USE OF E-JOURNALS BY THE FACULTY MEMBERS AND RESEARCH SCHOLARS OF DEPARTMENT OF ZOOLOGY AND DEPARTMENT OF BOTANY OF UNIVERSITY OF DELHI: A STUDY

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ABSTRACT

Faculty members and research scholars of department of zoology and department of botany, University of Delhi were surveyed as to their use of electronic journals, purpose of using e-journals, methods of learning e-journal accessing skills, search techniques employed by users, their preference for reading online or taking printout on paper, advantages associated with e-journals, problems faced by users while accessing e-journals etc. It was found that electronic journals are highly appreciated by faculty members and research scholars and they are satisfied with e-journals service. The study revealed that slow speed of internet as the major problem while accessing e-journals. It was concluded that for the optimum utilization of e-journals, there is need to improve internet connectivity, remote access to e-journals should be provided and information literacy programmes should be organized on regular intervals by library. The findings of the study will helps in improving usability of e-journals subscribed by central science library in the field of zoology and botany.

Keywords: Electronic Journals, Electronic Resources, University of Delhi, Usage of e-journals

INTRODUCTION

With the rapid development of web technology during the past two decades, more and more journals are appearing in electronic form at along side print. Now, the researchers in developing countries have access to global information resources, particularly through the Internet and various library consortia for their scholarly communication. The transition from print to electronic format, apart from resulting in a growth of electronic information, has provided users with new tools and applications for information seeking and retrieval (Gupta 213). Electronic Journal is defined as the grouping of information which is sent out in electronic form with some regularity. It covers any serial or serial-like publication available in electronic format, which is produced, published, and distributed nationally and internationally (Nisonger 434). ALA Glossary of Library and Information Science (96) defines electronic journals as "an online

journal publication, often scholarly, that is made accessible in a computerized format and distributed over the internet. An electronic journal or e-journal may have a traditional paper counterpart or historical antecedent."Electronic journals are often referred to interchangeably as "electronic publishing", "electronic serials", "online journals" and "electronic periodicals". There are certain intrinsic factors that make these terms interrelated or equivalent. The selection and use of journals is dependent on many factors, such as the budget available to the purchasing library, user needs and the technological infrastructure in place. With the emergence of multi-disciplinary and inter-disciplinary subjects, a librarian faces acute difficulty in formulating the subscription list of periodicals, which ultimately serve the researchers, mainly because of limited and inelastic budgetary provisions and the spiraling increase in subscription charges of periodicals. Hence, limited and selected procurement of journals seems to be the only practical option(Gupta 214). More and more libraries are redirecting their funds to provide services of e-journals to their users. The bottom line is that with all the advantages of e-journals over their print counterparts, these can be virtually considered as a boon for the higher education libraries, striving for quality and speedy information to its user community. Also, the support provided by consortia subscription adds to sheer strength of the library by providing e-journals at a highly discounted rates thus enabling library to meet with the increasing pressures of diminishing budgets, increased users expectations and rising cost of journals (Navjyoti and Vasishta 7).

REVIEW OF RELATED LITERATURE

In the last few years, large number of research studies has been conducted on how people use e-journals, their preferences for print and e-journals, purpose of use of e-journals etc. In the study entitled "Use of e-journals by research scholars at Aligarh Muslim University and Banaras Hindu University" it was revealed that most of the research scholars are aware of the availability of e-journals and largely use them for reference purposes in their research work. They fully agree that with the usage of e-journal the quality of research work improves with enrichment of appurtenant contents and materials leading to high-quality manuscript. It is however found that lack of training is the obstacle in proper and full utilization of e-journals (Khan and Ahmad 708-717). The study entitled "comparison and evaluation of the user interfaces of e-journals II: perceptions of the users" by Vilar and Zumer (816-841) found that users do not show high appreciation of auxiliary functions (such as search history, indexes, etc.) and do not use them to a great extent. They also do not prefer to have available different full-text formats. Perceptions of user friendliness of elements and functions were different in each interface. For each interface it was also established that different functions and elements were influential in the overall perceptions of the interface friendliness. Kaur (612-630) analyzed impact of electronic journals on university libraries of India and provide useful information regarding the impact of e-journals on subscription to e-journals, infrastructure, staff, space, technical services, photocopying, inter-library loan, and library use and reference services. Gupta (213-230) studied the use pattern of print and electronic journals at the Kurukshetra University, India and found that the respondents are more attracted towards e-journals than print journals. However, they depend more on open-source materials than those available via INFONET. Respondents also identified the need for training in using e-resources and retrieving information from them from time-to-time. The use of e-resources, particularly e-journals, is increasing in the developing countries. Studies such as this one are required to understand the problems faced by the users and to increase the use of e-

resources. Study entitled "Use of E-Journals by IIT Delhi and Delhi University Library Users" revealed 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. 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 (Nisha and P.M. 23-42). Satpathy, Kumar and Rout (11-16) surveyed faculty members of CVRCE, Bhubaneswar and confirmed that faculty members are aware of the e-resources and various types of e-resources, e-database, and e-journals and suggested for improvement in the access facilities with high Internet speed and subscription to more e-resources by the Central Library of CVRCE.

OBJECTIVES

1. To study about the awareness of e-journals among the faculty members and research scholars of the department of zoology and botany of University of Delhi, Delhi.
2. To know the purposes of usinge- journals.
3. To know various sources of information about e-journals.
4. To study various methods and modes of searching electronic journals.
5. To know the users' satisfaction and opinion regarding electronic journals.
6. To study about the problems faced by faculty members and research scholars in accessing and using e-journals.

SCOPE

The present study is confined to the department of zoology and botany, Faculty of Science, University of Delhi, Delhi. The University of Delhi is the premier university of the country and is known for its high standards in teaching and research and attracts eminent scholars to its faculty.Delhi University (DU) having more than 34 libraries in its fold, the Delhi University Library System (DULS) is accomplishing its task of reaching to wider academic community. Delhi University Library System has started subscribing to e-journals from the year 2004. It subscribes to a large number of electronic 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 63 high value databases covering all the subjects taught throughout the university. In addition to this 24 databases (20 full text and 4 bibliographic) are accessible through UGC-INFONET Digital library Consortium.

Central Science Library

The emergence of Central Science Library (CSL) dates back to 1981 prior to that, it was a part of Central Reference Library (CRL), Delhi. It was separated from CRL and housed in a separate building to serve members of science faculty. The administration of CSL is under the Dean of the faculty of science. It is the most prestigious library who is serving needs of approximately 15 departments/centres under faculty of science and mathematical science. The library has a total

collection of about 1 lakh 80 thousands volumes including books and bound journals.The library is subscribing to 370 learned and scientific periodicals and 90 plus databases including abstracting and indexing databases like Sci-Finder Scholar, Web of Science, Mathematical Reviews, and 28074 Online Journals from societies and publishers. The faculty members, research scholars and students affiliated to department/centers covered under faculty of science access e-resources from central science library.

Department of Zoology

The Department of Zoology was established in the year 1947 as a premier centre for teaching and research in animal sciences. The department was the first one in the country to be recognized as the Centre for Advanced Studies (CAS) in 1963 and continues to enjoy this status by special assistance from the UGC-SAP program. The UGC extended its CAS status in 2005 by providing special assistance for another five years. The department has a well-equipped central instrument facility from grants under DST-FIST program, which has recently been upgraded and a number of new instruments have been added. Currently the department offers Ph.D. Zoology, M.Phil. Zoology and M.Sc. Zoology. The department library has 9800 (approx.) books, journals and other relevant information for teaching and research. The department library has been modernized with 30 computer terminals with complete access to more than 2000 journals but users wish to access e-resources from central science library.

Department of Botany

The Department of Botany located on the North Campus was established in 1947. The department is a premier center of teaching and research in plant sciences. Its rigorous standards and scholarship attract students and researchers from all over India and from other countries. The Department attained recognition as a UGC Centre of Advance Study (CAS) in Botany in 1965. Based on its exemplary performance as a CAS for over 30 years, the Department has been selected for further assistance under the COISIST programme. Currently the department offers Ph.D. Botany, M.Phil. Botany and M.Sc.Botany. The departmental library has 8000 (approx.) books, journals and other relevant information for teaching and research. The department library has no computers and thus the faculty members and research scholars' access e-journals from the central science library.

METHODOLOGY

The methodological approach of the research was mainly quantitative and questionnaire was used to collect required data.The faculty members and research scholars of department of zoology and botany have been covered in the present study. On the basis of the responses received through questionnaires the data is analyzed and interpreted, in tables and figures.

DATA ANALYSIS AND INTERPRETATION

Response Rate
Total 100 questionnaires were distributed in the mid of March 2014 among faculty members and research scholars of department of zoology and botany. In the first week of April 2014 only 70

duly filled questionnaires received from the respondents. Table 1 depicts total population covered under the study

Table 1: Users' Population

No. of Questionnaire	Department of Zoology		Department of Botany		Total
	Faculty Member	Research Scholars	Faculty Member	Research Scholars	
Distributed	40	10	40	10	**100**
Received	30	5	30	5	**70**

Awareness about e-journals

The users were asked to state their awareness with regard to e-journal service and UGC-Infonet digital library consortium provided by central science library and whether they use e-journal service or not.

Table 2:Awareness about E-Journal

Services	Department of Zoology				Department of Botany			
	RS %		FM %		RS %		FM %	
	Yes	No	Yes	No	Yes	No	Yes	No
Awareness about e-journal service	26 (86.67)	4 (13.33)	5 (100)	-	30 (100)	-	5 (100)	-
Aware about UGC-Infonet Digital Library Consortium	8 (26.67)	22 (73.33)	4 (80)	1 (20)	6 (20)	24 (80)	3 (60)	2 (40)
Use e-journal service	24 (80)	6 (20)	5 (100)	-	27 (90)	3 (10)	5 (100)	-

Table 2 shows that the users' of both departments are well aware of e-journals service and maximum of them regularly use that service. The faculty members from both departments are almost aware about UGC-Infonet Digital Library Consortium but research scholars have less awareness about it.

Sources of information about e-journal

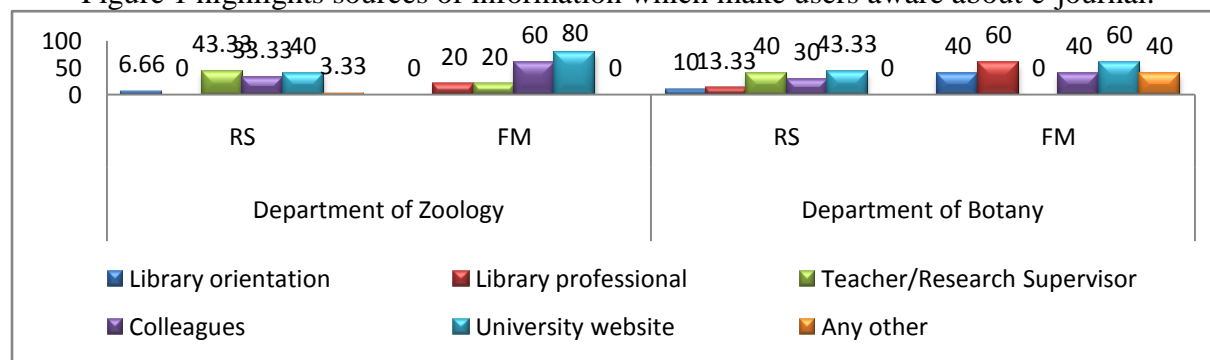Figure 1 highlights sources of information which make users aware about e-journal.

Figure 1 Sources of Information

It can be seen from the Figure 1 that 80% faculty members from the zoology department have got the information about e-journals from university website followed by colleagues. With regard to department of botany it was found that both university websites and library professionals were source of information for faculty members. Research scholars in both the department have got information about e-journals from teacher/research supervisor and university website.

Purpose of accessing e-journals

Figure 2 depicts the purpose of using e- journals by the users of both the department chosen for study.
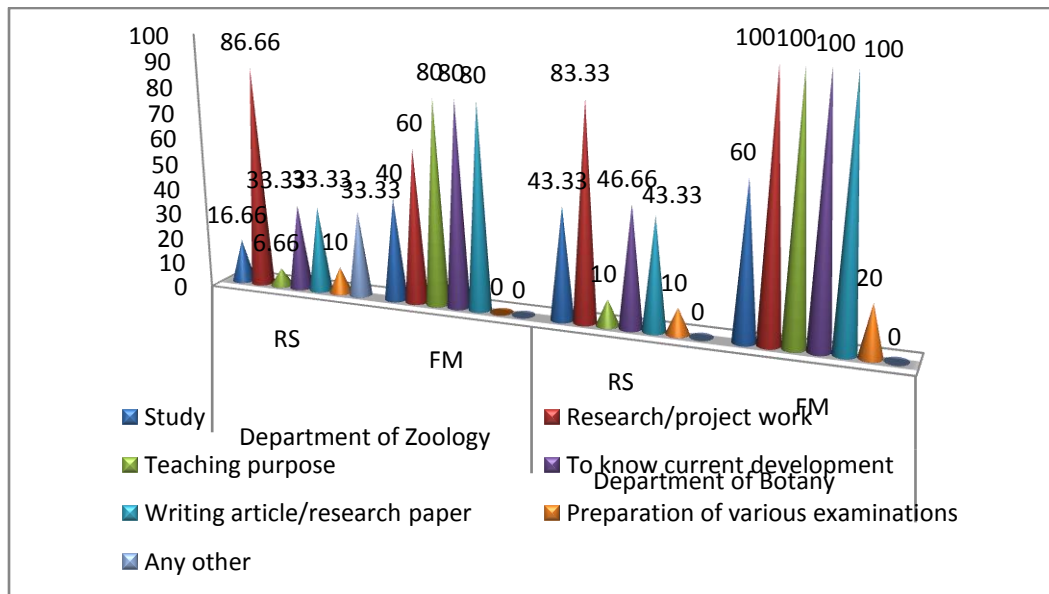

Figure 2: Purpose of accessing e-journals

Note: Multiple answers were permitted.

Figure 2 represents the varied purposes of using e-journals. Faculty members from both department used e-journals primarily for their teaching purpose, to know about current developments and for writing research articles. In comparison to zoology department, the Faculty members of department of botany highly make use of e-journals for project work also. With regard to research scholars of the both departments it was found that they primarily consult e-journals for their research/project work followed by to know about current developments.

Methods for learning e-journals accessing skills

The analysis of data in Table 3 shows methods which helped users' to learn the e-journals accessing skills.

Table 3: Methods for learning e-journals accessing skills

Methods	Department of Zoology				Department of Botany			
	RS	%	FM	%	RS	%	FM	%
Trial and error	13	43.33	5	100	12	40	4	80
Guidance from friends/Colleagues	17	56.66	2	40	16	53.33	1	20
Guidance by library staff	-	-	-	-	3	10	1	20
Training provided by institute/library	1-	3.33	-	-	3	10	2	40
Any crash course/workshop	-	-	-	-	1	3.33	-	-
Any other	2	6.66	-	-	2	6.66	-	-

Note: Multiple answers were permitted.

It can be seen from above table that faculty members of both the department learned e-journals accessing skills by trial and error method where as research scholars of both the department learned e-journals accessing skillsby guidance from their friends/colleagues. Here it was also revealed that very few users were receivingguidance from library staff or by attending any crash course/workshop.

Modes of Searching e-journals

There are several modes by which users started searching e-journals such as by simply conducting search in any of the search engine, by entering direct URL address, by accessing university website or through publishers' website etc. The Figure 3 shows varied access modes of e-journals by users' community
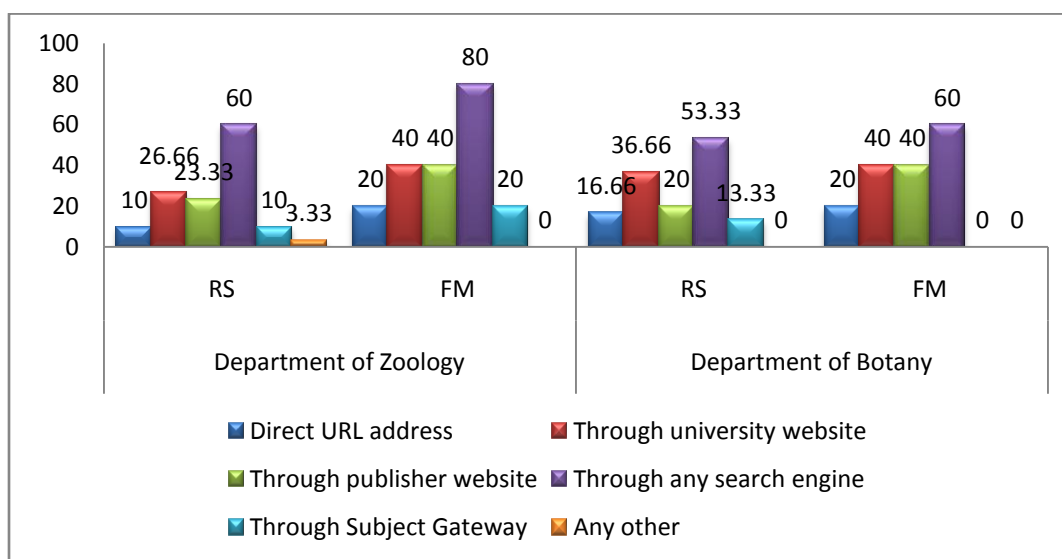

Figure 3: Modes of Searching e-journals

Figure 3 shows that maximum number of users' from both departments prefers to search for e-journals through any of the search engine such as Google, Yahoo etc. followed by accessing university website. Few users' also prefer to search for e-journals through publisher websites. Very few make use of subject gateways for searching e-journals.

Search Techniques

The users were asked to mark the search technique they usually employ for searching information efficiently and effectively.
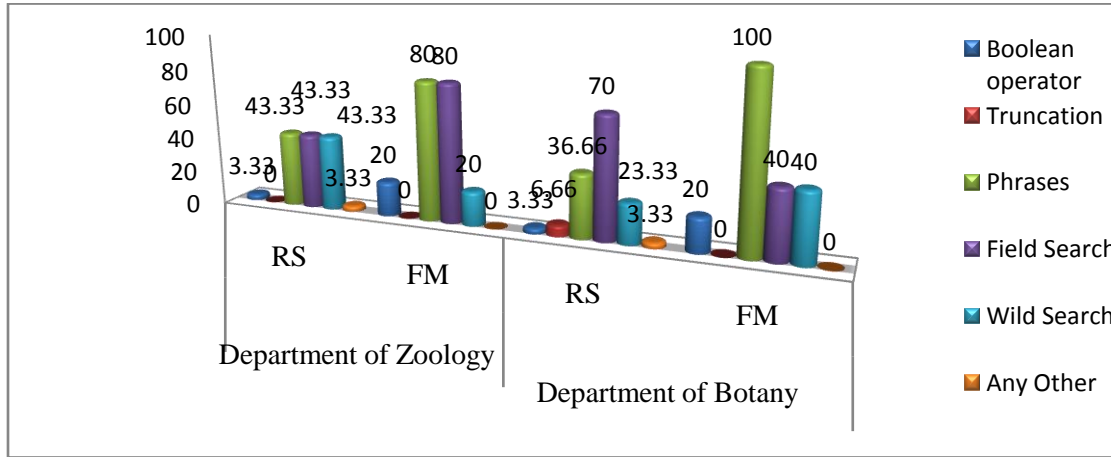

Figure 4: Search Techniques

Note: Multiple answers were permitted.

Figure 4 shows that the faculty members and research scholars of both the department prefers to conduct search by using phrases followed by field searching and wild cards.

Methods for Reading Full Text Articles

The Figure 5 below clearly shows difference between faculty members and research scholars with regard to their preference for reading full text articles. It was found that faculty members from both the departments prefers to read articles on the computer screen where as research scholars from the both department prefers take print outs for reading.
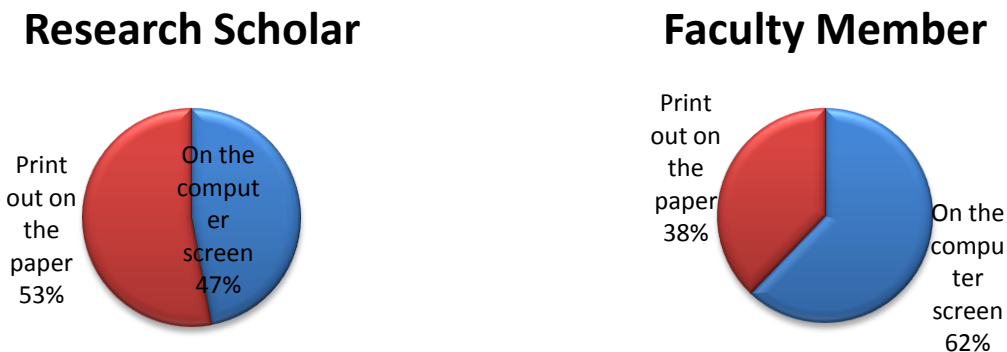

Figure 5: Methods for Reading Full Text Articles
Note: Multiple answers were permitted.

Satisfaction regarding e-journals subscription

Figure 6 examines users' satisfaction regarding e-journals subscription in the department of zoology and botany.
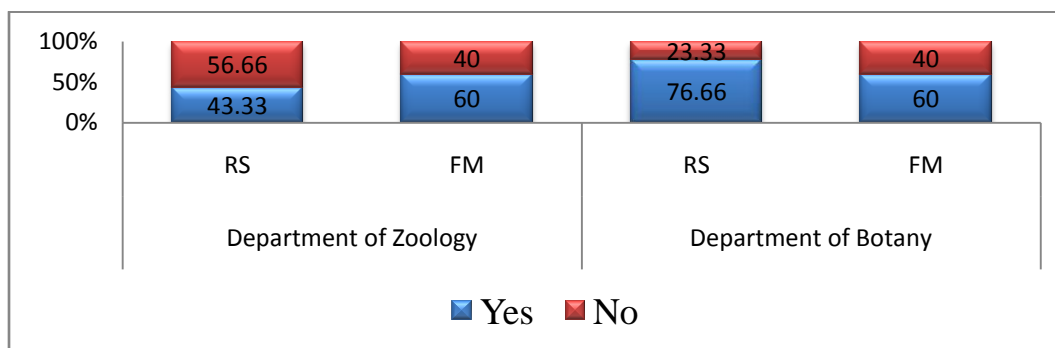

Figure 6: Satisfaction regarding e-journals subscription

Figure 6indicates the faculty members from both departments are satisfied with e-journals subscriptions. In the department of botany, research scholars are satisfied whereas as research scholars of zoology department are not very much satisfied with e-journal subscription.

Advantages of E-journals

Table 4 explains key advantages of using e-journals by the both the department users.

Table 4: Advantage of e-journals

Advantage	Department of Zoology				Department of Botany			
	RS (%)		FM (%)		RS (%)		FM (%)	
	Yes	No	Yes	No	Yes	No	Yes	No
Easier access to information	29 (96.6)	1 (3.33)	5 (100)	-	29 (96.6)	-	5 (100)	-
Faster access to information	28 (93.3)	2 (6.66)	5 (100)	-	27 (90)	3 (10)	5 (100)	-
To meet your information needs promptly	26 (86.6)	4 (13.33)	5 (100)		26 (86.6)	4 (13.33)	5 (100)	-
To make you more knowledgeable	28 (93.3)	2 (6.66)	5 (100)	-	27 (90)	3 (10)	5 (100)	-
To keep up-to-date in your specialized area	28 (93.3)	2 (6.66)	5 (100)	-	29 (96.6)	1 (6.66)	5 (100)	-
Helps incompletion of project/presentation etc.	27 (90)	3 (10)	5 (100)	-	28 (93.3)	2 (10)	5 (100)	-
Helps in increasing research output	27 (90)	3 (10)	5 (100)	-	27 (90)	3 (10)	5 (100)	-
Writing research papers /reading material	27 (90)	3 (10)	5 (100)	-	28 (93.3)	2 (6.66)	5 (100)	-
Helps in teaching / Reading	26 (86.6)	4 (3.33)	5 (100)	-	21 (70)	9 (30)	5 (100)	-

Note: Multiple answers were permitted.

The above table shows that faculty members of both the departments' regarded e-journals as very advantageous for them all of them found to be agree with all the advantages listed in the table. With regard to research scholars it was revealed that easy accessibility of e-journals and to keep up-to-date in your specialized area are the most important advantages associated with e-journals, followed by faster access to information helps in becoming more knowledgeable and incompletion of projects/presentations etc.

Users' opinion about usefulness of e-journals

Figure 7shows users' opinion about the usefulness of e-journals for them. It was revealed that 80% of the faculty members from the department of botany regarded e-journals most helpful for them where as research scholars from the same department regarded e-journals as helpful (56.66%). In department of zoology 80% of the faculty members and 53.33% of research scholars found e-journals as helpful for them. It was interested to found that none of the user rated them as not helpful.
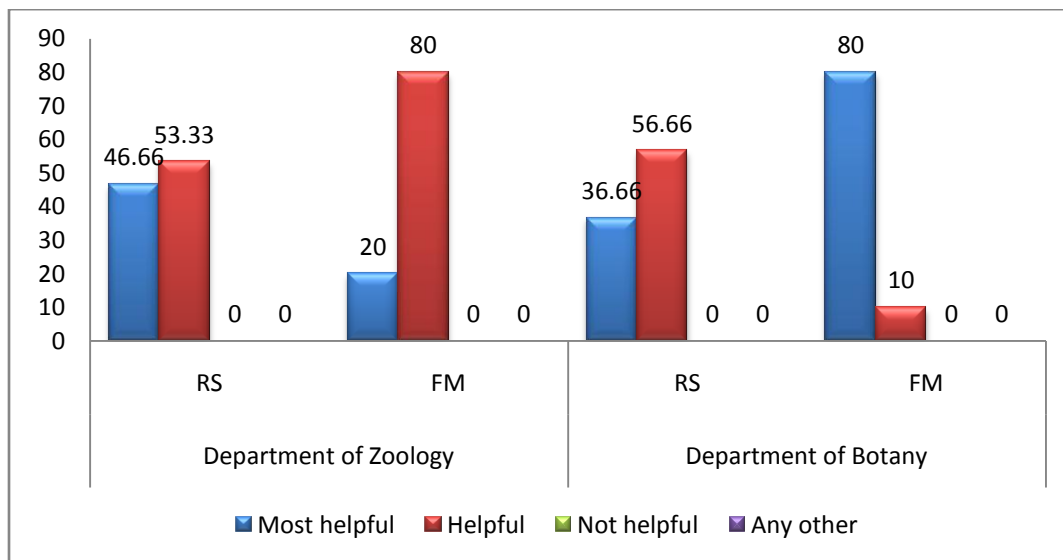

Figure 7: Users' opinion about use of e-journals

Note: Multiple answers were permitted.

Problems faced in accessing E-journals

Figure 8 clearly reflects that users' from both departments maximum faced problem in accessing e-journals because of slow speed of Internet. The other problems faced by users include lack of information about availability of e-journals, limited number of computer terminals etc.
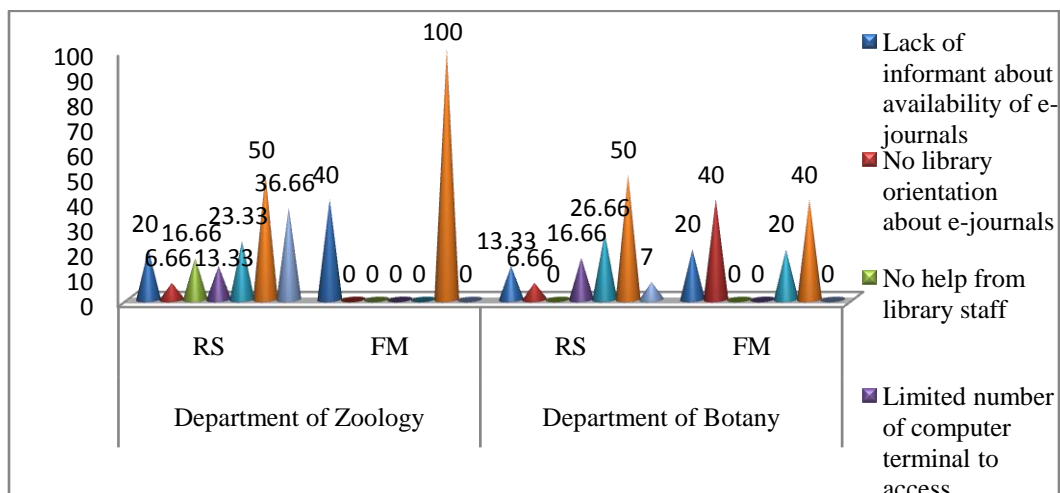
Figure 8: Problems faced in accessing E-journals

Most Accessible E-Databases and E-journals

The users were asked to name the highly accessible e-databases and e-journals by them. Table 5 shows rank wise list of most accessible bibliographical databases and e-journals used by the users' of both the departments.

Table 5: Most Accessible e-databases and e-Journals

Rank	Department of Zoology		Department of Botany	
	Database	E-journals	Database	E-journals
Ist	Nature	NCBI (National Centre for Biotechnology)	Nature	NCBI (National Centre for Biotechnology)
IInd	J-STOR	Cell Press	PubMed Central	Cell Press
IIIrd	ScienceDirect	Proceedings of the National Academy of Science (PNAS)	ScienceDirect	Science
IVth	Springer Link	Annals of Botany	SCOPUS	International Journal of systematic and evolutionary microbiology
Vth	PubMed Central	American Journal of Botany	Wiley Inter Science	Proceedings of the National Academy of Science (PNAS)
VIth	Oxford University Press	Science	Oxford University Press	Immunology

It was found that "Nature" is the most used e-database and National Centre for Biotechnology is the most used e-journals by users' of both the department. The other most accessed e-databases by users of zoology department includes J-STOR, ScienceDirect, Springer Link, PubMed Central

and oxford university press and highly accessible e-journals form the same department includes Cell Press, Proceedings of the National Academy of Science (PNAS), Annals of Botany, American Journal of Botany, Science. In botany department, highly accessed databases include PubMed Central followed by ScienceDirect, SCOPUS, Wiley Inter Science and Oxford University Press.

FINDINGS

The major findings of the present study are:

- The users' of both departments are well aware of e-journals service and maximum of them regularly use this service.
- The faculty members of zoology department become aware of e-journals through University website followed by colleagues where as faculty members from botany also said library professionals as source of information for them. Research scholars in both the departments have got aware about e-journals from teacher/research supervisor and from university website.
- Faculty members from both department used e-journals primarily for their teaching purpose, to know about current developments and for writing research articles. Majority of research scholars use e-journals for their research/project work followed by to know about current developments in their area of interest.
- The most popular method used by faculty members for acquiring the necessary skills to use e-journal is via trial and error method where as majority of research scholars of both the departments learned e-journals accessing skills by guidance from their friends/colleagues.
- A majority of respondents prefers to search for e-journals through any of the search engine such as Google, Yahoo etc. followed by accessing university website.
- Phrase search followed by field searching and wild cards are the most popular search techniques among respondents.
- The other major finding of the study is that faculty members prefers to read articles on the computer screen where as research scholars from the both department prefers take print outs for reading.
- It has been found that faculty members from both departments are satisfied with e-journals subscriptions. Research scholars of botany department are satisfied whereas as research scholars of zoology department are not very much satisfied with e-journal subscription.
- Majority of the respondents feel e-journals as most helpful or helpful for them, none of the respondents regarded e-journals as not helpful for them.
- Majority of research scholars find e-journals as easy accessible, helps in keeping up-to-date in area of interest followed by faster access to information, helps in becoming more knowledgeable and assist in completion of projects/presentations etc.
- The study also shows that slow speed of internet as the major problem while accessing e-journals.
- The study found that "Nature" is the most popular e-database and National Centre for Biotechnology is the most popular e-journals by among the users' of both the department.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are put forward to improve the use of the e-journals among the faculty members and research scholars of the department of zoology and botany, University of Delhi:

- Library should subscribe more full-text e-journals and e-databases related to their respective fields.
- Majority of users recommended that increasing the numbers of computers and improving the internet speed will enhance usage of e-journals.
- Users suggested that Wi-Fi facility and remote access to e-journals should also be provided by the library.
- Some orientation training programmes should be organized by the library at regular intervals for creating awareness about availability of e-journals and for developing e-journal accessing skills.

CONCLUSION

The overall objective of the study was to analyze the usage of e-journals by faculty members and research scholars of zoology and botany department and to give recommendations for improving usability of e-journals subscribed by the library.The study shows that e-journals are very useful source of scholarly information for academic community. Faculty members, research scholars and students highly depended upon e-journals for fulfilling their academic needs. Thus, it is important for libraries to acquire e-journals in accordance to the needs of their users' community and further ensure that they should be utilized effectively and efficiently. For the optimum utilization of e-journals it was found that information literacy programmes should be organized on regular intervals and remote access to e-journals should be provided by library.

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