Libraries in Digital Environment: A Study of Agricultural Universities of Haryana, Punjab and Uttarakhand

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Abstract

A study on digital library environment was conducted at agricultural and veterinary universities in Haryana, Punjab, and Uttarakhand through the questionnaire. The research findings revealed that maximum faculty members 'frequently are using library services based on information communication technology. They feel it convenient to use electronic resources as they get more time for other tasks. Majority of faculty members aware of information search tools as OPAC, Web OPAC, Institutional Repository and Consortia. They find better information search due to the availability of electronic information sources but at same time they also feel the requirement of skills/training in this changing environment of libraries.

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1. Introduction

In this age of Information explosion, modern technology has made the libraries and Information centres aware of rendering satisfactory services to the users. Collecting the information, organizing it and to provide that information to the right users has become essential for the information providers. Due to technological advancement, there has been a paradigm shift in how library users seek for information. The libraries' job is to offer effective library and information services based on the users' needs. Matching information seekers with information resources and obtaining the desired information for users is the fundamental responsibility of library professionals. They are supposed to serve as a link to users and library resources. To meet the needs of the users, it is necessary to offer accurate and comprehensive information offerings timely with high-quality materials with additional value and world-class services. Information professionals should also expand their professional abilities to adapt new technology.

In modern era, users are interested in a balanced collection print as well as e-Resources. E-resources have gained popularity and have been well received by the user community in recent years because of their portability and other benefits. Most of the libraries now provide

materials and services in digital format and libraries are changing according to the new environment. Libraries with ICT represent a transformative paradigm of a significant, user-friendly organisation that is progressing towards an integrated form with multiple components, new applications and services have emerged. However, the basic objective of these libraries is the same as that of traditional libraries: to organise, distribute, and conserve information resources. Due to the introduction of e-learning, remote learning, and online learning, information communication technology (ICT) is now being employed in the higher education sector for teaching and learning purposes. Academic libraries serve as the foundation of education, providing electronic resources, courseware, and collections for e-learning. Libraries are adjusting to developments and serving users according to their requirements. Trends are constantly moving, and librarians are adapting that changes more effectively to better serve end users.

In India a number of institutions are also in the process of setting up digital libraries and many scholars and practitioners are conducting research on digital libraries. Tefko (2002), concluded that digital libraries have exploded on the scene. Numerous research and practical efforts and large resources are expended on digital library research and practice. Evaluation is not, by and large, a part of these efforts. Lalotra and Gupta (2010), in their research found that it has changed the face of libraries and paradigm shift from print-based resources to electronic ones has increased the role of e-resources demanding effective and speedier services from today's libraries. Consequently, user information seeking behaviour has also changed. Thus, it is imperative to analyse users' information seeking behaviour and understand their information needs and imperative for professionals to enhance their ICT skill to organize and disseminate filtered information to their users in this digital era.

2. Objectives

Following are the objectives of this study:
1. To analyse the use of information communication technologies by faculty members.
2. To see the change in nature of faculty's information seeking with the application of Information and Communication Technology.
3. To find out the different practices, methods and mode of collecting information by faculty members for retrieving information in ICT Environment.
4. To analyse the opinion of faculty members for digital environment of libraries.
5. To analyse awareness of faculty members about information search tools.

3. Research Methodology

For the purpose of data collection, an online questionnaire designed using Google Forms. The sample of the present study consisted of all faculty members working in agriculture and veterinary universities. The population consists of faculty members (i.e. Professor, Associate Professor, Assistant Professor) working in agriculture and veterinary universities of Haryana, Punjab and Uttarakhand. A total of 300 responses were received and out of these only 256 responses found suitable for analysis. The detail distribution of respondents is given below.

S. N.	Designation	Number of faculties	Percentage
1	Assistant Professor	126	49.22
2	Associate Professor	30	11.72
3	Professor	100	39.06
	Total	**256**	**100.0**

As the table highlights number of respondents included in this present study by their designation. 126 (49.22%) respondents are Assistant Professor, 30 (11.72%) respondents are Associate Professors, and 100 (39.06%) respondents are professors.

4. Literature Review

Brown (1999) Showed in her study the majority of the scientists preferred access to journal articles in a print, rather than an electronic form. The primary deficit in library services appeared to be in access to electronic bibliographic databases. The data suggest that a primary goal of science libraries is to obtain access to as many appropriate electronic bibliographic finding aids and databases possible.

Veeranjaneyulu and Singh (2003) examine the impact of Information Technology (IT) on the academic libraries. The authors feel that these computer applications have helped libraries in meeting the complex needs of library users and hence thereby a positive effect.

Mittal (1997) explained the changing role of the librarians in an electronic environment. He says today's librarians' responsibilities can be those of a system analyst, an information manager, a database manager, a network manager and as an intermediary. Similarly, Khan and Zaidi (2009) carried out research to explore the familiarity and usage of online databases and their opinion about the university's ICT infrastructure to support accessing information. In another study.

Jamali (2010) demonstrated, how information search by scientists is influenced by Google Search Engine considerably. The outcome of this research indicates that Google is used primarily for problem specific information seeking. Ali, (2019) in a study indicated that majority of research scholars are using e-journals for carrying out their research. However, occasionally they consult print journals also.

In a study Xumei Ge (2010), explained the multidisciplinary study among academic researchers. This study emphasised on how digital learning resources transform the information-seeking process. Authors investigated scholar's research behaviour in these fields. In an article on digital libraries, Dream or Reality, Srivastava and Saxena (2004) explained about different aspects like need, objective, challenges, etc. in the Indian Scenario and suggested librarians changing role is also important.

Discussing digital information seeking behaviour of Sanskrit academicians, Chandraiah et.al. (2004) explained growth of library services in dynamic education scenario and recommended LIS professionals to learn and adopt new techniques and methodologies to cope up with new technologies. Finally, the study suggested that according to the user needs we update our ICT based services.

In his research on the use of portals Shokeen, (2009) examined that libraries have moved from being traditional libraries with print sources to hybrid libraries, where an equal share of resources in library are also available in digital form. This trend is catching up in a big way. Study focus on the portals and an ideal web portal also discussed, explained the contribution of librarians in conceiving web portals. On the same lines, Singh (2009) wrote that university libraries have already developed a vision 2020 for ICT implementation. They are continuously developing collections in digital environment and are changing the shape of the libraries and their services.

5. Data Analysis

Table - 1: Information communication technologies used by faculty members

S. N.	ICT facilities provided by library	Frequently Used	Sometimes Used	Uncertain	Rarely Used	Not Used	No response	Total
1	Computers and its facilities	108 (42.19)	92 (35.93)	04 (1.56)	18 (7.03)	20 (7.81)	14 (5.47)	256 (100)
2	Internet /Intranet	120 (46.88)	78 (30.47)	08 (3.13)	24 (9.36)	12 (4.69)	14 (5.47)	256 (100)
3	Institutional repository	74 (28.90)	104 (40.63)	18 (7.03)	18 (7.03)	16 (6.25)	26 (46.43)	256 (100)
4	Multimedia	50 (19.53)	80 (31.25)	30 (11.72)	28 (10.94)	34 (13.28)	34 (13.28)	256 (100)
5	Online database/ E- archives/ Journals	122 (47.66)	64 (25.0)	12 (4.69)	30 (11.72)	06 (2.34)	22 (8.59)	256 (100)
6	Photocopying/ Scanning	92 (35.93)	66 (25.78)	24 (9.36)	30 (11.72)	24 (9.36)	20 (7.81)	256 (100)

Note: Numbers given in brackets represents percentage.

Table 1 elaborates the use library services based on information communication technologies. Six such facilities have been taken here which are provided in most of the university libraries. The uses of the services are denoted by five scales i.e. from frequently used to not used.

The study shows that 42.19% of the total faculty members used computers and its facilities frequently whereas 7.81% of them not used at all. 46.88% faculty members frequently used internet or intranet where 4.69% of them not used it. 40.63% of the total faculty members sometimes used institutional repository whereas6.25% of them not used it. 31.25% of the total faculty members used multimedia sometimes and 13.28% of them not used at all. 47.66%of the total faculty members used online database/e-archives/journals frequently and only 2.34% of them not used. 35.93% of the total faculty members used photocopying/scanning facility frequently whereas 9.36% of them not used it. It can be stated that most of the members have used some or the other facility provided by the library. Few of the faculty members were reluctant to answer as shown in the table 1.

Table - 2: Electronic Sources: Convenience of Access

S.N.	Impact of electronic sources in collecting and using information	Number of faculties	%
1	Easier (I have more time for other tasks.)	210	82.03
2	About the same (I spend about the same amount of time on information gathering with or without electronic sources.)	18	7.03
3	More difficult (It takes more time to gather and sort through information.)	16	6.25
4	Much more difficult (There is too much information for me to sort through efficiently.)	06	2.34
5	No response	06	2.34
	Total	256	100

Table 2 depicts that how much impact of electronic sources made on faculty members in collecting and using information. It is found that 82.03% of the respondents found it easier to collect and use information after the advent of electronic sources in their libraries. They expressed that now they have more time for other tasks.7.03% found that it did not make any difference i.e. they felt the same before and after the advent of electronic sources in their libraries. They spent the same amount of time on information gathering with or without electronic sources. 6.25% of the respondents found it more difficult. They realized that after the advent of electronic sources, it takes more time to collect and sort information. 2.34% of respondents found it much more difficult to collect and use information as there is too much information for them to sort through efficiently.
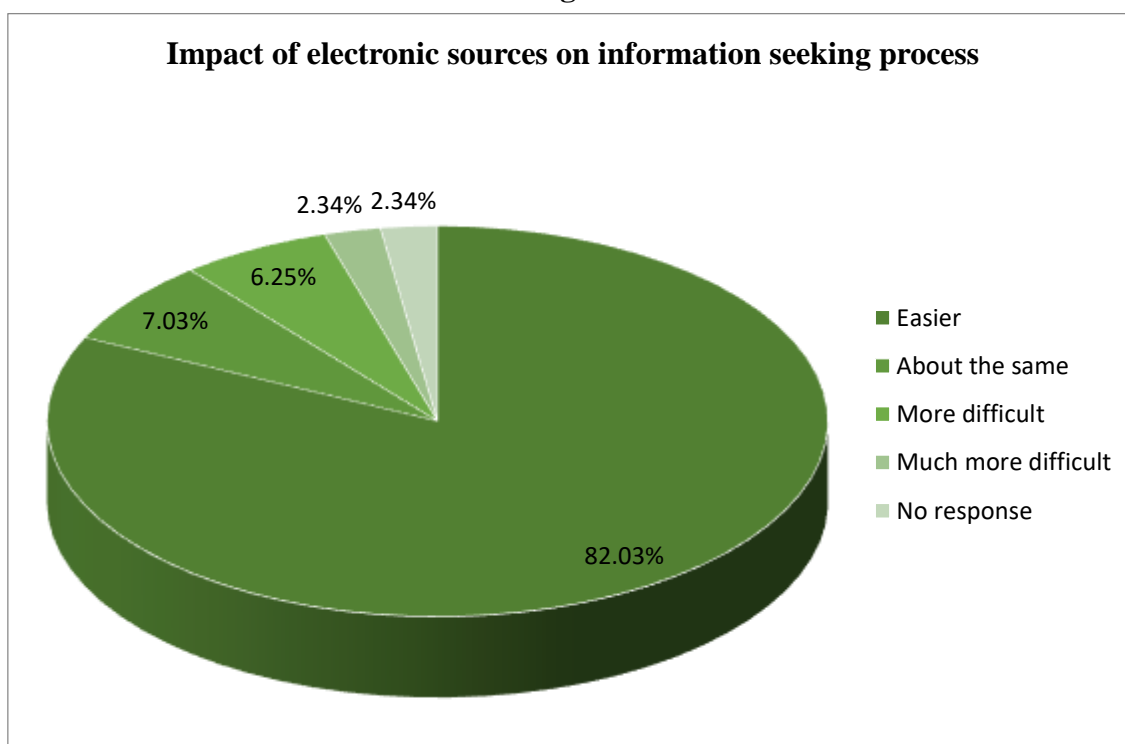
Figure - 1

Table - 3: Features of electronic resources that make information access easier

S.N.	Features of electronic resources that make information access easier	Number of faculties quoted only one feature (n=66)	Number of faculties quoted more than one feature (n=190)
1	Quick Retrieval of information	36	174
2	Multimedia	12	56
3	Remote access of information	0	132
4	It makes timely access to documents	0	102
5	Links to other resources	02	96
6	Searching for relevant information	06	114
7	Full-text searching	04	102
8	No response	06	0

Table 3 shows different features of electronic resources that made faculty members' information search easier. It is clear from the analysis that out of the 256 faculty members, 66 members quoted only one feature whereas 190 of them quoted more than one features for the same. There are seven main features that supposedly make information search easier than that of traditional sources were analysed and mixed responses were received. 66 faculty members chose only one feature i.e. Quick Retrieval of information has been chosen by 36 faculty members followed by links to other resources by 02; searching for relevant information by 06 and full-text searching by 04.

190 of the faculty members chose more than one feature i.e. 174 faculty members emphasized on Quick Retrieval of information but they also considered other features also. 56 considered multimedia as well as other features. 132 emphasized on Remote access of information but made equal consideration to other features also. 102 thought that the electronic sources made information searching easier as those made timely access to documents but they thought other features were also helpful. 96 of them considered that electronic sources provided links to other resources that's why information searching became easier as well as they thought more or less other features were also helpful. 114 faculty members found electronic sources made information search easier because these proved helpful in searching for relevant information, but at the same time other feature were also considerable. 102 of the faculty members considered full-text searching as well as other features made information searching easier.06 of the faculty members did not make any response.

Table - 4: Awareness of Information search tools

S.N.	Information search tools	Yes	No	Not sure	No response
1	Library Catalogue (OPAC)	190 (74.22)	40 (15.63)	12 (4.69)	14 (5.47)
2	Library Catalogue on Web (Web OPAC)	168 (65.63)	46 (17.97)	26 (10.16)	16 (6.25)
3	Institutional repositories	174 (67.97)	44 (17.19)	26 (10.16)	12 (4.69)
4	Search Engines (Google, Yahoo, Rediff, Ask.com etc.)	232 (90.63)	10 (3.90)	02 (0.78)	12 (4.69)
5	Subject Gateways	106 (41.41)	90 (35.16)	38 (14.84)	22 (8.59)
6	Consortia	122 (47.66)	68 (26.56)	42 (16.41)	26 (10.16)

 Note: Numbers given in brackets represents percentage.

Table 4 shows the awareness of faculty members about information search tools. There were mentioned different search tools used in libraries. Out of 256 faculty members 190 were aware about Library Catalogue (OPAC) whereas 40 of them were not aware and 12 were not sure about it. 168 faculty members were aware about Library Catalogue on Web (Web OPAC) whereas 46 of them were not aware and 26 were not sure about it. 178 faculty members were aware about Institutional repositories whereas 44 of them were not aware and 26 were not sure about it. 232 faculty members were aware about Search Engines (Google, Yahoo, Rediff, and Ask.com etc.) whereas 10 of them were not aware and 02 were not sure about it. 106 faculty members were aware about Subject Gateways whereas 90 of them were not aware and 38 were not sure about it. 122 faculty members were aware about Consortia

whereas 68 of them were not aware and 42 were not sure about it. There were few faculty members in each category who did not respond to the query.

Table - 5: Preference for Format of Information

S.N.	Medium	No. of faculties	Percentage (%)
1	Print copy	30	11.72
2	Electronic copy	72	28.13
3	Both: Print & Electronic	150	58.59
4	No response	04	1.56
	Total	256	100.00

Table 5 illustrates the different mediums which faculty members preferred to obtain their required information. It is found that 11.72% of total faculty members preferred print copy. Electronic copy was the medium preferred by 28.13% of the members to obtain their required information. Most of the members 58.59% have given equal preference to both the mediums. 1.56% of respondents did not make any response.

Table - 6: Opinion about impact of ICT (print vs online resources)

S.N.	Print vs online resources	Yes	No	Not sure	No response	Total
1	I can now do better information search because of availability of electronic information resources	246 (96.09)	06 (2.34)	0 (0.0)	04 (1.56)	256 (100)
2	Some of the research information in need is now only available on-line	218 (85.16)	20 (7.81)	10 (3.91)	08 (3.13)	256 (100)
3	I have to rely on others more when searching electronic information resources	62 (24.22)	148 (57.81)	32 (12.5)	14 (5.47)	256 (100)
4	It's more difficult to find required information while using online resources	36 (14.06)	170 (66.41)	36 (14.06)	14 (5.47)	256 (100)
5	I would still prefer access to print as well as electronic inf. Resources	158 (61.72)	74 (28.91)	16 (6.25)	08 (3.13)	256 (100)
6	More comprehensive information is available in online sources	182 (71.09)	24 (9.38)	42 (16.41)	08 (3.13)	256 (100)

Note: Numbers given in brackets represents percentage.

Table 6 describes faculty members' opinion about online facilities such as online resources, electronic media of information resources after the invasion of information technology in the libraries. There are mixed responses but most of them found it beneficial for information seeking process. 246 faculty members believed that they can now do better information search because of availability of electronic information resources. 218 of them found that some of the research information in need is now only available on-line. 148 faculty members found that they did not have to rely on others more when searching electronic information resources.170 faculty members found it easy to find required information while using online resources. 158 of them said that they would still prefer access to print as well as electronic information resources and 182 faculty members believed that more comprehensive information is available in online sources.

Table - 7: e-Journals vs traditional Print Journals

S. N.	e-Journals with traditional Print Journals	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response	Total
1	It is easy and convenient to search for information in e-journals.	186 (72.66)	62 (24.22)	02 (0.78)	0 (0.0)	0 (0.0)	06 (2.34)	256 (100)
2	Search time taken to search an article on e-journals is far lesser than the time taken on print version	186 (72.66)	62 (24.22)	01 (0.39)	01 (0.39)	0 (0.0)	06 (2.34)	256 (100)
3	e-journals can be accessed by users from their desktops at Workplace, Hostels, etc.	196 (76.56)	48 (18.75)	06 (2.34)	0 (0.0)	0 (0.0)	06 (2.34)	256 (100)
4	e-journals provide links for other related articles/ references in the field	192 (75.0)	58 (22.66)	02 (0.78)	0 (0.0)	0 (0.0)	04 (1.56)	256 (100)
5	Users require assistance while accessing e-Journals	66 (25.78)	68 (26.56)	58 (22.66)	38 (14.84)	18 (7.03)	08 (3.13)	256 (100)

Note: Numbers given in brackets represents percentage.

Table 7 shows the opinion of faculty members while comparing e-Journals with traditional print Journals. 186 faculty members strongly agreed by the statement that it is easy and convenient to search for information in e- journals. Further, 186 faculty members strongly agreed that search time taken to search an article on e-journals is far lesser than the time taken on print version.

196 faculty members strongly agreed that e-journals can be accessed by users from their desktops at workplace, hostels, etc. 192 faculty members strongly agreed that e-journals provide links for other related articles/references in the field. 66 of them strongly agreed that users require assistance while accessing e-Journals, whereas 18 strongly disagreed with the statement.

Table - 8: Mode of collecting information

S. N.	Mode of collecting information	No. of faculties	Percentage
1	I Collect Myself	140	54.69
2	Rarely request others	86	33.59
3	Frequently request others	26	10.16
4	No response	04	1.56
	Total	256	100.0

Table 8 shows the mode of information seeking adopted by faculty members for their information need. It is observed that 54.69% of respondents collected their required information on their own, whereas 33.59% respondents rarely requested others to search their needed information. Only 10.16 % of respondents frequently requested others to retrieve information for them. 1.56% of total respondents has not been made any response.
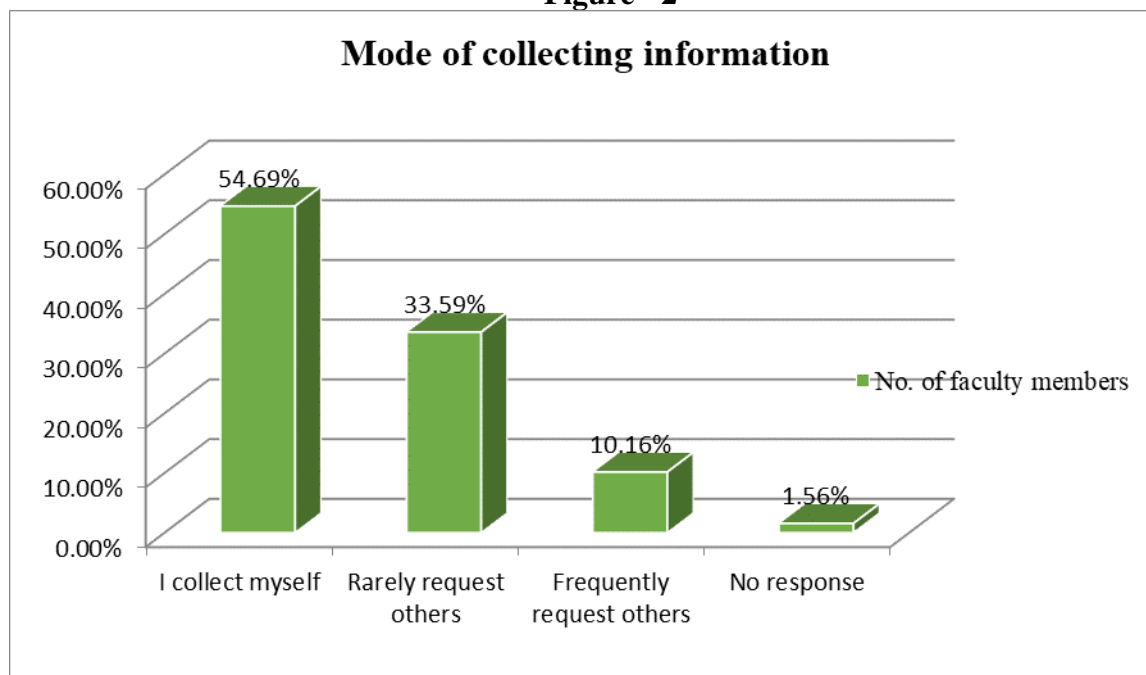
Figure - 2

Table - 9: Formal Training on How to Search Information

Any skills/training in this changing environment for seeking information?	Yes	No	Not sure	May be	No response	Total
	132 (51.56)	**32** (12.5)	0 (0.0)	88 (34.38)	04 (1.56)	256 (100)

Note: Numbers given in brackets represents percentage.

Table 9 shows that faculty members were asked whether they needed any additional skills or training to stay informed in this changing environment, they gave mixed responses. Out of 256 faculty members 132 were agreed with the need of additional skills or training to combat this changing environment for information seeking. 32 of them did not need any additional skill or training. 88 of them might be needed some kind of skills/training in this changing environment for seeking information and 04 of them did not respond to this query.

6. Findings and Conclusion

The study revealed use of ICT in library services has brought convenience to the readers as results showed that 108 of the total faculty members used computers and its facilities frequently an only 20 of them not used it at all. 122 of the total faculty members used online database/e-archives/journals frequently and only 06 of them not used. It is found that 82.03% of the respondents found it easier to collect and use information after the advent of electronic sources in their libraries and 2.34% of respondents found it much more difficult to collect and use information after the advent of electronic sources in their libraries, as there is too much information for them to sort through efficiently.174 faculty members emphasized that is quick retrieval of information with ICT make information access easier. Maximum faculty members are well acquainted with the information search tool available in libraries.11.72% of total faculty members preferred print copy whereas 28.13% preferred electronic to obtain required information. 246 faculty members believed that they can now do better information

search because of availability of electronic information resources. 196 faculty members strongly agreed that e-journals can be accessed by users from their desktops at workplace, hostels, etc. 66 of them strongly agreed that users require assistance while accessing e-Journals. Only 10.16 % of respondents frequently requested others to retrieve information for them. 132 were agreed with the need of additional skills or training to combat this changing environment for information seeking. 32 of them did not need any additional skill or training. It shows that more than half the faculty members were well familiarized will library sources and services and prefer to collect the information on their own. It is clearly observed that there is a large percentage of members who rarely request others means, they are well versed of library sources and services but due to lack of time or any other reason they make requests others rarely. It can be assumed.

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