Study of the Use of Electronic Resources for Implementing Library Consortium

S. Sarasvady
Amrita Vishwa Vidyapeetham
Ettimadai, Coimbatore 641105. TN, India
sarasvady@rediffmail.com

&

N. K. Khatri
Indian Statistical Institute
Delhi Centre Library, New Delhi 110 016
khatri@isid.ac.in

Abstract: *When library consortiums are formed, the existing environment about users' preferences and difficulties need to be studied. Initiating such studies would enable to incorporate the findings as the major input in consortium formation.*

Introduction

The web resources and the use of web as a tool is changing the way users live and learn. While in the early phase, the World Wide Web was mainly used for push type applications to provide information and resources to users, the development of Web 2.0 and the spread of open sources and shared use concept have focused on user generated content and applications for sharing. This has led to the rapid development and popularity of web resources.

In the recent years, there has been a phenomenal growth of electronic journals. In many consortiums, a large number of electronic journals are hosted which outnumber other electronic resources. The impact of electronic journals in academic world is phenomenal, leading to wide spread availability of them. Before, the study of their wider application, it is essential to understand the preference of the electronic journals.

Earlier studies

A large number of earlier studies of users of electronic journals have appeared in the last few years. Tenopir [1] (2003) in a major survey of the literature on the subject analyzed the results of over 200 studies of the use of electronic resources in libraries published between 1995 and 2003. Results drawn from this study indicate that electronic resources have been rapidly adopted in academic spheres, though the behavior varies according to the discipline. In a significant study Jamali, Nicholas, and Huntington[2] (2005) presented the conclusions of several studies that used log analysis to study the use and users of electronic journals. These papers focused the formats preferred by the end users where it was documented that the users prefer the PDF rather than HTML format. This study has presented the behavior patterns of users and the growing preference for searching to the detriment of browsing as the main means of accessing information.

The surveys of users of electronic resources carried out so far have been summarized in many earlier studies. However, we would like to present the findings of an important work of Bar-Ilan and Fink (2005).

The results are of these studies will enable to infer many interesting features. The major finding is:

• the usage of electronic journals increases with time.

• The variables such as age and/or academic position is inversely related to the use of electronic format and journals.

• There is a decrease in the use of printed journals as users prefer and use the electronic format more.

• When time passes many users access the electronic format more frequently.

• The use of a journal is not necessarily an indication of the preference of users. There may be an increase in the acceptance and frequency of use of the electronic format merely because the traditional print format is no longer easily available.

• The main benefits of electronic journals in this review indicate that the factors such as accessibility and desktop access, home access, ease of retrieval, and hyperlinks to outside content were the arguments cited most often. On the other hand, the disadvantages of electronic journals mentioned most often were the lack of back issues and problems with reading a text from the computer screen.

The primary factor analyzed in the studies of users carried out is the variables determining the end users' behavior in the use of electronic resources. Clearly different behaviors can be identified according to variables such as discipline, age and academic position. While studying the subjects, it seems that teaching and research staff in exact and natural (hard) sciences, who were in fact the first to adopt electronic journals, are the most active users of titles in electronic format (Erin T. Smith[3]). This may be related to the fact that, according to several studies (Tenopir and King 2003[4]).

The variations with respect to the variables such as age, status, and academic position are found to be significant. (Tenopir 2003[1]) According to Bar-Ilan, Peritz, and Wolman[5], the most active users of electronic journals are the younger members of the teaching and research staff. On the other hand, a recent survey of the medical teaching and research staff at the University of Tennessee (Amy Bush[6]) showed that age was not an influential factor in whether the respondents read articles on paper or in electronic format. However, these results did not coincide with those obtained by the same researchers[2] among astronomical scientists. The relationship between the use of electronic journals and academic ranks are studied which show that as time goes by, researchers progress in their careers and obtain higher positions in the academic hierarchy.

In the major review by Bar-Ilan, Peritz, and Wolman[5], it was noted that 48.9 percent of the respondents preferred the electronic version of the titles, 28.2 percent preferred the printed version, and 22.9 percent expressed no preference. However, whereas in life sciences 64.6 percent preferred the electronic version, in humanities 56.5 percent preferred the printed version. Siebenberg, Galbraith, and Brady[7] carried out a study of changes in the use of printed and electronic journals in three disciplines: chemistry, mechanical engineering, and physics. For this purpose, they compared the use of the printed and electronic versions of 277 titles in 1998, when only the printed versions were available, and 2001, when the printed and electronic versions of the same titles were available. The results showed that between 1998 and 2001, the use of titles that were only available in the printed version increased, and there was also a general increase in the use of the printed versions of the journals that were also available in electronic format. In these three disciplines, the printed versions accounted for 25 percent of the total consumption of the titles that were available in both versions.

Data sets used and methods employed

This study presents the results of a brief survey on the use of electronic journals by the academic users of a few selected libraries. We believe that these types of studies will reinforce our efforts in

building concrete consortiums and shared use. And also the results of these kinds of studies offer a platform with stronger inputs for building effective consortium.

For this study, we took a total of six selected libraries based on the widespread use of the electronic resources. Out of the total six selected libraries, two were university libraries and four were at the college level. The survey was initiated in one month, which elicited responses from participated users. The data sets for the study were 200 print journals and the corresponding electronic versions of them.

The main aim of the study was to supplement the results obtained in many earlier studies, which had provided very interesting general information on the use of the journal packages. However, these earlier studies had been based exclusively on the analysis of the Web access data supplied by the publishers, and many failed to give information on the characteristics, preferences and views of the users. Most of these studies are western countries oriented and hardly studies are available in India.

We through this work present the extent the information available on the use of the electronic journal collection in order to record and solicit the information about a series of questions. Hence, we have framed a few specific objectives for our work and intended to address the following:

1. The level of awareness of the collection of electronic journals.

2. The degree of preference of the electronic or printed format and the advantages and disadvantages that available in each format.

3. The demographic features of the users of electronic journals – discipline, age, and academic position – and the effect of these variables on use.

4. The characteristics of use: the reasons for consulting the journals and the place of access.

5. The degree of satisfaction with the coverage of the electronic journal collection.

The pattern of journal use in many studies of users of electronic library resources are varied. Tenopir[1] identifies studies carried out using transactional analysis techniques, discussion groups, observation in experimental, and natural environments and interviews and surveys inquiring about preferences, behaviors, and critical incidents.

We, thus in the current work, preferred to carry out a survey of the academic staff and researchers who use the libraries. The questions were divided into different units. The major set of questions was related to the demographic details of the participants. This set includes the institution they work, the participants' discipline, age, and academic level. The first question is about the awareness of the electronic journal collection offered by their institution in order to determine whether the replies to the rest of the questions were based on real knowledge of the service.

The next unit has a few questions on the participants' use of the journal collection. The main motivation of the basic question is to find out whether the user likes to use which one - either electronic or print, and, if it is print one, what was the reason to such preference. These factors may include —lack of knowledge of the electronic format, no connectivity, non-availability of electronic journals in their subject and other ones. The participants were also asked whether they would stop using the printed version of a title if the electronic version was available, and the institution where they accessed electronic journals and the reason for their use. The final unit includes a question in which they were asked to evaluate the coverage of the collection of printed and electronic journals in their institution and two questions on how they expected their use of printed and electronic titles to develop in the next few years.

After identifying the target user population, the questionnaire was given to the users in the selected academic institutions. The distribution was restricted to 100 randomly selected users. As the questions were posted personally the return rate was 100%.

Data Analysis

The items of the survey were analyzed descriptively by percentages for the quantitative variables, and indicators. The qualitative variables were related by means of the chi square test, and the contingency coefficient for each statistically significant comparison was calculated in order to study the effect size. The contrasts were considered statistically significant if $p < 0.01$.

Results

Sample distribution

The subject wise representation of the participants has shown as follows: 18 percent were in Biomedicine, 27 percent in Mathematics and Statistics, 28 percent in physical sciences and 27 percent in Social Sciences.

The population was between twenty and fifty years of age with the following break up. Biomedicine showed a high proportion of young participants with the mean age of 28 years followed by Mathematics, Physical Sciences and Social Sciences.

Awareness and Use of the Electronic Journal Collection

The surveyed users have expressed their awareness about the journal availability in electronic form as 86% users indicated they use them regularly. As the selected libraries were in urban areas, the awareness is not an issue. We have found no significant variation across subjects.

While analyzing their responses about the preference of print or electronic, 58% of the participants mentioned that they preferred the electronic journals to the print versions. 27% preferred print versions over electronic whereas 15% mentioned that they need both versions. (Table 1) The use of the electronic journal collection shows no statistically significant relationship with the discipline. However, younger the users, more is the preference of the electronic journals. The academic rank of the users has no impact over the preference.

The reasons for the preference of the format are interesting. Young users who preferred the electronic format specified that it is easy to navigate large number of resources in web. However, 82% of the print-preferred users are in the age of forty plus. Respondents who stated that they use exclusively or mainly printed journals were asked to give the reasons for this preference. Lack of net connectivity and lack of exposure are the main causes for the non-preference of electronic journals by them. The reason for the use of both is interesting. As the access to electronic resources is limited to library; and when they need to access the journals after library hours, they felt that the hard copy of the research papers is imminent.

Table 1. Relationship between use of the electronic journal collection and age

		20-25	26-30	31-35	36-40	Above 40
Electronic	58	35	7	7	7	2
Print	27	0	1	2	3	21
Both	15	1	2	4	4	4

Among academic staff who did not use electronic journals, most of them were senior professors who mentioned that they were not familiar with them.

The other reasons for non-use of electronic journals are:
Non-availability of back volumes in electronic journals
Impossibility of using electronic journals physically at different places etc
Most users mentioned that they used electronic journals mainly from their libraries (51) and 24 preferred the print in libraries. (Table 2)

Table 2 – Use in Library and other places

		Library	Reprints	Residence
Electronic	58	51	4	3
Print	27	24	1	2
Both	15	9	2	4

Evaluation of the Collection of Journals

The participants were asked to specify the level of coverage of the collections of electronic and printed journals available in their institution on a scale of one to seven. In general, the evaluation of the coverage was high for both printed and electronic journals.

Table 3. Preference of the printed and electronic journals by subject

Subjects	Format	*n*
Biomedicine	Printed	8
	Electronic	15
Social Sciences	Printed	4
	Electronic	15
Mathematics	Printed	6
	Electronic	14
Physical Sciences	Printed	9
	Electronic	14

By age groups, as shown in Table 3, statistically significant differences were only observed among respondents of the thirty-one to forty and forty-one to fifty age groups, who gave a higher score to the electronic journal collection. No statistically significant differences were observed in the other age groups.

Table 4. Evaluation of the collection of printed and electronic journals by age groups

Age	Format	*n*

Age	Format	*n*
Under 30	Print	6
	Electronic	24
31–40	Print	8
	Electronic	22
41–50	Print	13
	Electronic	11

Statistical significance is less at the level < 0.01 except between thirty-one to forty and forty-one to fifty

When the users were asked about how their use of printed journals would evolve in the next few years, 15.4 percent stated that it would increase, 27.8 percent that it would not vary, 43 percent that it would decrease and 13.8 percent that they would stop using them.
With regard to their future use of electronic journals, 91.1 percent of the respondents thought that they would use them more in the next few years. Only 8.6 percent believed that there would be no change in their use and less than 1 percent believed that they would use them less or stop using them. The proportion of respondents who thought they would use electronic journals more was around 90 percent in all the disciplines.

Conclusions

The results of the study offer significant information on the level of awareness and use of electronic journals in academic institutions, the characteristics of the users and their evaluation of the journal collection. In the last ten years there is phenomenal increase of the electronic collections and the correlation between the availability and awareness is found among teaching and research users, where many of the participants aware of the electronic journal collection available in their institution. The young participants who use electronic journals show s high level of awareness of the collections and willing to resort for more electronic journals. Hence we believe that the data and results would enable to target the users with respect to the age groups and disciplines for orientation.

Interestingly the users have knowledge about availability of electronic resources, but many use them as the supplementary way to use information. Many users need to know the complete potential of the electronic journals. However, the preference for the electronic format is related to the discipline and age of the respondents and is higher among academic staff in Biomedicine and Engineering, and among the younger generation of academic users.

A large number of participants understand that the number of electronic journals is increasing and the number of print versions is decreasing, and they resort to the electronic format: Many participants reveal that they would use the print occasionally if more electronic journals are available and this is observed particularly for young generation. While the participants in Biomedicine and Engineering and particularly the younger generation were more favorable to change, whereas those in Social Sciences and Mathematics and the older users were reluctant to a notable degree.

We observed that doing research increase the opportunity for using electronic journals. We also found a significant correlation between the reason for consulting the journals and the age of the participants. The young users are inclined for electronic journals particularly for study, research and carriers, whereas older participants use them for both research and teaching. The broader

level findings show the greater use of electronic journals among young academic users which would be not only due to their high level of knowledge with new technologies, but also to the fact that they are more active in carrying out research.

We conclude that many users will resort to electronic journals if more orientation programmes are conducted. We also understand that the studies in rural institutions may offer different equations. If studies are conducted prior to the consortium formation, it may yield fruitful results in application.

Acknowledgement

We are thankful to Prof. P. Pichappan, Dept. of Library & Information Science, Annamalai University, Annamalai Nagar, for giving valuable suggestions for the improvement of this paper.

References

1. Carol Tenopir, *Use and Users of Electronic Library Resources: An Overview and Analysis of Recent Research Studies*. Washington, DC: Council on Library and Information Resources, 2003. http://www.clir.org/pubs/reports/pub120/pub120.pdf.

2. Hamid R. Jamali, David Nicholas and Paul Huntington, "The Use and Users of Scholarly E-journals: A Review of Log Analysis Studies", *Aslib Proceedings* 57 (2005), pp. 554–571.

3. Erin T. Smith, "Changes in Faculty Reading Behaviors: The Impact of Electronic Journals on the University of Georgia", *Journal of Academic Librarianship* 29 (May 2003), pp. 162–167.

4. Carol Tenopir, Donald W. King, Peter Boyce, Matt Grayson and Keri-Lynn Paulson, "Relying on Electronic Journals: Reading Patterns of Astronomers", *Journal of the American Society for Information Science and Technology* 56 (2005), pp. 786–802.

5. Judith Bar-Ilan, Bluma C. Peritz and Yecheskel Wolman, "A Survey of the Use of Electronic Databases and Electronic Journals Accessed through the Web by the Academic Staff of Israeli Universities", *Journal of Academic Librarianship* 29 (November 2003), pp. 346–361

6. Amy Bush, D.W. King and C. Tenopir, "Medical Faculty's Use of Print and Electronic Journals: Changes Over Time and in Comparison with Scientists", *Journal of the Medical Library Association* 92 (2004), pp. 233–241.

7. Tammy R. Siebenberg, Betty Galbraith and Eileen E. Brady, "Print Versus Electronic Journal Use in Three Sci/Tech Disciplines: What's Going on Here?", *College and Research Libraries* 65 (2004), pp. 427–438.

~~~~~~~~~~~~
~~~~~~~~~~~~