

Information seeking behaviour of research scholars in the digital environment of a multidisciplinary institution: a case study

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Abstract: ICT has changed the environment of learning at all levels of education, influencing the information-seeking process and behaviour of users in almost all disciplines of study. This study presents a survey on the users of digital resources in a multidisciplinary institution which has been conducted in order to assess the information seeking behaviour of research scholars, their preference and views on the digital resources and services being provided, requirements and suggestions for further improvement of the services.

This study has been conducted on the clientele of the Digital Resources Centre (DRC) of the Aligarh Muslim University Library. The University was established about 150 years ago and is now one of the largest universities of India offering courses of study in almost all disciplines of knowledge through more than a hundred developed departments. The university has been rated as the second best in the country by the Times Higher Education Asia Ranking for the last two consecutive years.

The Library witnessed a sea change in its role as information provider and leader in the country after the digitization drive of contents, networking of its departments and subscription of electronic databases and has been declared as the best amongst all Indian universities libraries during 2015 by the visiting team of the National Accreditation and Assessment Council of Government of India.

The digitized contents are made available to the academic community through DRC which is a central facility for providing access to over 30,000 users through 10,000 odd computers to access over 55 million e-books, 7 million e-journals and an equal amount of electronic theses and dissertations besides a large number of reference tools and audiovisual resources. DRC has a provision for accommodating 100 students at a time on separate computers which facilitates a higher speed of information retrieval through

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Linux. Being located in the centre of the University and surrounded by the departments of arts, social sciences, sciences, natural sciences, commerce, theology, business management etc, DRC works as a central facility and a natural choice for the information seekers, mainly the academic and research community of the University.

The main objectives of the study have been to (a) study the information seeking behaviour of M. Phil. and Ph. D. students of the Aligarh Muslim University; (b) know about the personal preferences in context of the facilities being provided in DRC; (c) assess their levels of satisfaction of users with the available digital resources and services; (d) develop and improve the existing facilities based on the feedback received from researchers; and propose a model of DRC for the other institutions.

Information from the respondents was collected through an open-ended questionnaire asking questions on various aspects including procedures, problems and future prospects of the services being offered. Copies of the questionnaire were evenly distributed to the students of M. Phil. and Ph.D. courses asking about their subjects of studies, frequency, purpose and preferred time of visit, level of satisfaction with the resources and technical support provided to them. The respondents were also invited to suggest ways for improving the services of DRC. Duly filled up questionnaires were received from 50 respondents and the data so received was analyzed and presented in tables and charts. The respondents participated in the survey belong to the humanities and social sciences (66%), commerce and business management (10%), sciences (8%) and engineering and medicine (16%).

It has been found that most of the visitors prefer morning time for research work and visit DRC daily. The main purpose of their visit is to write research papers and theses. It has also been found that 98% of the respondents are satisfied with the digital resources being offered through DRC while very few researchers are not aware of the existing facilities. The suggestions received from the users reveal emphasis on the extension in the opening time, availability of more databases and software for data analysis, however some of them have suggested scanning and printing facilities to be provided within the DRC.

Key Word: Information-Seeking Behaviour; Use of Digital Resources; Multidisciplinary Research; Learning in ICT Environment; Higher Education and Research

1. Introduction

ICT has changed the traditional methods of library activities and services providing new dimensions for teaching, learning and research in higher educational institutions. With the help of ICT tools, it is possible to store, retrieve, disseminate and organize information by creating websites and databases. Information is published both electronically and in print, making it accessible to users according to their needs. It is, therefore, important to assess the ICT applications in library and information centres in the context of changing user needs and way of perception of the users.

In this study, a survey on users of the digital resources in the Aligarh Muslim University has been conducted. The University was established about 140 years ago and is one of the largest universities of India offering courses of study in

almost all disciplines of study through more than a hundred developed departments. The university has been rated as the second best in the country by The Times Higher Education Asia Ranking for the last two consecutive years.

The Library of the Aligarh Muslim University has also been declared as the best amongst all Indian university libraries in 2015 by the visiting team of the National Accreditation and Assessment Council of the Government of India. After the digitization drive of contents of the central library during the last few years, networking of its departments and subscription of electronic databases during the last few years, the Library has witnessed a sea change in its role as information provider and a leading higher educational institution in the country.

This study has been conducted on the clientele of the Digital Resource Centre (DRC) as the digitized contents of the Library resources is made available to the academic community through DRC, a central facility for providing access to about 30,000 users through 10,000 odd computers for access to over 55 million e-books, 7 million e-journals and an equal quantity of electronic theses and dissertations besides a large number of reference tools. DRC accommodates 100 students at a time on separate computers and the Linux software facilitates higher speed of information retrieval. Moreover, DRC being located in the centre of the University and surrounded by the departments of arts, social sciences, sciences, commerce, theology and business management etc, DRC is a natural choice for information seekers in the electronic format.

1.1 Information-Seeking Behaviour

Information is an important resource for growth and survival of individuals and institutions. The progress of modern societies as well as individuals depends to a great deal upon the availability of relevant information. Information is needed to be able to take a right decision and also reduce uncertainty and also to satisfy a need. Aina (2004) opined that “the information seeking behaviour of a user depends on education, access to library and the length of a time user wishes to devote to information seeking” [1]. Igwe (2012) describes information seeking behaviour as ‘an individual way and manner of gathering and sourcing for information for personal use, knowledge updating and development’[2].

The physical facilities and digital contents provided to the users in institutions of higher learning has been a subject of enquiry for the last about 50 years. The information-seeking process and resources need to be studied in context of the requirements and expectations of their users in order to improve them for larger benefit of the learners and better results.

2. Objectives

The main objectives of the study are as under:

- i. To study the information seeking behaviour of M. Phil. and Ph. D. students of the Aligarh Muslim University, Aligarh in the Digital Resources Centre of the Library;
- ii. To know about the personal preferences of researchers in context of the physical facilities being provided in DRC
- iii. To assess the levels of satisfaction of users with the digital resources and services being provided by the staff;
- iv. To improve the existing facilities based on the feedback received from the users; and
- v. To develop DRC as a model for the other multidisciplinary institutions.

3. Methodology

This study has been conducted on the users of the Digital Resource Centre of the Aligarh Muslim University Library. Information related to various procedures, problems and future prospects of the services was collected from research scholars through an open-ended questionnaire. Copies of the questionnaire were evenly distributed to the users in three shifts during 11 hours of the daily opening of DRC from 9. a.m. to 8 p.m. asking to respond on ten questions.

4. Literature Review

Literature review is important for critically summarising the available knowledge on a topic of research. Accordingly, some studies conducted on information-seeking behaviour of researchers in a digital environment during the last three decades have been referred to reflect the progress. David Ellis (1989) studied the behavioural model of information-seeking based on observations of social scientists. The findings of the study provide suggestions on how current information services and systems can be improved to better serve social sciences and humanities researchers in the data-rich environment [3]. Reneker (1992) conducted his study on the information seeking among members of an academic community using a naturalistic approach, the information-seeking activities of 31 members of the Stanford University academic community were examined over a two-week period during the 1990-91 academic year. It was found that the data reveal relationships between personal characteristics, type of needs, sources used, and levels of satisfaction with the sources [4]. The study of Sely Costa and Jack Meadows (2000) revealed that the majority of social scientists in Brazil used the electronic resources over the print resources[5]. Fortin (2000) studied the information seeking behaviour of faculty in a digital environment and found differences between tenured and tenure-track faculty members on the perceived value of the Internet to meet their research and classroom information needs. Similar differences were also found among faculty members in the broad discipline areas of the humanities, social sciences, and sciences[6]. Steig and Charingo (2004) reported the results of a survey to identify the awareness and extent to which Historians use and search electronic information sources, through the

online catalogue and indexes they get the relevant primary and secondary sources of information[7]. The study of Ellis and Oldman (2005) focuses on the information. Conclusively, this study recommends further study of the use of electronic resources in relation to information literacy and browsing[8].

Internet emerged as the most powerful tool worldwide for storage and retrieval of information, specially, after the year 2005 and various studies were conducted to assess its impact on scholarly communication. Wang (2006) studied the use of Internet information and communication technologies (IICTs) by academics in research and found cross cultural differences in information seeking behaviour in the use of internet from its inception by the research scholars[9]. Mohammed Nasser Al-Suqr (2007) studied the information needs and seeking behaviour of social science scholars at Sultan Qaboos University. His findings showed that the social science scholars face three main types of barriers to information seeking which may be different than those faced by their counterparts in Western countries: (a) limited availability of resources, especially full text resources; (b) poor Internet connection speeds or Internet availability; and (c) a lack of sufficient Arabic language sources[10]. Xuemei (2010) in his study focuses on how electronic information resources influence the information-seeking process in the social sciences and humanities. It examines the information-seeking behaviour of scholars provides suggestions on how current information services and products can be improved to better serve social sciences and humanities researchers[11]. Recently, Huang (2014) has conducted research on identifying novice users' help-seeking behaviours while they get started with digital libraries and how the learning styles lead to these behaviours. The study identifies eight types of help features used by novice users with different learning styles. The quantitative evidence also verifies the effect of learning styles on help-seeking interactions with help features. Based on the foundation of the analysis of help features, the study further identified fifteen help-seeking approaches applied by users with different learning styles in digital libraries[12].

5. Data Collection and analysis

The study was conducted on the users of Internet facility as available in DRC. Information was collected by distributing copies of a Questionnaire on random basis inviting to respond the research scholars on ten questions related to the area of their specialization, frequency, purpose, preferred time of visit, level of satisfaction with the resources and technical support provided to them. The respondents were also invited to suggest ways for improving the services of DRC. Duly filled up questionnaires were received from 50 respondents. The data received from the users was analyzed and presented in tables and charts.

5.1. Respondent's areas of research

The University offers courses in more than 100 disciplines of study out of which four major areas of research were identified in view of the similarity and close

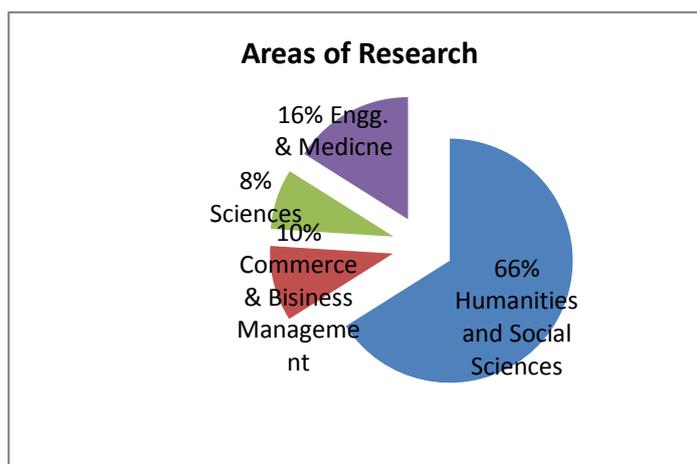
relationship of the disciplines. The four major disciplines and the researchers belonging to them have been shown in Table-1 below:

Table-1 Respondents areas of research

S. No.	Disciplines of Study	No. of Respondents	%
1.	Humanities and Social Sciences	33	66
2.	Commerce and Business Management	5	10
3.	Sciences	4	8
4.	Engineering and Medicine	8	16

As evident from Chart-1 above, 66% of the visitors belong to the disciplines of Humanities and Social Sciences followed by 16% from Engineering and Medical Sciences. Commerce and Business Management have 10% and sciences 8% respectively.

Chart- 1: Areas of Research

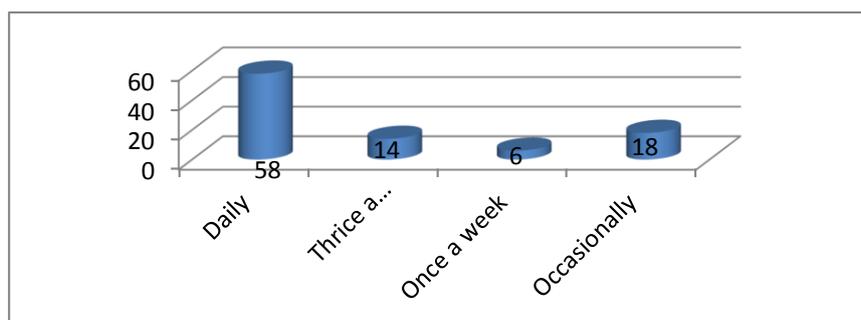


Humanities and social sciences are closely related and the major discipline of research meaning thereby that more users belonging to these disciplines visit the Library as reflected in Chart.1:

5.2. Frequency of visit

It is equally important to know about the interest of researchers in visiting the facility in order to improve the services by providing specialized material that may be needed by them. Accordingly, the frequency of visits by researchers was studied providing four options to them as shown in Chart-2 below:

Frequency of visits Chart-2



The number of daily visitors is 58% followed by those who visit DRC alternate days since six day’s week is observed for its opening.6% percent visit once a week while 18% are occasional visitors.

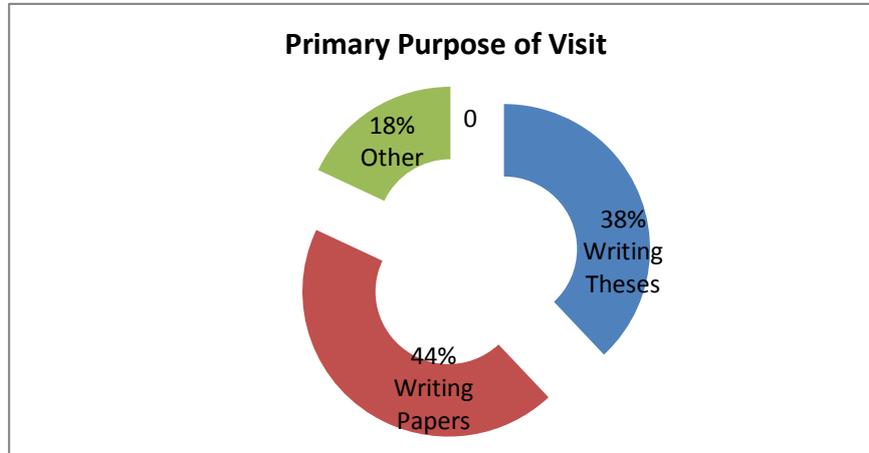
The main reason of higher number of visits of the humanities and social sciences students is the nature of collections available in DRC, the central location of their departments and also the developed departmental libraries of the other departments.

5.3. Purpose of visit

Three options were provided to the respondents to know about the purpose of visit to DRC which include (a) writing thesis (b) writing research papers, and (c) other purpose to specify if any but as illustrated above, some respondents visit for more than one purpose also.

It has been revealed that the primary purpose of majority of visitors is to write research papers 44% and writing theses 38% however, 18% visit for other purposes also as shown in Chart-3 below:

Chart-3: Primary Purpose of Visit



As evident from Table No.2, for writing theses, research papers and other works taken together, the percentage of visitors is 38, 66 and 42 respectively as presented in Table-2 below:

Table 2: Purpose of visit

Purpose	Percentage (%)
For writing thesis	14
For writing research papers	26
Other purposes	18
For writing research papers & Other purposes	18
For writing thesis & research papers	18
For writing thesis & research papers Other purposes	4
For writing thesis & Other purposes	2

5.4. Preferred time of visit

The time of visit is equally important in order to know about the information-seeking behaviour of researchers since by doing so the services may be planned in a better way. The total opening hours of DRC were divided into three shifts and the responses were invited accordingly which are presented in Table-3 below:

Table-3 Preferred time of visit

Preferred time	Percentage (%)
9 a.m. to 1 p.m.	42
1 p.m. to 4 p.m.	30
4 p.m. to 8 p.m.	14
9 to 1, 1 to 4 p.m., 4 p.m. to 8 p.m.	4
9 a.m. to 1 p.m. , 1 p.m. to 4 p. m.	10

It has been found that 42% prefer to visit in the morning followed by 30% in the afternoon and 14% in the evening. However, the respondents who prefer to visit in two shifts constitute 4% and 10 % respectively as illustrated in Table-3.

5.5. Preferred e-Resources

We have been confined to the usage of DRC resources by the research scholars which provides access to about 30,000 users through 10,000 odd computers for access to over 55 million e-books, 7 million e-journals and an equal number of electronic theses and dissertations, besides a large number of reference tools.

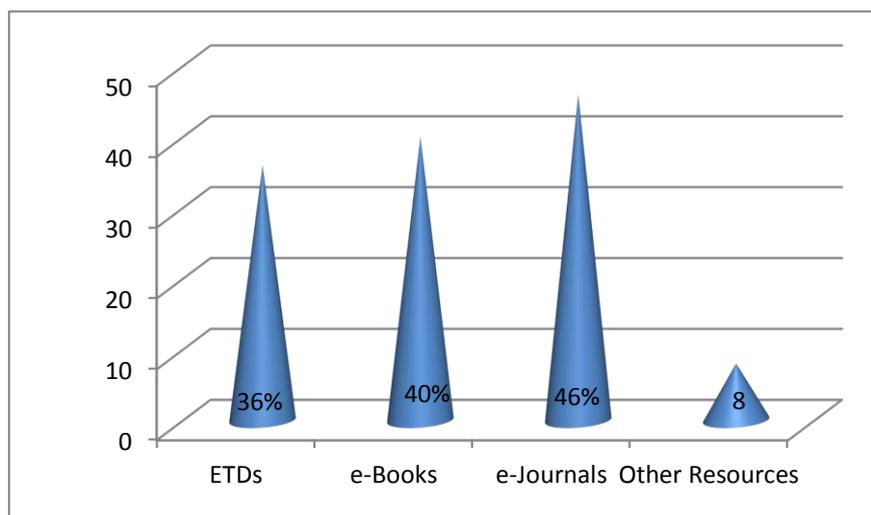
Table-4: Preferred e-Resources

Preference of e-Resources	Percentage (%)
ETDs (Theses and Dissertations)	12
e-books	14
e-journals	34
Other resources	8
ETDs & Other resources	4

E-books & e-journals	6
ETDs, E-books & e-journals	12
ETDs, E-books & e-journals & Other resources	2
ETDs & e-journals	6
E-journals & Other resources	2

It is evident that taken together, e-Journals, e-Books, ETDs and other resources are preferred by 46%, 40%, 36% and 8% of the users respectively as illustrated in chart-4:

Chart-4 Preferred Resources



5.6. Satisfaction with available resources

DRC provides the in-house resources of the Library as well as the Link to various websites containing useful information. The researchers were asked to inform about their level of satisfaction with the resources accessible through

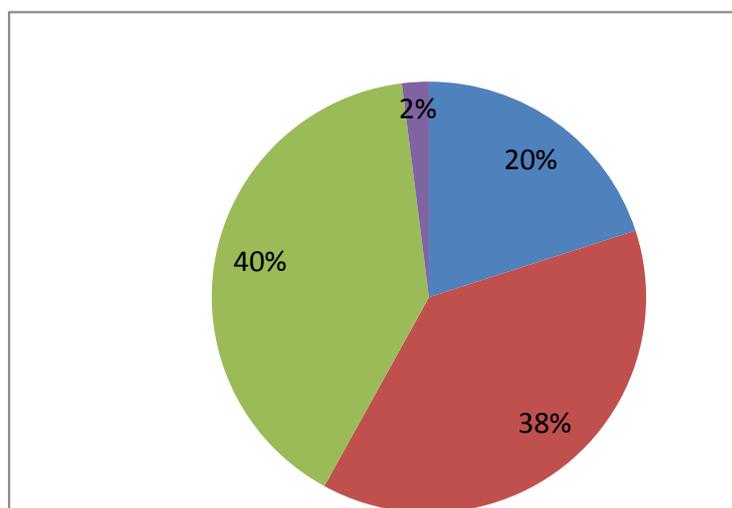
DRC explaining the level of their by providing three options (a) highly satisfied (b) very satisfied (c) satisfied) and (d) not satisfied.

Table-5 Satisfaction with available resources

Satisfaction	Percentage (%)
Highly satisfied	20
Very satisfied	38
Satisfied	40
Not satisfied	2

As reflected in Chart-5 below, it has been found that 98% of the users are satisfied and only 2% are not satisfied with the available resources which show the richness of the resources as well as the interest of researchers in them.

Chart-5 Satisfaction with available resources



5.7. Support services for the students

DRC has two categories of the staff to support the research scholars. The first category includes those persons who are familiar with the contents of collections whereas the second category maintains computer systems and ensure internet connectivity.

5.7.1 Support in content searching

DRC provides access to the in-house resources of the Library as well the relevant information available through links to various websites. Researchers were asked to inform about their level of satisfaction with the available resources by providing four options (a) highly satisfied (b) very satisfied (c) satisfied) and not satisfied (d).

Table-6: Rating of support in content searching

Rating of support	Percentage (%)
Highly satisfied	28
Very satisfied	56
satisfied	14
Not satisfied	2

As illustrated in Table-6, 28% are highly satisfied, 56% are very satisfied, 14% are satisfied and no research scholar is unsatisfied.

5.7.2 Rating of technical support

The respondents were asked to rate the level of technical support provided to them in solving technical problems of computer systems and maintaining Internet connectivity. It has been found that 98% of the users are satisfied and only 2% are not satisfied with the available resources and the support provided by DRC staff which shows the richness of resources, interest of researchers and the extent of support by the staff of DRC.

Table-7: Rating of technical support

Rating of support	Percentage (%)
Highly satisfied	22
Very satisfied	56
satisfied	18
Not satisfied	4

5.8. Satisfaction with the services

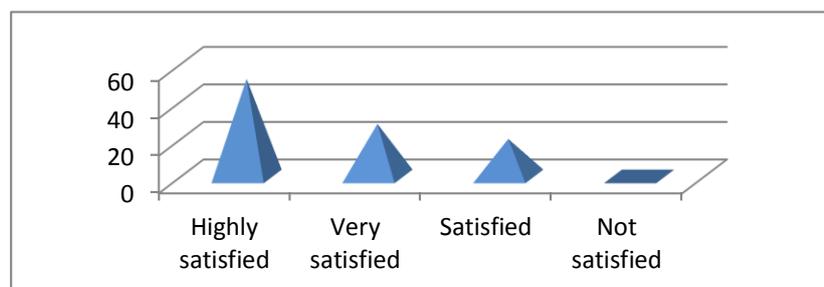
The response of researchers was invited to assess the overall usefulness of DRC including the online resources, support provided to them and the physical facilities offered to them. The result is presented in Table-8 as provided below:

Table- 8 Overall satisfaction

Working of DRC staff	Percentage (%)
Highly satisfied	52
Very satisfied	28
Satisfied	20
Not satisfied	Nil

As evident from the Table- 8 and Chart- 6, 52% are highly satisfied, 28% are very satisfied, 20% are satisfied and no one is unsatisfied. It also means all the research scholars are fully satisfied with the collection and services of DRC.

Chart-7 Overall satisfaction



5.9. Suggestions given by Research Scholars

Students were requested to impart suggestions for improvements of the services being provided by DRC without providing them any fixed format for reply but they responded in their own ways. The gist of their suggestions has been presented in the following table:

S. No.	Response of the Researchers	No.	%
1.	No comments	15	30%
2.	Extension in the opening timings of DRC	11	22%

3.	Provision for more digital resources	8	16%
4.	Provision for software of data analysis, checking plagiarism and language software	3	6%
5.	Un aware of existing resources	5	10%
6.	Provision for scanning and printing facility	6	12%
7.	Request for maintaining silence in DRC	2	4%

The largest number of respondents i.e. 15 (30%) offered no comments which means that they are fully satisfied in all respects followed by 10 (20%) suggesting extension in the opening time of DRC showing that they intend to draw more benefits whereas 10% are unaware of the available resources. Taken together, 22% have suggested acquiring more resources (16%) and software (6%), however, the rest have demanded for the facility scanning and printing (12%) within DRC and 4% suggested for maintaining silence.

6. Conclusion

Digital resources are viewed as an integral part of the institutions of higher learning. The Aligarh Muslim has developed ICT infrastructure and services of its Library and modernized for online search. The results of this study show high interest of research scholars in searching information in DRC of the Library for their research work at a very large scale after online databases were introduced. It further shows that the researchers having satisfaction of a higher degree with the physical facilities and contents are contributing to the growth of knowledge considerably. Resultantly, the university ranks as the second best in the country by national and international agencies whereas its Library has been found the best by the accreditation agency of the Indian government.

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