

## Information Technology Application in Health Science Libraries: A study of Delhi

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**Abstract** - *The present study covers the changing scenario of libraries with the application of Information Technology. The application of IT is widely visible on every function of the library. The present study deals with the use of IT in different sections of the libraries and also highlights the condition of Human power, gender analysis, qualification and experience of staff, collection development and the infrastructural facilities of Health Science Libraries under study. The results reveal that most of the staff members of libraries are qualified and find that the IT has changed the entire functioning of the libraries and has improved our efficiency.*

**Keywords:** Information Technology, Health Science, Application, Automation, Usage skills

### Introduction

As the backbone of any research depends upon the data pertaining to the various facets of the topic, this paper deals with the data collected through questionnaire and other methods pertaining to the five Health Science Libraries under study. Thereafter, the collected data has been analysed to reach to certain conclusions.

As per the procedure followed questionnaires were distributed to collect the data from five Health Science Libraries on different aspects keeping in view the number of professional staff available in each library. Consequently the number of questionnaires administered in five Health Science Libraries is given in Table 1.1. Due to the shortage of professional staff in almost all libraries, 35 questionnaires were distributed among the professional staff having LIS degree of 5 healthcare libraries viz. B. B. Dixit library of AIIMS, ICMR, National Medical library, National Documentation Centre of the National Institute of Health and Family Welfare and Maulana Azad Medical College library. In all 20 duly filled questionnaires were received back and the data thus collected from the staff of these libraries has been analysed in this chapter.

**Table 1**

No. of Questionnaire Distributed	No. of Questionnaire Received	% of Response
35	20	57.14

### General Information about Health Science Libraries

Table No. 1 reveals that Resource Centre of Indian Council of Medical Research is the oldest amongst the five libraries being established in 1949. National Documentation Centre of National Institute of Health and Family Welfare was established in 1977. B. B. Dixit library

of AIIMS was established in 1952, while Central Library of Maulana Azad Medical College and National Medical library in 1959 and 1966 respectively.

**Table 2**

<b>Name of Health Science Institute/Library</b>	<b>Name of Parent Body</b>	<b>Year of Establishment</b>	<b>Nature and Type</b>
B. B. Dixit Library	AIIMS	1952	Academic
National Documentation Centre	National Institute of Health & Family Welfare	1977	Documentation Centre
Resource Centre	Indian Council of Medical Research	1949	Research Centre
National Medical Library	Ministry of Health & Family Welfare	1966	National Library
Central Library	Maulana Azad Medical College	1959	Academic

### **Working Hours of HSL**

Table 2 reveals that B. B. Dixit library of AIIMS provides 24x7 library services round the year. National Medical library also remains open for 360 days, but provides its services for only 11 hours daily. Similarly National Documentation Centre of NIHF, Resource Centre of MAML and ICMR Library remain open for 300 days, but offer library services for 9 to 11 hours daily.

**Table 3**

<b>Name of Library</b>	<b>No. of Working Days/ Year</b>	<b>Opening Hours/ Day</b>
B. B. Dixit Library (AIIMS)	360	24
National Documentation Centre (NIHF)	300	09
Resource Centre (MAML)	300	11
National Medical Library	360	11
Central Library (ICMR)	300	11

### **Status of Library Staff Position**

The problem of shortage of staff in libraries is common in Indian context. In general, however, the perception about HSL appears to be that of better staff positions. The study as shown in Table 4 reveals the condition of staffing position. Overall it was assessed that out of as many as 71 sanctioned technical posts, 23 posts are vacant amounting to 33% of the total, which is quite a large number when one thinks of provision of essential services in HSL.

**Table 4**

<b>Post</b>	<b>Sanctioned</b>	<b>Filled</b>	<b>Vacant</b>
Chief Librarian/Director	4	3	1
Librarian Selection Grade	1	0	1
Librarian Grade-I/Sr. LIO	4	3	1
Librarian Grade-II/LIO	5	5	0
Librarian Grade-III/LIA	12	8	3

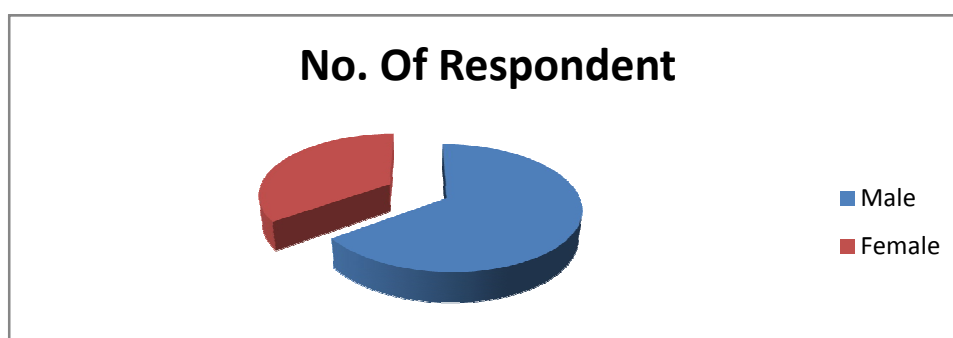
Library Attendant Grade-I	13	8	4
Library Attendant Grade-II	22	14	6
Sr. Technical Assistant	4	2	2
Library Assistant	1	1	0
Office Attendant	3	3	0
Reprographic Technician	2	1	1
<b>Total</b>	<b>71</b>	<b>48</b>	<b>23</b>

### Gender wise Analysis of Library Staff

As to the gender wise data collected from library staff, it is revealed that out of 20 male staff members, responses were received from only 13 members i.e. the response rate is 65%. Similarly out of 15 female staff members, responses were received from only 07 members i.e. 47% as shown in Table 5 below.

Table 5

S.No.	Gender	No. of Questionnaires Distributed	No. of Respondents	%
1	Male	20	13	65
2	Female	15	07	47
	<b>Total</b>	<b>35</b>	<b>20</b>	<b>57.14</b>

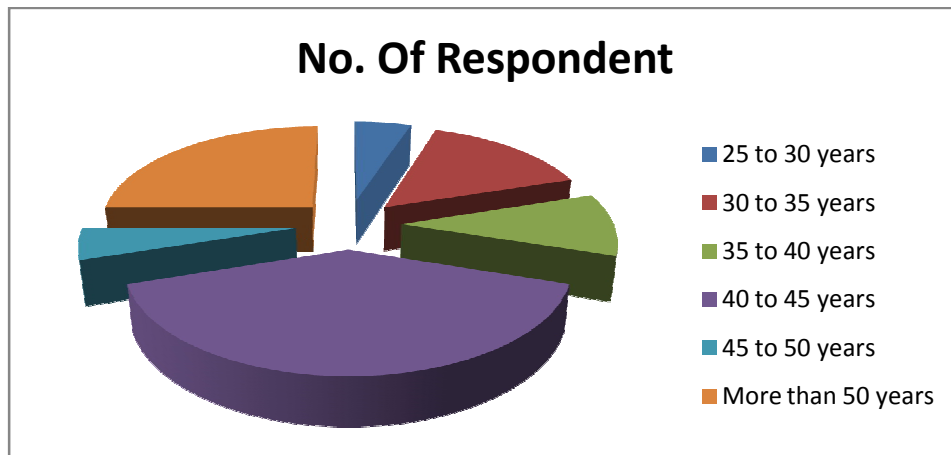


### Age Wise Analysis of Library Staff

Table 6 provides age wise analysis of the respondent with male and female staff taken together. The table shows that the response rate of the library staff to be the highest in the age group from 40 to 45 years, and the lowest in the age group from less than 25 years i.e. 0%.

Table 6

S.No.	Age Group	No of Questionnaires Distributed	No. of Respondents	%
1	Less than 25 years	02	NIL	00
2	25 to 30 years	03	01	33
3	30 to 35 years	05	03	60
4	35 to 40 years	05	02	40
5	40 to 45 years	10	08	80
6	45 to 50 years	02	01	50
7	More than 50 years	08	05	62
	<b>Total</b>	<b>35</b>	<b>20</b>	<b>57.14</b>



### Qualification of Library Staff

The quality of library services depends on the professional qualification and professional skills of library staff. The qualification of library staff members in five health science libraries is separately given in Table 7. It reveals that the highest qualification among library staff in five HSL is Ph.D. in Library & Information Science possess by the Chief librarian of BBDL (AIIMS), The maximum Masters degree (M.Lib.I.Sc.) holders i.e. 5 are working in NDC (NIHFW) and some of the library staff members have either diploma or degree in computer science, which include 2 in AIIMS, one in NDC and 3 in Maulana Azad Medical College.

**Table 7**

Name of Library	B.Lib.I.Sc.	M.Lib.I.Sc.	M.Phil	Ph.D.
B. B. Dixit Library (AIIMS)	0	1	2	1
National Documentation Centre (NIHFW)	0	5	1	0
Resource Centre (MAML)	2	3	0	0
National Medical Library	1	2	0	0
Central Library (ICMR)	0	2	0	0

### Availability of Computer Professional Staff

Very surprisingly no post of computer professional staff is sanctioned in any library under the present study. Hence, library professionals are managing and providing IT based information services in all five health science libraries by acquiring IT knowledge by doing certificate and diploma courses at their own . The library professionals are being provided IT training to pursue their job responsibilities. Many of the library staff members have got IT training within the library but few have procured from outside. None of the library has any policy to train their library professionals in information technology. Table 8 provides the status of computer professional staff in HSL. Two library staff members in AIIMS have master degree in computer science, whereas 2 library staff members working in MAML possess diploma in computer science. NML and ICMR have no any computer professional in library.

Table 8

Name of Library	Certificate	Diploma	Degree
B. B. Dixit Library (AIIMS)	0	0	2
National Documentation Centre (NIHFW)	0	1	1
Resource Centre (MAML)	1	2	0
National Medical Library	0	0	0
Central Library (ICMR)	0	0	0

### Information Technology Exposure of Library Staff

Library staff members were asked to provide IT exposure towards their job responsibilities through the questionnaire by different approaches like special courses attended, conference and seminars and other such activities. It is praiseworthy that 95% staff members attended various computer courses for improving IT knowledge. 75% library staff attended conferences, seminars, workshops at regular intervals to enhance their knowledge for making themselves aware about new technologies that are now being used in libraries. 45% staff members presented research papers in conferences, 25% delivered special lectures on the issues/topics related to their respective library operations and functioning. Table 9 provides the status of IT exposure among library staff members in five health science libraries together.

Table 9

SNo	IT Exposure	No. of Respondents	%
1	Course attended	19	95
2	Conference/Seminar/Workshops attended	15	75
3	User Awareness programme attended	07	35
3	Paper presented	09	45
4	Special lectures delivered	05	25

### Budget Allocation in Health Science Libraries (Rs. in Lakhs)

Investment on ICT in libraries is highly expensive is beyond any doubt. But the libraries in the developing countries like India are not given adequate budget by its parent organisation. So it is not easy to implement ICT component in libraries. It is assessed that none of the library has separate budget for electronic resources. Compromise on low cost ICT equipment can also result in performance and longevity of the equipment. No budget allocation for specific type of material is allocated among HSL. However, National Medical library has the maximum budget in all HSL which is twenty seven crore per annum. Maulana Azad Medical College library has twenty six crore budget for purchase of books and journals per annum. NDC has very limited funds i.e. only twenty lakhs for purchasing reading material every year. B. B. Dixit library of AIIMS has twelve crore, whereas ICMR library has only fifty lakhs for procuring the books and journals every year. It is seen that most of libraries including NML, B. B. Dixit library and MAMC library has no policy for specific division of budget for specific type of documents. None of the library has separate budget for procuring e-resources. The total budget is allocated and the same is utilised depending upon the requirement of material required for library whether it is print or non print. In the present scenario of information age some fixed amount has to be allocated for the procurement of e-resources. Table 10 provides the status of library budget in five health science libraries.

**Table 10**

<b>Name of Library</b>	<b>Books</b>	<b>Journals</b>	<b>Total</b>
B. B. Dixit Library (AIIMS)			120
National Documentation Centre (NIHFW)	10	10	20
Resource Centre (MAML)			260
National Medical Library			270
Central Library (ICMR)	25	25	50

### **Library Membership**

The membership status comprising of UG, PG students, Research scholars, faculty members and other type of member i.e. special members in Health Science Libraries is presented in Table 11. The collected data shows that B. B. Dixit library of AIIMS has the maximum number of users i.e. 3495 among all HS libraries, followed by Maulana Azad Medical College library which is 1196. NDC of NIHFW has the minimum library membership which is 103 only. NML has 250 users, whereas ICMR library has provided membership to 147 users.

**Table 11**

<b>Name of Library</b>	<b>UG</b>	<b>PG</b>	<b>RS</b>	<b>FM</b>	<b>O</b>	<b>Total</b>
B. B. Dixit Library (AIIMS)	796	1399	00	800	500	3495
National Documentation Centre (NIHFW)	00	20	38	05	40	103
Resource Centre (MAML)	740	340	00	56	60	1196
National Medical Library	00	250	00	00	00	250
Central Library (ICMR)	45	60	00	12	30	147

### **Collection of Library Resources (Print)**

Library collection is a key area for the existence of a library. The collection is developed, maintained and managed as per the respective library policy. Acquired documents are a part of the collection to support and benefit current needs of user community in HSL. The total collection include books, current journals, bound volume of journals, theses and other type of material in these five HSL is given in Table 12. It predicts that National Medical library has maximum collection of books i.e. 145000, followed by B. B. Dixit library which has 72000 books. However, B. B. Dixit library has maximum collection of bound volumes of journals i.e. 71000, followed by NML which has 48000 bound journals. BBDL has a rich collection of theses i.e. 9000. ICMR has minimum collection of print documents which include 7000 books, 13000 bound journals and subscribe to only nine current journals. NDC has 50653 books, 11967 bound journals and has a rich collection of other type of documents i.e. 7000.

**Table 12**

<b>Name of Library</b>	<b>Books</b>	<b>Current Journals</b>	<b>Bound Volumes</b>	<b>Theses</b>	<b>Others</b>	<b>Total</b>
B. B. Dixit Library (AIIMS)	72000	1500	71000	9000	5000	158500
National Documentation Centre (NIHFW)	50653	72	11967	1500	7000	71192
Resource Centre (MAML)	32907	170	33663	3000	200	69940
National Medical Library	145000	1481	48000	00	00	194481
Central Library (ICMR)	7000	09	13000	00	00	20009

### Collection of Library Resources (Non Print)

With regard to e-resource collection, it is noticed that even during the present information age, when electronic resources are dominating over print resources, health science libraries are still relying on print resources, and most of the budget is utilised to acquire print resources. Though these HSL are fully automated and have all IT infrastructural facilities that are required for providing access to e-resources. The data collected from HSL shows that B. B. Dixit library of AIIMS has maximum collection of e-resources which include 100 e-books, 1480 e-journals and few databases like ERMED. NML is subscribing to 289 e-journals, 1000 CD-ROMS and has few databases. MAML has 650 CD-ROMs and 149 e-journals on subscription. NDC is very poor in e-resources. Table 13 provides the various type of e-resources subscribed by HSL.

**Table 13**

Name of Library	e-Books	e-Journals	Databases	e-Theses	CD-ROM	Total
B. B. Dixit Library (AIIMS)	100	1480	01	00	00	1581
National Documentation Centre (NIHFW)	00	27	00	00	00	27
Resource Centre (MAML)	00	149	02	00	650	801
National Medical Library	00	289	01	00	1000	1290
Central Library (ICMR)	00	908	05	00	250	1163

### Infrastructural Facilities Available in HSL

Infrastructural facilities form a sound basis for effective library services and communication with the user community both within and outside the library. The data gathered from questionnaire responses regarding infrastructural facilities available in health science libraries is presented in Table 14. It shows that B. B. Dixit library (AIIMS) and NML have very good infrastructural facilities for making full use of library resources. Reading rooms for students, separate areas for faculty members, room for photo copying and separate section for e-resources are provide in these two libraries. MAML is lacking these facilities it has only reading room for students and a separate section for e-resources. NDC and ICMR libraries have reading rooms for students, separate section for photo copying service.

**Table 14**

Location	AIIMS	NDC	MAML	NML	ICMR
Reading room for students	YES	YES	YES	YES	YES
Separate reading room for staff	YES	NO	NO	NO	NO
Room for photocopying facility	YES	YES	NO	YES	YES
Video and Cassettes room	YES	NO	NO	YES	NO
Separate area for e-resources	YES	NO	YES	YES	YES

### Status of Library Automation in HSL

Libraries are the lighthouse of information dissemination, which is an important component of any academic institution and learning process where seekers of information can explore the vast amount of information. Realising the fact, libraries and information centres have to provide speedy and pin pointed information required by the users. In traditional library system, users have to spend more time for searching a small piece of information and more over they have to depend mainly on the library staff. But in the present information age, when



computers are being used for almost all library operations has save not only the time of users but library staff as well. It also avoids duplication of work and ensures the library services more effective.

In the present study of five Health Science libraries, four libraries viz. BBDL (AIIMS), NDC (NIHFW), MAML and ICMR are fully automated, whereas NML is still functioning through traditional system. BBDL is using Libsys 5.72 library software for library operations, which was implemented in the year 1990. NDC has Trodon 4.0 library software, MAML is using Libsys 6.0 and ICMR has GLAS (Graphic Library Automation System) for its automation and was introduced in the year 2007. B. B. Dixit library is the first library in the present study to start automation, whereas ICMR has recently started automating library operations in the year 2007. Table 15 shows the status of library automation in five health science libraries.

**Table 15**

<b>Name of Library</b>	<b>Automated</b>	<b>Name of Software</b>	<b>Year of implementation</b>
B.B.Dixit Library (AIIMS)	YES	Libsys 5.72	1990
National Documentation Centre (NIHFW)	YES	Trodon 4.0	2005
Resource Centre (MAML)	YES	Libsys 6.0	2006
National Medical Library	NO		
Central Library (ICMR)	YES	GLAS (Graphic Library Automation System)	2007

### **Jobs performed through Library software**

The mere availability of library automation system in a library is not sufficient, unless the software being used in libraries is put to use for carrying out maximum library operations. In order to obtain the status of jobs like acquisition, cataloguing, circulation and e-resource management, the questionnaire offered a list of jobs and the respondents to mark the computerised operations being performed through library software in HSL. Table 16 reveals that NDC making full use of library automation software in almost all areas of library operations including acquisition, cataloguing, circulation, serial control and even for e-resources management. BBDL (AIIMS) and MAML have automated system of acquisition, cataloguing, serial control and e-resource management, however these two libraries are not having automated circulation service due to security reasons.

**Table 16**

<b>Name of Library</b>	<b>Acquisition</b>	<b>Cataloguing</b>	<b>Circulation</b>	<b>Serial</b>	<b>e-resource management</b>
BBDL (AIIMS)	YES	YES	NO	YES	YES
NDC (NIHFW)	YES	YES	YES	YES	YES
MAML	YES	YES	NO	YES	YES
NML	NO	NO	NO	NO	NO
ICMR	YES	YES	YES	NO	NO

### **Status of E-Resource Centres**

Libraries and information centres today are playing a great role in meeting the quality development in academic institutions. Health science libraries are playing an important role



in improving medical scenario of our country. Existence in terms of usefulness of any library mainly depends on its physical, human and e-resources and its services. In this context user satisfaction is the paramount component of library services. To know the facility provided by HSL with regard to e-resources the existence and usefulness of e-resources in medical research, it is essential to know the status of e-resource centre.

Out of the five Health Science libraries under the present study, four libraries BBDL (AIIMS), MAML, NML and ICMR have separate e-resource centre and all of them are maintained to facilitate e-resources. However, B. B. Dixit library of AIIMS has the provision to facilitate and to procure the e-resources through the centre. National Documentation Centre of NIHFV has no facility of e-resource centre separately. The four libraries which facilitate e-resources through e-resource centre have the following facilities as shown in Table 17.

**Table 17**

Name of Library	Existence of e-resource centre	If yes, then purpose		
		To facilitate e-resources	To procure e-resources	For both
BBDL (AIIMS)	YES	√	√	√
NDC (NIHFV)	NO			
MAML	YES	√		
NML	YES	√		
ICMR	YES	√		

### Provision of Computers and Printers to Access E-Resources

Benefits from IT application cannot be derived without creating and providing the proper IT infrastructure and the other equipment required for dissemination of information resources. IT infrastructure provides the platform for delivery of applications and services and access to them. So it is necessary to provide essential infrastructure in the library, keeping in view the user needs. Users as well as the library staff members were asked the provision of IT infrastructure in HSL for making use of e-resources through the questionnaire. Table 18 provides the information regarding IT infrastructure available in five HSL separately that include number of computers provided to access e-resources and also the printers for getting print outs of the literature required by them.

**Table 18**

Name of Library	Number of computers	Number of Printers
B. B. Dixit Library (AIIMS)	40	16
National Documentation Centre (NIHFV)	00	00
Maulana Azad Medical College Library	60	10
National Medical Library	12	12
ICMR	10	02

### Opening Hours of E-Resource Centres

Usage of reading material mostly depends on the working days and opening hours of library in general and the specific section in particular. In the present scenario of information age most of the users prefer to use e-resources to pursue their studies. Opening hours of any specific section of library play an important role in the usage of that section. Table 19 shows

the opening hours of e-resource centres of these health science libraries. It depicts that e-resource centre of B. B. Dixit library has 40 computers with internet connectivity and 16 laser printers for providing print out facility. The e-resource centre remains open round the clock to provide access to e-resources with wi-fi facility. National Medical library has only 12 computers and 12 printers and the e-resource centre provide access to e-resources for more than eight hours per day. The central library of Maulana Azad Medical college has maximum number of computers i.e. 60 and the e-resource centre remains open eight hours per day. National Documentation centre has no facility of e-resources.

**Table 19**

<b>Name of Library</b>	<b>Opening Hours of E-Resource Centre</b>
B. B. Dixit Library (AIIMS)	24x7
National Documentation Centre (NIHFW)	No Provision
Maulana Azad Medical College Library	8 hours/day
National Medical Library	More than 8 hours/day
ICMR	6 hours/day

### **Policy for Users to Access E-Resources**

Though, all five libraries have sufficient IT infrastructure to avail the facility of e-resources. Sufficient number of computers, printers and other equipments are provided in each library for optimum utilisation of e-resources, but very surprisingly no policy for users to access e-resources is adopted except B. B. Dixit library of AIIMS. B. B. Dixit library has certain rules and guidelines for users to access e-resources. But the rest four HSL i.e. NDC, MAML, NML and ICMR have no such policy for users to access e-resources. The e-resource centres remain open in these four libraries to allow students and researchers to access e-resources. All registered members can access e-resources at any time during opening hours. Table 20 shows the feedback received from librarians.

**Table 20**

<b>Name of Library</b>	<b>Do you have any policy for users to access e-resources</b>	
	<b>YES</b>	<b>NO</b>
B. B. Dixit Library (AIIMS)	√	
National Documentation Centre (NIHFW)		√
Maulana Azad Medical College Library		√
National Medical Library		√
ICMR		√

### **Provision of User Education**

The success of IT application in libraries totally depends on the extent of users acceptance and their satisfaction. User community should always be kept well informed about latest IT application and its developments at regular intervals so that they can understand and make optimum use of IT based library services. User community were asked about the provision of such kind of activities being offered by HSL. Table 21 reveals that B. B. Dixit library of AIIMS, Central library of Maulana Azad Medical College, National Medical library and ICMR library provide user education through training to guide the users in accessing e-resources. B. B. Dixit library also organises workshops and provide training through computer aided instructions to help the users in acquiring knowledge about the use of e-resources. However, National Documentation Centre of NIHFW has no such provision for users.

**Table 21**

Name of Library	Do you provide user education	If yes, by which method			
		Through training	Through specialised course	Through workshop	Through computer aided instruction
BBDL (AIIMS)	YES	√	--	√	√
NDC (NIHFW)	NO		--	--	--
MAML	YES	√	--	--	--
NML	YES	√	--	--	--
ICMR	YES	√	--	--	--

### Usage Report

Usage report is an important document for any library. It not only helps in making the decision of selection and dropping of library material for future planning, but also provides support in Cyber crime cases if the usage report maintained individually. The librarians were asked about the methods used for keeping usage report in HSL. Table 22 reveals that all four HSL except NDC keep the record of usage of e-resources. MAML, NML and ICMR maintain the usage record by register method, whereas B. B. Dixit library of AIIMS keep the usage record electronically.

**Table 22**

Name of Library	Do you have any usage report keeping system	If yes, by which method			
		By register method	By separate sheet	By membership card	By electronic method
BBDL	YES	--	--	--	--
NDC	NO	--	--	--	--
MAML	YES	√	--	--	--
NML	YES	√	--	--	--
ICMR	YES	√	--	--	--

### Policy to Encourage the Best User

In modern libraries, the policy to encourage the best user of the library has become an essential practice just to motivate the users towards the use of library resources and to increase the reading habits among users. But unfortunately, none of the library in the present study has any policy to encourage the best user. If the users are encouraged by any means i.e. by issuing a certificate or by honoring him/her in special occasion and also by providing financial help the reading habit among users will definitely increase. Table 23 shows the responses received from librarians in HSL.

**Table 23**

Name of Library	Do you have any policy to encourage the best user	If yes, how do you encourage			
		By issuing certificate	By honoring in special program	By providing financial support	By free membership
BBDL	NO	--	--	--	--
NDC	NO	--	--	--	--
MAML	NO	--	--	--	--

NML	NO	--	--	--	--
ICMR	NO	--	--	--	--

## Conclusion

Undoubtedly, information technology has made it possible to cope up with the unprecedented and ever growing deluge of information. In such a situation, implementation of basic philosophy of librarianship into practice remains a nagging problem. In this process of organising, retrieving the volume of information in general and medical information in particular the recent technological advances in ICT are playing a vital role. On the basis of analysis of data collected from five Health Science Libraries viz. B. B. Dixit library of AIIMS, ICMR, National Medical Library, National Documentation Centre of NIHF and Maulana Azad Medical College library. Some major findings and recommendations are enunciated.

## Major Findings

Impact of information technology on Health Science Libraries (HSL) of Delhi is evident from the following findings.

- 1 As per data of Medical Council of India, there are as many as 150 Government Medical Colleges and 184 Private Medical Colleges established in India. Of these, five Government Medical Colleges and one private Medical College i.e. Army College of Medical Sciences are established in Delhi. In addition to that, National Documentation Centre and National Medical Library from the integral parts of National Institute of Health and Family Welfare, and Indian Council of Medical Research respectively both are situated at Delhi.
- 2 It is noticed that all five HSL under the present study were established during 1949 to 1977, three libraries are academic whereas one is documentation centre and one is National Medical library.
- 3 Four libraries are fully automated catering the needs of users, whereas only one viz. National Medical library is just planning to adopt IT application in library operations.
- 4 Out of the total 71 sanctioned posts of library professionals in all the five libraries under study, as many as 23 posts are vacant, a hard reality affecting the library services.
- 5 It has also been further observed that 40% of the available library staff in the five HSLs belongs to the age group varying from 40 to 45 years. None of them is below the age of 25 years.
- 6 It is noticed that the collection (both Print and Non Print) varies from one library to another, whereas, National Medical library has the maximum collection of books i.e. 145000, B. B. Dixit library has the maximum collection of bound volumes of journals i.e. 71000, ICMR library has the least number of books, journals and other print resources.
- 7 With regard to e-resources it is noticed that B. B. Dixit library has the maximum collection that include 100 e-books, 1480 e-journals and various databases. National Medical library has maximum number of CD-ROMs i.e. 1000. E-Resources of National Documentation Centre of NIHF are the best as compared to other libraries.
- 8 As to the budget allocation, National Medical library has the maximum budget i.e. 270 lakhs per annum, followed by Maulana Azad Medical College with 260 lakhs per annum and National Documentation Centre with only 20 lakhs. The volume of

- available grant naturally affects the availability of IT infrastructure to provide better services.
- 9 Regarding the library membership, B. B. Dixit library has the highest number in libraries i.e. 3495 which includes students, faculty members, non teaching staff and special members. This is followed by Central library of Maulana Azad Medical College which has 1196 members on the roll. National Documentation Centre has only 103 library members.
- 10 The available IT equipments in all the five libraries include scanners, laser printers, security devices, CC Cameras and electronic gates, apart from round the clock access of Internet and Intranet. Maulana Azad Medical College is better equipped with 60 systems and 12 printers, followed by B. B. Dixit library with 40 systems and 16 printers.
- 11 All the five libraries, except NDC are subscribing online full text journals through various agencies individually and databases including ERMED.
- 12 As to the proper space for different library services, B. B. Dixit library of AIIMS has reading rooms for students, separate rooms for faculty members, photocopying service, videos and to access e-resources. In contrast, infrastructural facilities of NDC are very limited.
- 13 It is noticed that all the five Health Science libraries except NDC have separate e-resource centre.
- 14 With regard to the time period, it was found that E-Resource centre of B. B. Dixit library of AIIMS remains open for 24 hours, whereas E-Resource centres of Maulana Azad Medical College, National Medical library and ICMR remain open for 6 to 10 hours per day.
- 15 None of the five HSLs except B. B. Dixit library has any policy for library users to access e-resources. B. B. Dixit library has developed a guide to library users.
- 16 User education is provided by all HS libraries except NDC. Most of the libraries are providing user education through training. B. B. Dixit library provides user education through workshops and also by providing computer aided instructions.
- 17 BBDL, MAML, NML and ICMR keep the usage report of e-resources. B. B. Dixit library keeps the usage report by electronic method, whereas rest maintain the record by register method.
- 18 No library has any policy to encourage the best user of e-resources.

## References

- 1 Babu, B.R., Vinayagamoorthy, P. and Gopalakrishnan, S. (2007). ICT skills among librarians in engineering educational institutions in Tamil Nadu. *DESIDOC Bulletin of Information Technology*. 27(6). p.55-64.
- 2 Bavakutty, M., Veeran, M.C.K. and Salih, T.K.M. (Eds). (2003). Information access, management and exchange in the technological age. New Delhi, EssEss Publishers. p.98-99.
- 3 Borgan, C.L. (1997). From acting locally to thinking globally: a brief history of library automation. *The Library Quarterly*. 67. p.215-249.
- 4 Callen, J.L., Buyankhishing, B. and McIntosh, J.H. (2008). Clinical information sources used by hospital doctors in Mongolia. *International Journal of Medical Information*. 77(4). p.249-255.
- 5 Cholin, V.S. (2005). Study of the application of information technology for effective access to resources in Indian universities libraries. *The International Information & Library Review*. 37. p.189-197.

- 6 Dhaka, R.P.S. UshaMunjuMunshi and P. Nishy. (1993). A technological solution to manage the information resource base of the country. *ILA Bulletin*. 28(3-4). p.80-86.
- 7 Dixit, R.P. (1995). Information management in Indian Medical libraries. New Delhi, New Concept. p.227-238.
- 8 Farahi, M.T. and Gandhi, R.T.D. (2011). IT skills among LIS professionals of medical libraries in India and Iran: a comparative study. *Annals of Library and Information Studies*. 58(2). p.161-169.
- 9 HarKaur and PreetiSharda. (2010). Role of technological innovations in improving library services. *International Journal of Library and Information Science*. 2(1). p.011-016.
- 10 Hauptman, R. and Anderson, C.L. (1994). The people speak: the dispersion and impact of technology in American libraries. *Information Technology and Libraries*. 13(4). p.249-256.
- 11 Kennedy, P. (2004). Dynamic web pages and the library catalogue. *The Electronic Library*. 22(6). p. 480-486.
- 12 Kumar, K. and Singh, S.P. (2000). From information society to knowledge society. *Journal of Library and Information Science*. 25(2). p.104-111.
- 13 Mony, P.K. and Nagaraj, C. (2007). Health information management: an introduction to disease classification and coding. *National Medical Journal of India*. 20(6). p.307-310.
- 14 Parasher, R.G. (2003). Information and its communication. Ludhiana, Medallion Press. p.1-11.
- 15 Patel, D.R. and Bhargava, Rachna. (1995). Comparative study of software packages available in the Indian market for library automation. *DESIDOC Bulletin of Information Technology*. 15(3). p.3-12.
- 16 Ramana, P.V. (2004). Information technology applications in libraries. New Delhi, EssEss Publications.
- 17 Ramani, K.V. and Mavalankar, D. (2006). Health system in India: opportunities and challenges for improvements. *Journal of Health Organisation and Management*. 20(6). p.560-572.
- 18 Satija, M.P. (2013). Information: nature, importance and functions. *Annals of Library and Information Studies*. 60. p.128-133.
- 19 Seth, M.K. and Dalai, B.K. (1995). Library automation in India. *DESIDOC Bulletin of Information Technology*. 15(3). p.29-34.
- 20 Singh, D.K. and Mohammad Nazim. (2008). Impact of information technology and role of libraries in the age of information and knowledge societies. *6<sup>th</sup> International CALIBER*. University of Allahabad, Allahabad. February 28-29 and March 1. p.28-45.
- 21 VenkataRamana, P. and Rao, Chandrasekhar. (2003). Use of Information technology in central university libraries of India. *DESIDOC Bulletin of Information Technology*. 23(2). p.25-42.
- 22 Ziming, L. (2005). Reading behavior in the digital environment: changes in reading behavior over the past ten years. *Journal of Documentation*. 61(6). p.700-712.

