM	Yes	NM	NM	NM
14	BHU, Varanasi (UP)	Yes	NM	NM	NM	Yes	Yes	Yes	Yes	Yes	NM	NM	NM	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	NM	NM	NM	NM	Yes	Yes	Yes	Yes	NM	NM	Yes	NM	NM

**Table 14** presents the satisfaction level with users of electronic resources & search engines or when Web browser used. There are certain parameters of finding satisfactory level of users that goes under fully satisfied, satisfied, not satisfied and no comments. Only, 4 university libraries (17.39%) have the opinion of fully satisfied while using the electronic resources. Similarly, it has also been found that 5 university libraries (31.25%) are satisfied with the use of electronic resources.

The result indicates from the table 41 that users of 9 university libraries (56.25%) use Google chrome search engine while using electronic resources. Only 5 university libraries (31.25%) are using Yahoo search engine. Similarly, Rediffmail and Internet explorer are used by 5 university libraries (31.25%). Hot mail and

Mozilla Firefox are used by 4 university libraries (25%). It reveals that Google chrome is such a search engine that is used by majority of users in major university libraries.

**Table 15** provides information about the adequacy and availability of information and advantages of using E-resources and behavior of the staff. Adequacy refers how many users of the university use electronic resources available in the libraries. Four options are ‘always, mostly, sometimes, and never’ given about adequacy of information. The result indicates from the table that most of the university libraries (25%) are always using the electronic information resources and similar have the percentage of second option. Study also suggests that majority of the users of central university libraries use electronic resources always.

**Table 15** also depicts about the advantage of using E-resources. 8 university libraries (50%) revealed that internet is more time saving than of a conventional document. While same no. of university i.e. 10 (50%) have the similar opinion of that internet is easy to use and 43.75% university libraries have said that using E-resource is more useful and informative. But, 50% university libraries preferred ‘All above’ means all advantages of using E-resources except 6.25% universities have the other type of opinion. Some universities have denied giving answers as per questionnaire.

**Table 15** also shows the behavior of the staff. Only 2 universities out of 16 universities, (17.39%) have declared that library staff has excellent behavior and 5 universities have stated (26%) that staff behavior is very good. No university has said in favor of fair behavior has given any response about average behavior of the staff.

The study reveals that information needs and information seeking behavior of faculty members, users in universities in present electronic environment has shifted from printed to electronic resources for the reason of easy accessibility and quick retrieval and time saving are the reason for using E-resources over printed sources.

**Table – 16 Impact of reading article from E- resources on academic efficiency (G12)**

S. No	Name of Central Universities	Impact of E-resources	Easier Access	Expedited the research processes	Access to current up to date inf.	Access to wider range of inf.	Improved Professional Competence and results	Inspire New thinking Ideas	Joint Research	Led to new author's / data sources	Resolves Technical problems	Save Time
1	University of Kashmir, Srinagar (J&K)	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	JNU, (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Jamia Millia Islamia (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	IGNOU (New Delhi)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Central University of HP (HP)	Yes	Yes	NM	Yes	NM	Yes	Yes	Yes	Yes	NM	Yes
10	Central University of Rajasthan (Rajasthan)	Not assessed										
11	University	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	of Allahabad, Allahabad, (UP)											
12	AMU , Aligarh (UP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	BBA University, Lucknow (UP)	NM	Yes	NM	NM	NM	NM	Yes	NM	NM	NM	NM
14	BHU, Varanasi (UP)	Yes	Yes	Yes	Yes	Yes	NM	Yes	Yes	Yes	Yes	Yes
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table – 17 Major problems in development of E- resources (G13)**

S. No	Name of Central Universities	Lack of staff	Lack of trained staff	Budget	Infra Structure	Co operation of higher authority	Networks	Lib. Web sites	Internet Band width	Wi-Fi services	Any other	Valuable suggestions & comments about my research topic.
1	University of Kashmir, Srinagar (J&K)	Yes	NM	NM	Yes	NM	NM	NM	NM	NM	NM	NM
2	Central University of Jammu (J&K)	Yes	NM	NM	Yes	Yes	NM	NM	NM	NM	NM	NM
3	Central University of Punjab (Punjab)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4	Central University of Haryana (Haryana)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
5	University of Delhi (Delhi)	NM	NM	NM	NM	Yes	NM	NM	NM	NM	NM	NM
6	JNU, (New Delhi)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
7	Jamia Millia Islamia (New Delhi)	Yes	Yes	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM
8	IGNOU (New Delhi)	Yes	Yes	NM	NM	NM	NM	NM	NM	NM	NM	NM
9	Central University of HP (HP)	Yes	Yes	Yes	Yes	NM	Yes	Yes	Yes	Yes	NM	NM
10	Central University of Rajasthan (Rajasthan)	Not assessed										
11	University of Allahabad, Allahabad, (UP)	Yes	Yes	NM	Yes	NM	NM	NM	NM	NM	NM	NM
12	AMU , Aligarh (UP)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
13	BBA University, Lucknow (UP)	NM	NM	NM	NM	NM	Yes	NM	NM	NM	Slow down	Please reconsider your

												loading	topic as well as your questionnaire. Whatever Inf. you are collecting, It is not at all related with your area of study except two pages
14	BHU, Varanasi (UP)	NM	NM	NM	NM	NM	Find irrelevant inf.	NM	NM	NM	NM	Lack of Printer	NM
15	HNB, Srinagar (UK)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
16	Central University of Bihar (Bihar)												Inf. From the case study by Mr. Arsad Ali (Conf.f eb.13-14,2015) at NIT Rourkela

**Table 16** highlights the Impact of reading articles from E-resources on academic efficiency. 9university libraries (56.25%) admits that their libraries have impact of reading articles of E-resources. 10 surveyed libraries (62.50%) feel that easier access to information commonly and inspiring resources for new things and ideas. This table proves that the impact of IT innovations is very strong and it moves us the fourth law of Dr. S.R. Rangnathan. "Save the time of the Reader". This will attract the type of academic community of all over India without any doubt. 10 (56.25%) university libraries feel also expedited the research process and 11 libraries (68.75%) are feeling access to current up to date information. 10 libraries (50%) are having access to wider range of information and inspire new ideas and thinking and to do joint research and to resolve technical problems. 8 university libraries (50%) feel improved professional competency and result. 9 university (56.25%) suggests that great impact is time saving. It proves again maximum areas and activities of the libraries are affected fully through the using Electronic resources. At present we can't move and think in old age traditional forms. It is found that 9 surveyed universities have selected all the options related to the impact of reading E-resources. But, other universities don't select all option related to E-resources. It suggests that somehow awareness should be generated on primarily because without it the purpose of enhancing of E-resources may be failure as well as obtaining current information.

**Table 17** shows about the major problems in development of E-resources. E-resources need special management criteria so that selection, procurement and use could be made more effective. There are no ideal solutions for such problems which are faced with E-resources by some universities. Lack of staff is one such a great problem. 6 university libraries (37.50%) have declared that they are not able to handle the IT due to lack of library professionals. 4 (17.39%) university libraries are having the problem of lack of trained staff. Professional staff are required to update their knowledge and trained constantly. 4(25%) university libraries have the budgeting problem. So, there is need for cooperation purchasing through library consortia. 7 university libraries (43.75%) are suffering due to infrastructural problems. 2 libraries (12.5%) are having the problem of cooperation of higher authority. Besides, cooperation and support of staff members, programmer, technical staff, and cooperation of higher authority is also essential to prove effective service in a digital environment. So, library staff should not only be technically competent but also user friendly approach. Another problem is



Network. 4 university libraries (25%) are facing Network problem. Slow access speed is one of the major problems while access the information through internet for E-journals and article accessing. Library websites is one of the problems which causing a hazard for CUHP. Though, I personally feel that websites of VBU and CUP were not up to date for many days. Internet Band width and Wi-Fi services are two major problems for CUHP and Nagaland University. Most of the users in these two universities use internet, e- mail, searching relevant information, career, job and research work. Research scholars and faculty members prefer Web-resources for research work, assignments, Conference & Congresses and their professional development. Besides, a major portion of web resources are required to find relevant information research work. So, campus should be Wi-Fi free and Internet band-width.

## V. RESULTS AND FINDINGS

Many are moving towards **computerization & digitization** in their library services. The libraries have no concern about their library collection security system. Most of the libraries have not any security cameras, alarm system, password security system, and digital signature system in their libraries to secure their library collection. Due to lack of security technologies maximum libraries face problem of missing/damage of library materials.

The libraries are not concern about preservation of electronic resources and rarely technology are used by the libraries to combat the loss of digital resources in their libraries. The maximum libraries are also not having **insurance** of their valuable library materials which is demand of modern security libraries security. Most of the central university libraries are now practicing **technical services of computerization** but there are also libraries which are lagging behind and their services are based on manual work. Most of the libraries are not practicing proper technical services of library which includes **cataloguing, classification, indexing & accession number based systems** in the libraries.

Average of the universities 7 (30.43%) presented that orientation is the greater source of knowledge of Information Technology by the universities. 8 university libraries (50%) revealed that internet is more time saving than of a conventional document. While same no. of university i.e. 10 (50%) have the similar opinion of that internet is easy to use and 43.75% university libraries have said that using E-resource is more useful and informative. But, 50% university libraries preferred 'All above' means all advantages of using E-resources except 6.25% universities have the other type of opinion. Some universities have denied giving answers as per questionnaire.

Maximum users want to use internet for their daily use.

## VI. SUGGESTIONS AND CONCLUSION

Library is the heart of Academics. Many university libraries in Northern and East India are in the process of developing and some have already in developed. Some universities are using modern techniques with great enthusiasm. But, there should be awareness regarding digital technology, internet and maintenance of rare collection, proper documentation & preservation, professional competence with modern techniques and to find out the satisfaction level of research scholars. But, it should be taken care that universities are following the guidelines and norms or not. Innovative challenges of universities should be helpful to guide the research scholars. Universities should take care about their research collection.

Otherwise, students of those universities will not be beneficial in the field. In up gradation and effective management of libraries, the challenges today are very hectic & tedious. Following services and coordination of all university libraries can build up a quality world in the library profession and the field of literature. Sincere service of the librarian and honesty in the profession can make a new door step in the field of Library Science in India. Information technology environment and learning opportunities should be available to each students, users and library professionals with proper IT training. IT training should also be given to new comers.

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