

USE OF E-JOURNALS BY IIT DELHI AND DELHI UNIVERSITY LIBRARY USERS

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Purpose: The purpose of this paper seeks to examine the use of e-journals by the users of IIT Delhi, and Delhi University.

Design/Methodology/Approach: Survey research was conducted to access e-journal use among IIT Delhi, and Delhi University users. In survey research questionnaire is widely used to gather data on the particular problem. The questionnaires were administered personally among the users of IIT Delhi, and Delhi University.

Findings: From this survey it was found that most of the users are aware of e-journals and they are not only using them for building and updating their knowledge but also for collecting relevant material for their study and research purpose as information can be acquired expeditiously through e-journals.

The main aim of consulting these journals is for retrieving information regarding research, publishing papers, assignments, presentations, seminars, and largely to update their own knowledge. However, this study also reveals several inherent problems especially with the use of e-journals e.g. Slow downloading as revealed by maximum IIT Delhi and Delhi University users. Other mechanical deficits like non-availability of a particular issue, lack of training and limited access to terminals are also present while using e-journals.

Limitations: The present study consists only e-journal users of IIT Delhi, and Delhi University. The geographical coverage is restricted to Delhi .The

responses have been taken from users and the data has been collected during the months of March-May 2011 only.

Practical Implications: The problem is selected by the investigator to understand the use of e-journals by IIT Delhi, and Delhi University users so that libraries can make further improvement in their e-journal services depending upon the results and suggestions.

Originality/Value: The paper provides suggestions derived from the analysis of data which in turn will help to enhance the use of e-journal services and fulfill the needs and requirements of users in the libraries of IIT Delhi, and Delhi University.

Article Type: Research Paper

Keywords: E-Journals, IIT, Delhi, Delhi University, Library, Use.

1. Introduction

The web has influenced the developments of new modes of scholarly communication including various discussion forum, websites and home pages. Although these channels are gaining popularity for communicating and exchanging research results, yet the scholarly journal is regarded as the most preferred medium. The peer review process and archiving of research results for long term availability have helped the scholarly journal to attain a firm position. Due to digital publishing technologies and Internet, the scholarly journals have undergone many changes. The digital technology raised to the give birth the electronic form of journal or e-journal. Apart from publishers, the availability of electronic versions of journals on World Wide Web, led to the emergence of new and modern e-journal service providers. From bibliographic to full text articles and the citation linking across journals has been another landmark. The digital publication has also curtailed time lag between article submission and its publication.

The e-journal is being called by various synonymous terms like online journal, paperless journal, and virtual journal. A journal can be called as e-journal, if its contents are produced and stored in electronic form, and if these contents can be scanned in a database and retrieved online, it can be called as

online journal. Some experts regard e-journal as the one that is produced, published, and distributed nationally and internationally through some electronic network like internet. (Lancaster, 1995)

2. E-Journals at IIT Delhi, and Delhi University

The IIT Delhi has started subscribing to e-journals from the year 1997. It gets access to over 12,000 full-text electronic journals and 6 bibliographic databases from a number of publishers and aggregators through the INDEST AICTE Consortium. The INDEST AICTE Web Site (indest.iitd.ac.in or <http://paniit.iitd.ac.in/indest>) hosts search and browse interfaces to locate these journals and their URLs.

Delhi University Library System has started subscribing to e-journals from the year 2004. It subscribes to a large number of e-databases including reference sources, full text sources and bibliographic databases and these can be accessed through its website. It is being made available through campus network in the university campus and can also be accessed in the colleges. It subscribes to 30 high value databases covering all the subjects taught throughout the university. Around 5,000 e-journals are accessible to users. In addition to this 24 databases (20 full text and 4 bibliographic) are accessible through UGC-INFONET Digital library Consortium. Important open access e-resources are regularly culled out and listed on the DULS website for access. (Rajesh and Jindal 2009)

3. Review of Related Literature

Various studies have been carried out on the use of E-Journals in India and abroad. The literature reviewed in this article has taken since 2007 in chronological order.

E-Journals awareness and use among research scholars of Central Science Library; University of Delhi has been accessed by Ali and Nisha (2011). Findings of the study clearly reveal that more than 60 per cent of users in the Central Science Library are using e-journals weekly for the purpose of research. Print journals are consulted by the majority of users compared with e-journals. Keyword is the most popular search method for searching e-journals among research scholars, whereas the date of publication carries the least percentage

among all the options. However, it is found that slow downloading of PDF files is the major problem that would discourage users while using e-journals.

In their study “A qualitative study of the impact of electronic journals on scholarly

information behavior” Olle and Borrego (2010) tried to find out how the increase in number of electronic journals available to academic scholars at Consortium of Academic Libraries of Catalonia (CBUC) has changed their information-seeking or consulting behaviour, with respect to 1) the amount and diversity of sources they read; 2) strategies they use to keep up-to-date in their fields; 3) use of personalized information services. The results revealed that by having greater and easier access to e-journals, scholars accessing the CBUC read more articles from more disciplines. Scholars would prefer a simpler library interface to search for online content. Due to the complexity of finding article content, they use web search tools like Google and Google Scholar to get to what they need faster. The authors of this study believe research should be conducted on the use of the Consortium’s metasearch tool to reduce the complexity.

Use of e-journals by doctoral research scholars of Goa has been measured by Chirra and Madhusudhan (2009). The study reveals that Hundred percent (96) of the respondents are aware of the e-journals and access the UGC Infonet Digital Library Consortium through GUL and IC website. Majority of users (98 percent) use UGC-Infonet e-journals for their research work (thesis). The most common problem faced by the respondents is that there is difficulty in accessing full text and a majority (95 percent) of the respondents replied that more journals are needed.

Tenopir et al., (2009) seek to examine how faculty members in Science, Technology, Medicine and Social Sciences from 1977 to the present in a university locate, obtain, read, and use scholarly articles and how this has changed with the widespread availability of electronic journals and journal alternatives. The paper finds that the average number of readings per year per science faculty member continues to increase, while the average time spent per reading is decreasing.

Kaur and Verma (2009) aims to describe the use of electronic resources and services provided at the central library of Indian Institute of Technology, Delhi. It has been found that usage of e-journals is increasing; this is due to awareness among the users about the library e-resources and services. Owing to an easy access available at various places in the institute, users are accessing these resources at hostels and departments more as compared to the library. The users coming to library have decreased.

Trivedi and Joshi (2009) seek to examine the use of e-journals by the health care professionals of HMPCME and that of print journals which can be availed at the behest of library at Pramukhswami Medical College (PSMC), Karamsad, Gujarat-India. From this survey it was found that most of the research scholars i.e. (Doctors, Physicians, Medical officers, Interns, Post Graduate students, Residents) are referring to e-journals, as well as print journals from their departmental library as well as computer center in the central library. The main aim of consulting these journals is for retrieving information regarding research, dissertation, presentations, seminars, lectures, treatment protocols for unusual cases and journal clubs etc and largely to update their own knowledge. However, this study also reveals several inherent problems especially with the use of e-journals e.g. Computer illiteracy, lack of computer training, inability of retrieving particular/relevant health based information via various advanced databases like MD-Consult, EBSCO, ProQuest, Science Direct etc. Other mechanical deficits like slow downloading, slow connectivity, and subjective strain to eyes are also present while using e-journals.

Madhusudhan (2008) has focused on the use of UGC-Infonet e-journals by research scholars and students. The main aim is to identify the needs and requirements of users in general and to know the use of UGC-Infonet Library and Information Science e-journals in the University of Delhi by research scholars and students of DLIS in particular. The study shows that e-journals perform an increasingly important role in research at DLIS. Not only current e-journals are required, but research scholars and students need to be provided the use of significant electronic back runs as well. There is an ever increasing demand for subscriptions of more e-journal titles in LIS. There appears to be some need for academics to be provided with training in using e-journals. The area where the greatest need for training is around managing references.

Moghaddam, and Talawar (2008) investigated the use of scholarly e-journals at the Indian Institute of Science. The results of the survey reflect a growing interest in electronic journals among users at the IISc. The results showed a growing interest in electronic journals among the users at IISc. Electronic journals were mostly used for research needs and PDF was the most preferred format. The fact that users have free access to electronic journals at all hours from their own computers seems to be the most appealing feature.

Nisha, Ali and Ara (2008) examined the use of the INDEST-AICTE consortium of MHRD and UGC-INFONET consortium of INFLIBNET by users of IIT Delhi and Delhi University. The results have indicated that majority of users are aware about INDEST and UGC-INFONET consortia at IIT Delhi and Delhi University. Most of users access INDEST and UGC-INFONET consortia through e-databases. Slow downloading; lack of maintenance, lack of training, lack of infrastructure and language etc. are the major problems that would discourage users for accessing resources on INDEST and UGC-INFONET.

A citation analysis of research articles from scholarly electronic journals published in 2000-2006 has been examined by Bhat and Sampath Kumar (2008). The analysis focused on the extent to which scholars are using web-based sources in scholarly electronic journals. Results of the study shows that 81.49% of articles published in selected 9 electronic journals during 2000-2006 have web references. Out of 25,730 references 56.54 % of references are print journal references and 43.52% of them are web references. The majority of articles having web references are found in *ARIADANE* (93.24%) which ranks first, followed by *Cybermetrics: International Journal of Scientometrics, Informetrics, and Bibliometrics* (89.47%) and *D-LIB Magazine* (89.19%). It can be observed from the study that comparatively more number of articles (81.05%) published during the years 2000-2006 have web references.

Istanbul University faculty was surveyed by Dilek-Kayaoglu (2008) to examine their use of electronic journals. The results of this study confirm that almost two-thirds of the respondents stated they were very frequent users of e-journals, a majority of whom were from health science, while just 22 percent of the respondents indicated that they were very frequent users of printed journals. 72.5 percent of the respondents supported the transition from print to e- only

journals. The major barriers to use e-journals were the lack of sufficient subscriptions in their discipline is particularly noteworthy and clearly indicates that the library should increase the number of e-journal subscriptions.

Borrego et al., (2007) surveyed the use of print and e-journals and found that more than 95 percent of the respondents are aware of the e-journals. Electronic journals are used exclusively or predominantly by 52 percent of the respondents. 76 percent of the respondents prefer the electronic format over the printed format when both formats are accessible. 53.6 percent of the respondents consult e-journals for both research and teaching.

In his study on “Access to Free e-journals via Library Portals: The Experience of the Shahid Chamran Ahwaz University in Iran as a Case Study” various literature and experiences about access to electronic journals via web pages has been reviewed by Amir Raza (2007). The major aim of this study, is designing a special portal for free electronic journals for Shahid Chamran University Ahwaz University on the basis of the attitudes of graduate students of this university about these journals. Data collecting tools were literature review, Checklist, questionnaire and Yahoo search engine. The study indicates that graduate students of Shahid Chamran university of Ahvaz have little familiarity with free electronic journals of their special course and their use of these journals is in low level. Chi-Square Test cleared that there is no significant difference among using full time and part time graduate students of Shahid Chamran university of Ahvaz of free electronic journals. In this study, by Webometrics method, highly cited free electronic journals were assigned. By this method, 63 highly cited free electronic journals were determined. Finally, by Microsoft Frontpage, that is a special software for designing web pages, primary version of special portal of free electronic journals for Shahid Chamran university of Ahvaz was designed and created. Free electronic journals of each university course will be accessible from this portal.

4. Objectives

1. To identify the awareness of e-journals and the purpose behind using them.
2. To ascertain priority in search techniques and find out the most popular search technique among users in providing frequent access to e-

- journals.
3. To understand barriers that would discourage users in using e-journals
 4. To suggest the ways and means for the effective use of the same.

5. Methodology

A survey was conducted to access e-journal use among IIT Delhi, and Delhi University users. As noted, the present investigators wanted to know, through a systematic opinion survey, to what extent the user community in IIT Delhi and Delhi University avail and access e-journals. The study utilized a descriptive survey method and employed a questionnaire as the data collection instrument. The questionnaire consisted of multiple-choice questions requiring one or more answers. The questionnaires were administered personally among the users. A total of 150 questionnaires were administered in the month of February 2011 among the users of IIT Delhi library, 150 questionnaires were administered in Delhi University library users. Out of which 120 filled in questionnaires are collected back from library users at IIT Delhi, and 125 from Delhi University Library users respectively. 20 questionnaires from IIT Delhi library users and 25 questionnaires from Delhi University library users were rejected due to incomplete response. Finally 100 questionnaires from IIT Delhi and 100 from Delhi University were furnished and used for data analysis.

6. Data Analysis and Interpretation

The data which are collected from IIT Delhi, and Delhi University through various data collection techniques have been organized, analysed, compared, consolidated, tabulated and interpreted by using tables and percentages and a simple method of calculation to verify the validity of results and in the light of above data, useful findings and conclusions have been arrived at. On the basis of the responses received through questionnaires the data is analysed and interpreted, in the following sections:

Table-1**Awareness of E-Journals**

S.No.	Awareness	IIT (Delhi) N=100	Delhi University N=100
1	Yes	95 (95%)	60 (60%)
2	No	5 (5%)	40 (40%)

E-journals are a fact of life in today's environment. They represent a significant and growing part of the academic library's services. Researchers have realized the value of e-journals because of their cost-effectiveness and multiple advantages. In response to the question, "Are you aware of the availability of electronic journals at your institute; 95 respondents (95 percent) from IIT Delhi and 60 respondents (60 percent) from Delhi University responded positively and acclaimed that they are fully aware of the electronic journals whereas the remaining 5 (5 percent) respondents in IIT Delhi, and 40 (40 percent) in Delhi University said that they are not aware of the facility.

The response on the awareness of e-journals shows that IIT Delhi users are more aware than Delhi University users. Very few respondents in IIT Delhi have found to be unfamiliar with e-journals. However, in Delhi University 40 percent users are unaware.

The overall analysis indicates that the aggregate e-journals awareness by Delhi University user community as a whole needs to be further enhanced. Proper awareness programmes would help Delhi University users to know about e-journals and their proper use.

Table- 2**Purpose of using E-journals**

S.No.	Purpose	IIT (Delhi) N=100	Delhi University N=100
1	For research (thesis/dissertation/project work)	63 (63%)	50 (50%)
2	Publishing articles	40 (40%)	25(25%)
3	For keeping up-to-date subject information	35 (35%)	20(20%)

4	Finding relevant information in the area of specialization	30(30%)	15 (15%)
5	Preparing assignment and seminar presentation	33 (33%)	7 (7%)

(Multiple responses were permitted)

E-journals are used for variety of reasons. Five reasons were listed against which respondents were allowed to choose more than one reason for using e-journals. (Table-2 and Fig-1)

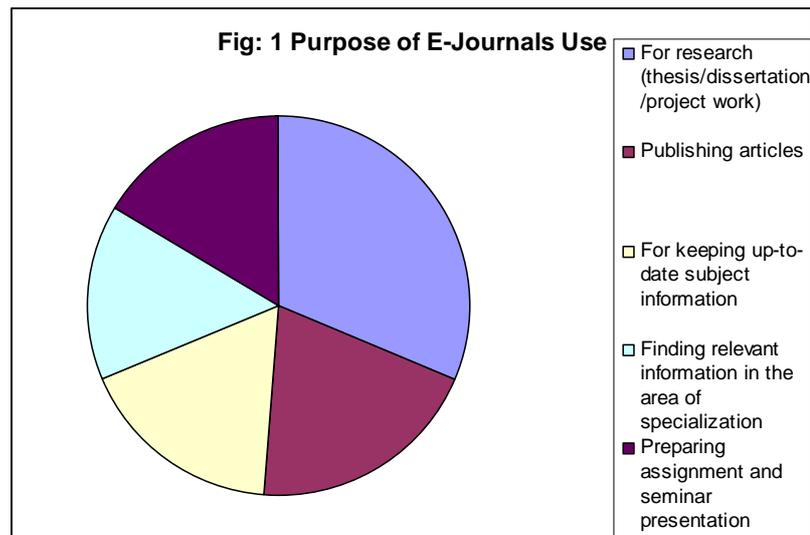
The intention here was to know the purpose of using e-journals by the respondents.

The major reasons for participants in this study used the e-journals were in support of their research in IIT Delhi (63 percent). 40 percent use e-journals for publishing articles, 35 percent consult them for keeping up-to-date their subject information, 30 percent use e-journals for finding relevant information in the area of specialization, and 33 percent users prefer to use e-journals for preparing assignments and seminar presentation.

In Delhi University, half of the users tending to use e-journals for research purpose, followed by 25 percent for publishing articles, 20 percent for keeping up-to-date their subject information, 15 percent users use e-journals for finding relevant information in the area of specialization, 7 percent consult e-journals in order to prepare assignments and seminar presentation.

Majority of users in IIT Delhi, and Delhi University use e-journals for research purpose. Least percent of users in IIT Delhi i.e. 33 percent use e-journals for finding relevant information in the area of specialization while use of e-journals in Delhi University library for preparing assignments and seminar presentation is found quite negligible, i.e. 7 percent.

This study discloses that the overall view of the purpose of use of e-journals for research by the library users of IIT Delhi, and Delhi University because of their currency of articles and rich content. This finding is supported by recent studies conducted by number of scholars (such as Ali and Nisha , 2011; Madhusudhan, 2008;Dilek-Kayaoglu, 2008).

**Table-3****Use of Search Strategy**

S.No.	Search Strategy	IIT (Delhi) N=100	Delhi University N=100
1	Keyword	50(50%)	43(43%)
2	Subject	27(27%)	25(25%)
3	Author	42(42%)	40(40%)
4	Date of Publication	15(15%)	12(12%)
5	Journal Title	35(35%)	31(31%)
6	Abstract	30(30%)	32(32%)

(Multiple Responses were permitted.)

Since the purpose of use of search strategy varies from person to person, the respondents were asked to express their opinions on specific use of various search options. The answers to which are depicted in table 3 (fig 2).

As indicated in table 3, there is a good spread of use of all search options among the respondents of IIT Delhi, and Delhi University. However, the most popular search method is 'keyword' expressed by 50 percent respondents in IIT Delhi, and 43 percent respondents in Delhi University. The second most

favorable search option is searching by “author” with 42 percent in IIT Delhi, and 40 percent in Delhi University followed by 'journal title' bearing 35 percent in IIT Delhi, and 31 percent in Delhi University, 'subject' sharing 27 percent in IIT Delhi, and 25 percent in Delhi University, 'abstract' with 30 percent in IIT Delhi, and 32 percent in Delhi University.

The least preferred method of search is the 'date of publication' carrying 15 percent in IIT Delhi, and 12 percent in Delhi University respectively.

The overall analysis indicated that there is a good spread of use of 'keywords' among library users of IIT Delhi and Delhi University as they obtain an increased amount of relevant information by searching through it. This strategy in searching correspond with other studies which shows that because of the increasing level of searching competency users are searching the online journals more.(Ali and Nisha , 2011; Madhusudan.2008, Stanford E-Journal user study, 2002a, b)

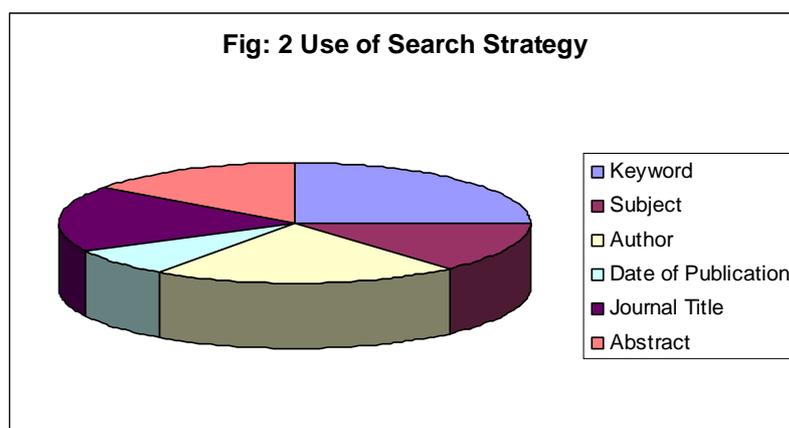


Table- 4

Use of Advance Search Strategy

Search Facilities	IIT (Delhi) N=100			Delhi University N=100		
	Never	Some times	Often	Never	Some times	Often
Boolean operators	10 (10%)	45 (45%)	48 (48%)	18 (18%)	40 (40%)	50 (50%)
Truncation	12 (12%)	35 (35%)	45 (45%)	28 (28%)	38 (38%)	44 (44%)
Phrases	20 (20%)	32 (32%)	33 (33%)	22 (22%)	27 (27%)	28 (28%)

Field searching	60 (40%)	30 (39%)	20 (20%)	29 (29%)	25 (45%)	42 (42%)
Wild Cards	20 (20%)	23 (23%)	15 (15%)	30 (30%)	32 (23%)	25 (25%)

(Multiple Responses were permitted.)

Relative use of various search strategies for locating electronic information is one of the vital aspects of the study. The respondents, therefore, were asked to express their views as to what extent they make use of various advance search strategies. The choices provided by the questionnaire are presented in table 4.

It is understood from the table that 10 percent of IIT Delhi users never used Boolean operators followed by 18 percent users in Delhi University, 45 percent used Boolean operators sometimes in IIT Delhi followed by 40 percent in Delhi University 48 percent of the users of IIT Delhi often used Boolean operators in comparison to 50 percent of Delhi University users.

In case of truncation 12 percent users of IIT Delhi never used this search facility while in Delhi University 28 percent of users are using the same type. 35 percent users of IIT Delhi sometimes used truncation followed by 38 percent in Delhi University, 45 percent IIT Delhi users and 44 percent of them in Delhi University used the facility often.

Regarding phrase search, 20 percent of IIT Delhi and 22 percent of Delhi University users never used phrase search. 32 percent of IIT Delhi users used phrase search sometimes as compared to 27 percent of Delhi University users. 33 percent of IIT Delhi respondents and 28 percent users of Delhi University use this facility often.

Field searching is never used by 40 percent of IIT Delhi users and 29 percent of Delhi University users. 39 percent users sometimes tend to use field searching in IIT Delhi followed by 45 percent in Delhi University and 20 percent often used in IIT Delhi followed by 42 percent in Delhi University.

Among the total respondents, 20 percent IIT Delhi users and 30 percent of Delhi University users never used wild cards, while 23 percent of IIT Delhi and Delhi University users used this facility sometimes. Rest 15 percent IIT

Delhi users followed by 25 percent of Delhi University users often used this facility.

This signifies that there is a great tendency among users of IIT Delhi and Delhi University towards the usage of Boolean Search followed by truncation.

Table-5

Barriers in using E-Journals

S.No.	Barriers	IIT (Delhi) N=100	Delhi University N=100
1	Unfamiliar to e-journals	5 (5%)	30 (30%)
2	Lack of training/Guidance	20 (20%)	48 (48%)
3	Non-availability of a particular issue	27 (27%)	40 (40%)
4	Lack of terminals	6 (6%)	27 (27%)
5	Language	8(8%)	12 (12%)
6	Slow downloading	42 (42%)	53 (53%)

(Multiple Responses were permitted.)

Even though e-journals are a very important source of information, users unusually face number of obstacles while browsing through them. Here, an attempt is made to find these obstacles. User's views relating to such problems are presented in table 5 for analysis.

It is revealed from the views of majority of respondents that the most common problem is that of slow downloading in IIT Delhi i.e. 42 percent users faced it. Whereas only 5 percent answered they are unfamiliar to e-journals. About 20 percent of users find it difficult to access e-journals due to the lack of training/guidance. Concurrently 27 percent users viewed non-availability of a particular issue as a hindrance, only 6 percent users stated lack of terminals as a barrier, 8 percent users are of the view that they get articles in languages other than English which made it difficult to use the relevant information.

However in Delhi University too the most common problem faced by respondents is slow downloading (53 percent).

Moreover 30 percent Delhi University library users are unfamiliar to e-journals and 48 percent reported that due to insufficient time and training, they cannot make use of e-journals efficiently. 40 percent users are faced with non-availability of a particular issue. 27 percent respondents in Delhi University state limited access to terminals a barrier in using e-journals. Only 12 percent users in Delhi University admit language as a hindrance while accessing e-journals.

As cleared from the analysis, majority of users face slow downloading problem while accessing full text articles in Delhi University (53 percent) and IIT Delhi (42 percent) library. Bandwidths should be sought so as to provide faster access that will save much of the users time and be a source of motivation to use e-journals. This finding is supported by recent studies conducted by number of Indian Scholars, (such as Trivedi and Joshi, 2008 Raza and Upadhyay, 2006; Kumbar, Hadagali and S.P.; 2006).

Table-6

Methods to make E-Journals facility efficient

S. No.	Frequency	IIT (Delhi) N=100	Delhi University N=100
1	Training Programmes	40 (40%)	60(60%)
2	Cooperation from staff	27 (27%)	43 (43%)
3	Uninterrupted power supply	20 (20%)	55(55%)
4	Informal Discussion	17(17%)	15(15%)

(Multiple responses were permitted)

In order to make e-journals facility more effective and efficient, respondents are asked to indicate various ways and means for the same.

The response in table 6 reveals that 40 percent respondents in IIT Delhi and 60 percent of them in Delhi University are in favour of training programmes. Many of them are of the view that cooperation from the library staff will play an important role in using e-journals revealing 27 percent in

IIT Delhi, and 43 percent in Delhi University. Somewhat 20 percent respondents in IIT Delhi and 55 percent of them in Delhi University opined uninterrupted power supply as a major factor making e-journals facility efficient. Few respondents i.e. 17 percent in IIT Delhi and 15 percent in Delhi University wish the informal discussion for the effective use of the same.

It is interesting to observe that the respondents in IIT Delhi and Delhi University claimed that training programmes and uninterrupted power supply would enhance e-journals use. Studies carried out by Indian authors have also cited training programmes as one of the major tool for making e-journals facility fruitful and effective. (Chirra and Madhusudhan, 2009).

7. Findings of Study

Major findings of the study are:

1. The response on awareness of e-journals shows that in IIT Delhi library (95 percent) users are more aware than Delhi University (60 percent) library users (Table- 1)
2. E-Journals are basically used for research purpose in IIT Delhi (63 percent), and Delhi University (50 percent) followed by publishing articles (40 percent in IIT Delhi and 25 percent in Delhi University). (Table- 2)
3. The search methods reveal that more than 50 percent of respondents in IIT Delhi and 43 percent of them in Delhi University laid strongest support to searching through 'keyword' whereas the 'date of publication' carrying the least favour among the respondents. Respondents in IIT Delhi and Delhi University are more inclined towards searching through keywords and author. (Table- 3).
4. "Boolean Searching" is the most favourable advanced search technique followed by "Truncation". 'Wild Cards' is carrying small percentage among respondents in IIT Delhi, and Delhi University. (Table- 4)
5. The major obstacle in using e-journals is slow downloading of full text articles as revealed by more than 40 percent of IIT Delhi and 53 percent Delhi University users. The problem is maximum in Delhi University followed by IIT Delhi. This finding clearly indicates that current online

access to e-journals does not meet the expectations of the respondents. (Table -5)

6. About 40 percent of respondents in IIT Delhi and more than half, i.e. 60% Delhi University respondents' opined that training programmes would enhance e-journals use. (Table- 6)

8. Suggestions

Based on the results of the study, a number of suggestions applicable to both institutes can be made:

1. Libraries should create digital database of e-journals subscribed by them through Digital Library Software to enable users to search full text journal articles of various publishers by subject, keywords and topic.
2. It is also suggested that users in IIT Delhi, and Delhi University must learn that searching by 'keywords' rather than by subjects will increase amount of relevant information obtained, and using keywords alone will not produce the correct level of specificity. They should be equally familiar to the other search option.
3. Users of three libraries should be taught about the advanced search strategies to make e-journals easily accessible and must learn to use to wild card characters to perform an all inclusive search.
4. Bandwidths should be sought by three libraries so as to provide faster access that will save much of the users' time and be a source of motivation to use e-journals. This will also solve the problem of slow downloading.
5. Delhi University Librarian should take care of lab providing uninterrupted power supply to e-journal use.
6. In IIT Delhi and Delhi University library, users are required proper training programmes for proper exploitation of e-journals.
7. Need for more qualified staff with better exposure to modern technological devices has been stressed in both libraries.
8. In service training should be given to those library professionals who are already working, so that they may have a better understanding. Staff training programme can be carried out by different methods such as holding formal courses, workshops, seminars, lectures, discussion groups etc. The training should be practical oriented instead of theory based.

9. In order to increase use of e-journals by students, the faculty should give more assignments on latest topics so that students may force to exploit e-journal services more efficiently.
10. A Course Work on proper use of information resources may be introduced in IIT Delhi and Delhi University as part of M.Phil and PhD programme.
11. Libraries should encourage their users to use open access journals.

9. Conclusion

The study results show that users who participated in this survey are almost aware of e-journals. Most of them used these e-journals in support of research and publishing articles. The most popular search method for searching e-journals pointed by users is 'keyword'. So, it is necessary that the libraries should teach their users about various search strategies and organize orientation session regularly. The study also shows that slow downloading is the major obstacle while using e-journals. Sufficiency of increased availability of computer systems and speed of internet should be enhanced to the desired level.

It is important that the library professionals should be proactive in working with the academic committee to develop training programmes stressed at enabling them to use e-journals effectively and efficiently. Keeping this view the study suggests that libraries should develop course work on proper use of e-journals.

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