

USE PATTERN OF E-RESOURCES BY RESEARCH SCHOLARS AND FACULTY: A SURVEY OF TECHNICAL UNIVERSITY LIBRARIES IN NORTH INDIA

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ABSTRACT

This article discusses the results of a survey conducted at the technical universities of North India among the research scholars and faculty to study their knowledge, perceptions and attitudes towards the e-resources. This investigation applied a standard survey method of questionnaire. The study examines preference and importance of e-resources among the research scholars and faculty of technical university libraries of North India and summarizes the findings.

INTRODUCTION

The information arena today witnesses quite explosive situation with the advances in technology. Not only the definition of resources embedding information has changed but also the concept of information retrieval has changed completely due to rapid and widespread developments in the technology. Earlier information resources were considered a physical entity but now these have evolved from traditional print documents to electronically stored information. E-resources are the concept of new era, which have brought phenomenal change in the process of dissemination of scientific information in most disciplines. E-resources are also incorporated with a few novel features, which are unique to the web environment such as hypertext, hyperlinks and hypermedia linking. These features are value added hallmarks leading to interactive nature of e-resources which is not possible with paper form. Also the volume of scholarly information on the Internet is growing exponentially. Both the advantages of the electronic medium and the increase in the volume of available scientific information are affecting information seeking behavior of the users. Users are paying keen attention to formerly arcane electronic environment to grab the amenities available through it and have expedited access to meticulous and pinpointed scholarly content.

Present study was done with a view to ascertain dependency of research scholars and faculty on e-resources for teaching, research and other academic pursuits and gauge their level of satisfaction with e-resources available in the technical university libraries of North India.

OBJECTIVES OF THE STUDY

The objectives of the study were

1. To ascertain users' sources of information about e-resources and duration of awareness about e-resources.

2. To know the place from where research scholars and faculty access e-resources and their preferred gateway to access e-resources.
3. To find out the frequency usage of e-resources.
4. To know the purpose of using e-resources.
5. To assess the search methods used by the faculty members for getting required information.
6. To ascertain the reasons prompting the use of e-resources
7. To find out the reasons for non-use of e-resources.
8. To know the problems being faced by research scholars and faculty for accessing e-resources.
9. To find out the satisfaction level of research scholars and faculty with the availability of infrastructural facilities for accessing e-resources.
10. To examine the need for conducting user awareness programmes in using e-resources.

SCOPE OF THE STUDY

The present study is confined to the research scholars and faculty associated with seven technical institutions in North India namely Dr B R Ambedkar National Institute of Technology, Jalandhar (**NITJ**); National Institute of Technology, Kurukshetra (**NITK**); National Institute of Technology, Hamirpur (**NITH**); PEC University of Technology, Chandigarh (**PEC**); Thapar University, Patiala (**TUP**); National Institute of Technology, Srinagar (**NITS**) and Sant Longowal Institute of Engineering and Technology, Longowal (**SLIET**).

METHODOLOGY

The study was conducted on research scholars and faculty as they are assumed to be the main consumer of scientific information available in electronic form, as compared to undergraduates and postgraduates. A survey was carried out to meet the objectives of the study. A structured questionnaire was designed to find the knowledge and perceptions of users about e-resources and their satisfaction level with availability of infrastructure for accessing e-resources. A quota of 20 research scholars and faculty from each of technical university mentioned above, has been randomly selected. Questionnaire was distributed among the users of e-resources directly. 'Directly-administered' questionnaire has the advantages such as high response rate, which usually reaches 100 percent ad presence of researcher herself to provide assistance or answer the queries. All the respondents were given the same questionnaire irrespective of their status. As there were seven technical universities under study, a total sample of 140 research scholars and faculty was collected and put to further statistical analysis.

DATA ANALYSIS

Analysis based on information provided by the respondent is done and inferences derived are as under:

Users' sources of information about e-resource service

The users must be made well-versed with the available e-resources for proper information retrieval. Users were enquired to specify the primary source of their information about e-resources and the results are presented in table-1. 41% research scholars and faculty were made conversant with e-resources after interaction with peers followed by 32% users who were

acquainted with e-resources while searching the Internet. Very few users (13%) came to know about e-resources from the Library notice board.

Options	Users	Percentage
Library webpage	29	21
Library Notice Board	18	13
Interaction with peers	58	41
Browsing internet	45	32
Librarian's guidance	26	19
Printed journals	41	29
Workshop/seminars	21	15

Multiple options allowed

Aware of availability of e-resources

Users were asked since how long they are aware of availability of e-resources and their responses are given in table-4. It is quite overwhelming to note that 49% of research scholars and faculty are aware of e-resources accessibility for 2-5 years. 21% of them have known the e-resources since more than five years.

Options	Users	Percentage
Less than a year	9	6
1-2 years	28	20
2-5 years	68	49
More than five years	29	21
Not aware	6	4

Methods for acquiring necessary skills to use e-resources

Developing a collection of e-resources calls for computer and information literature users. Users were asked to identify the method used for acquiring the necessary skills to use e-resources. 54% research scholars and faculty said that they learnt through hit and trial. However, 49% of them pointed out that they acquired necessary skills by guidance given by other users. Only 19% of the research scholars/faculty opted for training programme conducted by the library.

Options	Users	Percentage
Guidance given by other users	69	49
Learn through hit and trial	76	54
Guided by the tutorials at site	45	32
Training programme by library	26	19

Multiple options allowed

Preferred gateway to search and access e-resources

There are a number of options available for the users for accessing e-resources. Users were asked to identify their preferred source to search and access e-resources and the results are presented in table-4. It is evident from the table that almost half of the research scholars and faculty (44%) use publishers website followed by 39% users who made use of search engines. 34% research scholars and faculty make use of library website to access e-resources. Library OPAC is being used by only 5% of the users.

Options	Users	Percentage
Library website	47	34
Library OPAC	7	5
Publishers' website	62	44
Search Engine	54	39
Consortium site	27	19

Multiple options allowed

User-friendly interface of library website

User-friendliness refers to the ease with which a library website can be used. It was enquired from the users whether they found library website useful or not. Table-5 highlights that 58% of research scholars and faculty didn't find it very user-friendly.

Options	Users	Percentage
Yes	50	36
No	82	58
Don't know	8	6

Problems faced on library website

Users were asked about the problems being encountered while accessing e-resources on library website. It is evident from the table-6 that for almost half of the research scholars and faculty (46%) viewed that major problem is too many clicks to reach desired content, followed by 41% users who opined that major complication on library website is lack of combined search engine to search various e-resources.

Options	Users	Percentage
Dead/broken Links	29	21
Too many mouse clicks	65	46
Unorganized material	46	33
Lack of combined Search Engine	57	41

Multiple options allowed

Preferred place to access e-resources

Research scholars and faculty were enquired about their favorite place to access e-resources. 55% of them opted for department as preferred place to access e-resources followed by 41% users who choose home as their favored place.

Options	Users	Percentage
Computer Centre	48	34
Library	46	33
Home	57	41
Hostel	29	21
Department	77	55

Multiple options allowed

Regularity of using e-resources

Regularity of using e-resources reveals their significance for the research scholars and faculty of technical institutions. It is highlighted in table-8 that in order to be in touch with the recent literature, 33% research scholars and faculty read 3-5 articles followed by 30% of them who read 6-10 articles per week.

Options	Users	Percentage
1 to 2	23	16
3 to 5	46	33
6 to 10	41	30
More than 10	30	21

Preferred mode of reading e-articles

Enquiry was made about preferred mode of reading e-articles and results are presented in table-9. It is depicted in the table that 48% research scholars and faculty are downloading the searched article in CD/pen drive for use at later stge. 41% research scholars and faculty preferred a print out of searched article on paper followed by 29% of them who chose to read article on the screen itself.

Options	Users	Percentage
On the screen	40	29
Print out on paper	57	41
Downloading in CD/pen drive	67	48

Multiple options allowed

Options for searching e-resources

Libraries are subscribing to a number of e-resources, which can be searched either by author or by title or by publisher. Search for full text articles can also be done by using the keyword

function. It is depicted in table that 57% research scholars and faculty usually search e-resources by authors followed by 46% users who search using keyword(s).

Options	Users	Percentage
By author	80	57
Search by publisher	19	14
Search by keyword	65	46
Search by title	32	23

Multiple options allowed

Purpose of using e-resources

E-resources now dominate the field of academic literature. This survey was also initiated to identify the purpose of using e-resources. Users' opinion given in table-11 reveals that for a good number of users (44%), the first and foremost purpose of using e-resources is research work, followed by use for writing scientific articles (34%) and project work by 12% users.

Options	Users	Percentage
Research process	62	44
Seminars	27	19
Project Work	16	12
Writing Scholarly articles	47	34
Other Works	5	9

Multiple options allowed

Reasons prompting use of e-resources

E-resources have many potential advantages and users were asked to specify the factors which have prompted the use of e-resources. The table-12 depicts that speed of publication has been cherished as major reason, opted by 75% research scholars and faculty for prompting use of e-resources. This is followed by Desktop availability which is chosen by 71% users. Another factor which is quite relevant in present context is multimedia features, which is opted by 69% research scholars and faculty.

Options	Users	Percentage
Hyperlinks	60	43
Desktop availability	100	71
24X7 availability	63	45
Search/browsing potential	48	34
Multimedia features	97	69
Multi-location access	38	27
Speed of publication	105	75
Access to back files	55	39

Multiple options allowed

Hindrances in accessing e-resources

E-resource usage is an important part of the scholarly communication and to share information with the broader scientific community. One imperative objective of this study was to enumerate the hindrances while accessing the e-resources. There are some troubles faced by research scholars and faculty which deprive them to accomplish these important sources of information like lack of infrastructure, lack of training, difficulty in searching information, etc. Table-13 identifies that 54% users opted for limited users access as major problem in accessing e-resources followed by 53% research scholars and faculty, who found slow speed of access as the major problem for not using or less usage of e-resources. 48% research scholars and faculty found that non availability of off-campus access is main hindrance in accessing e-resources followed by 39% users who found that there is lack of adequate infrastructure for searching relevant information from the e-resources.

Options	Users	Percentage
Slow speed of access	74	53
Difficulty in searching information	45	32
Lack of training	48	34
Lack of adequate infrastructure	54	39
Numerous Interfaces	40	29
Limited user access	75	54
No off-campus access	67	48

Multiple options allowed

Influence of e-resources on research activities

Research scholars and faculty were asked what influence e-resources had made on the research activities. Table-14 shows that 63% research scholars and faculty admitted that e-resources have improved professional competencies followed by 56% research scholars and faculty, who opined that e-resources have enhanced access to more scholarly literature.

Options	Users	Percentage
Expedited the research process	79	56
Improved professional competence	88	63
Enhance access to more scholarly literature	67	48
Use of conventional documents has decreased	57	41
Dependence on internet has increased	55	39

Recommendation of e-resources for subscription

To build a need-based collection of e-resources, the involvement of research scholars and faculty is an important factor. Users were asked whether they have ever recommended e-resources and their response is given in table-15. 54% of research scholars and faculty have never

recommended e-resources. Out of 46% research scholars and faculty who have recommended e-resources, only 26% research scholars and faculty admitted that their demands have always been fulfilled.

Option	Users	Percentage
No	76	54
Yes	64	46
If yes, demands been fulfilled		
Always	17	26
Sometimes	35	55
Never	12	19

Options for non-subscribed and urgently needed articles

Users were asked if they need some article urgently and library is not having access rites for that, how would the librarian arrange for that article. 54% research scholars and faculty opted that their library is not providing any such facility. 19% users selected the option of sharing of e-resources from other libraries and 11% opted that trial access from the publisher is being provided by the librarian to fulfill immediate demand.

Option	Users	Percentage
Electronic Resource sharing	27	19
Arranging password from pub.	13	9
By trial access from publisher	15	11
No such facility	76	54
Any other	10	7

Multiple options allowed

Satisfaction with infrastructural facilities

To provide hassle free access to full text of e-resources, appropriate infrastructural facilities are to be made available by the libraries. Users were asked to express their satisfaction with the availability of infrastructural facilities in the institute and the results are presented in table-17. This shows that 29% research scholars and faculty are completely satisfied with the infrastructure facilities available in different technical institutions under study followed by 25% of them who are very satisfied. Only 12% users are not at all satisfied.

Option	Users	Percentage
Completely satisfied	16	29
Very satisfied	26	25
Moderately satisfied	21	15
Slightly satisfied	35	19
Not at all satisfied	41	12

Tendency towards using e- journals in future

An attempt was made to know about the tendency of research scholars and faculty for using e-resources in future. They were enquired whether the library should shift towards a collection of journals in electronic form only. For 62% research scholars and faculty the answer was affirmative but 32% of them disagreed with the statement showing that it is almost fifty-fifty situation in the favor of e-resources.

Options	Users	Percentage
Agree	87	62
Disagree	45	32
No comments	8	6

FINDINGS OF THE STUDY

The following inferences have been derived from the analysis of data:

1. Primary source of acquaintance with e-resources was interaction with peers followed by browsing of the Internet.
2. Almost half of the users were aware of e-resource service for 2-5 years.
3. More than half of the research scholars and faculty (54%) admitted that they learn to use e-resources by hit and trial followed by 49% respondents who got guidance from other users for acquiring necessary skills to use e-resources.
4. Preferred gateway to search and access e-resources was publishers' website, which was opted by 44% users.
5. More than half of the research scholars and faculty (58%) found the interface of library website not very user-friendly.
6. Too many mouse clicks to reach the desired content is major problem faced on library website opted by almost half (46%) of the research scholars and faculty.
7. Department has been chosen as favorite place to access e-resources by more than half of the research scholars and faculty (55%).
8. Study shows that research scholars and faculty of technical universities were spending a large amount of their time to reading articles. 33% of research scholars and faculty read 3-5 articles in a week to be in touch with recent scientific literature.
9. 48% research scholars and faculty preferred to download e-articles in CD/pen drive for use at a later stage.
10. For 57% users search by author is preferential option for searching e-resource content.
11. Research scholars and faculty use e-resources in various aspects of their work such as teaching, projects, seminars etc. It is reported in study that 44% research scholars and faculty utilize e-resources for research purposes followed by 34% users who use e-resources for writing scientific articles.
12. Speed of publication is regarded as most useful feature in the e-resources opted by 75% research scholars and faculty.
13. 54% research scholars and faculty opined that limited user access is major hindrance in accessing e-resources followed by slow speed of access which is opted by 53% respondents.

14. 63% research scholars and faculty were of the view that access to e-resources has improved professional competence followed by 56% users who viewed that this service has expedited research process.
15. 54% of research scholars and faculty have never recommended e-resources. Out of 46% research scholars and faculty who have recommended e-resources, only 26% admitted that their demands have always been fulfilled.
16. For 54% of research scholars and faculty their library is not offering any facility for providing access to urgently needed articles which are not licensed by the library.
17. Only 29% of research scholars and faculty are completely satisfied with the infrastructural facilities provided by their institute.
18. 62% research scholars and faculty opined that library should completely shift towards a collection of journals in electronic form.

DISCUSSION AND RECOMMENDATIONS

Major drawback of technical university libraries emerging out of this study in providing access to e-resources is development of user-friendly website. Priority must be given to user-friendly website having integrated information sources and services to provide a single access point to e-resources. Library website can also act as promotional tool for promoting e-resources.

Another problem being faced by the users is clicking the mouse umpteen times for accessing full text of e-resources. If librarians are to serve their users in the digital age efficiently and effectively, they will have to save their users' time spent for too many mouse clicks to reach desired content. For this, e-resources and their contents should be well organized on the library website involving minimal clicks on mouse. Libraries could also opt for Federated search engines, which aggregate the results that are received from the search engines for presentation to the user.

Department has been chosen as favorite place to access e-resources by many users. Steps should be taken to develop separate internet browsing units within library premises with sufficient number of Internet nodes. Access from different locations is regarded as main advantage of e-resources but this very benefit is forfeited when no off-campus access is termed as one of the hindrances in accessing e-resources by research scholars and faculty. Technical university libraries must evolve some mechanism to provide access to e-resources beyond the four walls of their respective campuses. Also the networking and Internet service of the technical universities need to be strengthened by improving the bandwidth and increasing the server capacity to ensure speedy access to e-resources.

Very few research scholars and faculty admitted they have been trained by library to use e-resources. The study indicates the need of orientation/training workshop for faculty members and research scholars for using e-resources as users without training would use only a limited set of tools and resultantly low usage of available resources. More training modules/program should be organized to bring fruitful results.

Most of the research scholars and faculty have never recommended a particular e-resource which shows that the libraries under study are not developing a need-based collection by ascertaining users' needs. Libraries must do extensive user surveys to get feed-back from the users and develop a need-based collection. Research scholars and faculty use a wide variety of means to get access to e-resources that are essential for their research work. Libraries must also work in this direction by providing access to urgently required articles either by contacting other libraries

or arranging trial access from publishers or taking advantages of Document Delivery Service of DELNET, INFLIBNET, NISCAIR, etc. The libraries under study should continue developing more e-resources collections as almost half of the research scholars and faculty want to access journals in electronic format in future.

CONCLUSION

Analysis of information seeking behavior of research scholars and faculty from e-resources reveals that e-resources have become integral part of their research activities but this is a time of transition for both the librarians and users. Librarians have to manage effective collection of e-resources and their proper organization and users need to continuously keep in touch with librarians so as to put forth their demands for improving the system. The bottom line is although the research scholars and faculty of technical universities are gradually using e-resources, but the availability of a mature e-resource system would surely influence their research output and other scholarly activities. Study shows that majority of research scholars and faculty are aware of benefits of e-resources and their use is very common among them. However a few constrains are also reported by the users.

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