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ACCESS AND USAGE OF ELECTRONIC JOURNALS IN DHAKA UNIVERSITY LIBRARY（DUL）: AN EMPIRICAL STUDY

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Abstract

The purpose of this study is to investigate access and usage of scholarly electronic journals (e-journals) at Dhaka University Library (DUL). It reports the results from a questionnaire-based survey of e-journals access and usages at Dhaka University (DU) serving a variety of academic departments. The survey of the study covers two structured questionnaires comprising of both open- and close-ended questions, and the number of respondents was (N) = 50, 30 faculty members and 20 students. First one was designed for the students of DU in order to gather data and information regarding e-journals access and usage provided by DUL. Second one was structured for the faculty members of DU to explore their expectations, opinions and valuable suggestions with a view to improving e-journal services in DUL. The study identifies some major problems of e-journals access and usage in DUL, and finds out some suitable measures to overcome the problems. The results show a growing interest in e-journals usage among the users at DU.

KEYWORDS: Dhaka University Library, Electronic journal, Access and usage, Problems, Measures to solve.

INTRODUCTION

The charisma of the Internet has changed the way we think, behave, do business, and in recent times even the way we educate and train ourselves (More, 2009). As a result, with the application of information technology (IT), particularly the Internet, there has been a shift from traditional print journals to electronic journals (e-journals). The number of peer-reviewed e-journals increased by 570 times between 1991 and 2000 (Raza and upadhyay, 2006). In the scientific arena, the

proliferation of electronic journals has revolutionized the way scientists conduct research and communicate their results; for example browsing and searching for information is facilitated far beyond what is possible in a print environment (Hyldegaard and Seiden, 2004). Governments, publishers, academics and libraries throughout the world have realised that electronic publishing is and will continue to have an effect on how scholarly journals are published and accessed (McQuistan and Henderson, 1999). Now-a-days, e-journal has become the significant source for any kind of research work, and every researcher has to depend on e-journals portal to complete his research work. Therefore, the need for users to have access to e-journals is greatly increasing and the introduction of e-journals has enabled library researchers to carry out user studies on a much more detailed level and with much less effort than has been possible in the print environment (Park, 2007; Voorbij and Ongering, 2006).

The rest of the paper is structured as follows: Section 2 focuses on research motivation and objectives of this study; Section 3 presents the literature review; Section 4 discusses the methodology; Section 5 analyzes the findings; The problems for e-journals access and usage in DUL, and the measures to solve those problems are discussed in Section 6 and 7; And section 8 concludes the study with a brief summary.

RESEARCH MOTIVATION AND OBJECTIVES

Still now in Bangladesh e-journals are not widely used in libraries and information centers. The libraries, which are subscribing e-journals, most of them seem not to be aware of related issues such as surveying of users, speed of Internet connection, adequate workstations with internet connections in the library to access e-journals, providing easy access to e-journals, how to ensure 24 hours access, orientation and training programs for staff and users at regular intervals (Islam and Chowdhury, 2006). We conducted a survey and explored the existing situation of e-journal access and usage among students and faculty members of DU. As most of the students are not aware of DUL e-journal subscription, this survey helps to increase the awareness of the e-journal usage. The results of this study could be very helpful to all faculty members as well as students of DU. The results also help to grow up the interest of using e-journals which are subscribed to DUL. Therefore, the study aims at achieving the following objectives:

- ➢ To explore to what extent DUL subscribe to e-journals.
- ➢ To identify how users can access and use of e-journals in Dhaka University library.
- ➢ To find out the problems of e-journal subscription in Dhaka University.
- ➢ To seek users' opinions about e-journals facilities for fulfillment of their requirements.

➢ To offer suitable solutions of the problems for the development of e-journals services in DU.

LITERATURE REVIEW

The user and usage studies of e-journals appear in the literature in the late 1990s when a large number of e-journals had become widely available (Moghaddam and Talawar, 2008). In 2002, Pazur and Konjević carried out a user study at the Rudjer Boskovic Institute in Zagreb, which showed a high acceptance and use of e-journals. Very few respondents of that study thought that e-journals have no disadvantages at all, and most of the respondents preferred print version in the situation where both versions were available, but many used both versions equally. Smith (2003) on the other hand, explored the role of e-journals currently play in faculty's weekly scholarly reading habits. The survey results indicated that electronic access to journals-particularly library-funded access-integral to research activities, with the vast majority of respondents reporting they read at least one article from an electronic source every week. Another study on use of e-journals by Dutch researchers by Voorbij and Ongering in 2006 revealed that, at least for scientists and social scientists, e-journals become indispensable, less than ten years after publishers started to produce electronic versions of their traditional journals. This study also found that e-journals have a profound effect on information behavior, varying from methods to become aware of relevant articles to benefit for research. Rowlands (2007) performed a review of recent research on e-journals and user behavior and explored some major key findings. Some of them are as follows: Researchers spend less time per article reading; They "see" an increasing narrow view of their own discipline as a result of the accelerating growth in the literature; Where implemented, electronic versions of journals have displaced print use dramatically and at a much faster rate than many anticipated; Introducing e-journal platforms has a strong negative impact on print-only titles; The introduction of databases of e-journals signals a major shift from browsing to search behaviors; Researchers are not technically proficient at searching and employ a range of coping strategies to navigate digital libraries; and despite the huge increase in the use of electronic reserves, print is still an important aspect of the day-to-day life of the typical academic. Similarly, Tenopir et al. (2009) found that the average number of readings per year per science faculty member continues to increase, while the average time spent per reading is decreasing. Electronic articles now account for the majority of readings, though most readings are still printed on paper for final reading. Scientists reported reading a higher proportion of older articles from a wider range of journal titles and more articles from library e-collections. Articles were read for many purposes and readings were valuable to those purposes.

Furthermore, a body of literature has been published all over the world on access and usage of e-journals, patterns in e-journal usage, exploring and information seeking behavior of users with regard to e-journals (Clajus & Maier, 2001; Bar-Ilan, Peritz & Wolman, 2003; Davis, 2004, Eason, Yu & Harker, 2000; Franklin & Plum, 2004; Ke, et al., 2002; Mahe, 2004; Mine, 2004; Tenopir et al.,2004; Raza & Upadhyay, 2006; Park, 2007; Kortelainen, 2004; Moghadham & Talawar, 2008, etc). But a few numbers of investigations have been carried out on e-journal access and usage in Bangladesh. One of them, Islam and Chowdhury carried out a study in 2006 on "Organization and management issues for electronic journals: A Bangladesh perspective". This article provided information about e-journals, their subscribers, management issues and necessities from the perspective of Bangladesh, and explored the infrastructural facilities and the existing problems of libraries and information centers that are subscribing to e-journals. They also discussed the status of e-journals usage and accessibility in selected libraries and information centers, as well as advantages, limitations and prospects for e-journals in the context of this country. Finally, they suggested that there was a need to establish a workable sustainable consortium among libraries and information institutions in Bangladesh, and recommended that systematic efforts should be made urgently for the proper organization and management of e- journals. The review of literature indicates that there is a need to explore the situation of e-journals access and usage in Bangladesh. Therefore, we made an attempt to explore the access and usage of e-journal in Dhaka University Library which is the largest public university library in Bangladesh.

RESEARCH METHODOLOGY

We used a combination of quantitative and qualitative approach for this study. We conducted a survey with a structured questionnaire comprising of both open- and close-ended questions. We selected 30 faculty members and 20 students of different academic departments of Dhaka University, who use e-journals in DUL. Two types of questionnaires were developed for conducting the survey. First one was designed for the students of Dhaka University in order to gather data and information regarding their electronic journals access and usage, and their level of satisfaction about DUL online journal services. Second one was structured for the faculty members of DU to explore their expectations from the electronic journals which are subscribed to DUL as well as their opinions and valuable suggestions with a view to improving e-journal subscriptions in DUL. We took an appointment from the faculty members and went to their rooms with the questionnaire and requested them to fill-up the questionnaire. For students, we went to DUL reading room with the questionnaire and requested them to provide necessary information in the questionnaire as they were previously contacted. Therefore, the response rate was 100% for both of the cases.

Furthermore, we used various journal articles, books, conference proceedings and the necessary information available on the Internet as secondary sources of information.

FINDINGS

Access and usage of e-journals in DUL

DUL provides online journals through contribution towards country subscription of online journals and other resources via the Program for Enhancement of Research Information (PERI under the **B**angladesh **I**NASP (International Network for the Availability of Scientific Publications) –**P**ERI **C**onsortium (BIPC) arrangement since 2007. The e-journals are linked to the Dhaka University library website (www.univdhaka.edu) and it provides very easy interface to its users which is as follows. DUL provides its e-journals services only for all faculty members, students, researchers, officers and staffs of Dhaka University.

Figure1: Online Journals facilities (www.univdhaka.edu)

Here if user clicks on the online journals link and he/she will get Dhaka University Library online journals facilities and it will demonstrate the following page.
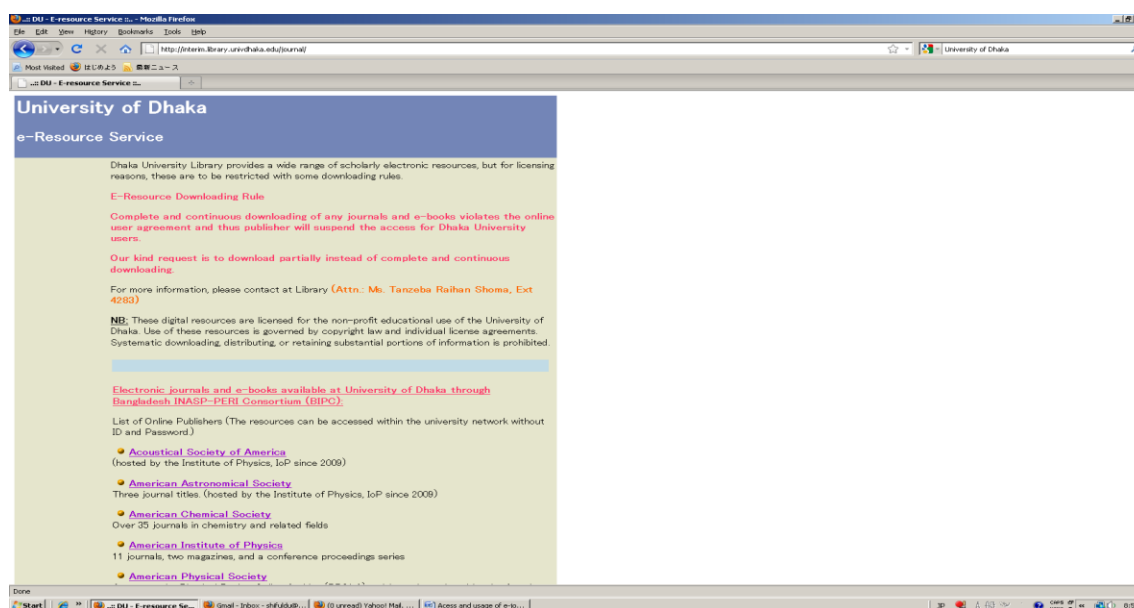

Figure 2: E-Resource Services (www.univdhaka.edu)

These digital resources are licensed for the non–profit educational use of the University of Dhaka. The use of these resources is governed by copyright law and individual licensed agreements. Systematic downloading, distributing or retaining substantial portions of information is prohibited. Since 2008, DUL has been subscribing online journals through PERI with 15 publishers and over 7500 journals available which cover different subject contents. Those publishers' links are available to the DUL website. Those links help users to access easily the desired journal articles. Every year, DUL includes new publishers through consortium.

Recently, DUL includes one more publisher named EBSCO. Now users of DUL can access EBSCO journal articles. Journals from the following publishers are available via PERI program of INASP. The names of those publishers are demonstrated on the print screen. In addition to those publishers, DUL also provides three major initiatives. Under these initiatives DUL gets over 6,328 titles of journals. The names of those e-resource programs are: Access to Global Online Research in Agriculture (AGORA), Health Internetwork Access to Research Initiative (HINARI), Online Access to Research in the Environment (OARE), and The Electronic Journals Delivery Service (eJDS)-eJDSweb.

To access these links, first of all, user is to go to the DUL website and have to click related publisher. Then it needs to login this site providing user name and password. This is how users can access to their desired journal full-text articles of DUL.

Measurement of awareness on e-journal service

In response to the question "Are you aware of the availability of e-journals at your university? 60 percent of the respondents replied positively and 40 percent of them negatively. Those who are answered positively, most of them are faculty members and those who are answered negatively most of them are students, which indicates that most of the students don't know that DUL subscribes e-journals since 2007.

Gender and age group of respondents

The tendency of using e-journals among the faculty members and students are shown irrespective of their sex and age group in figures 3 and 4 respectively.

Figure 3 shows that more than 30% of the male faculty members (with age group 36-41), are using e-journal which is the highest age group whereas the lowest age groups are 54-60 (6.6%).
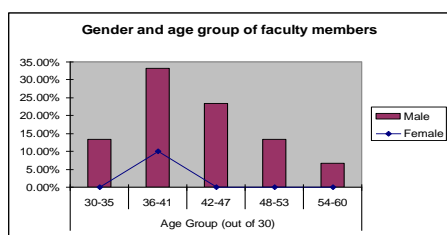

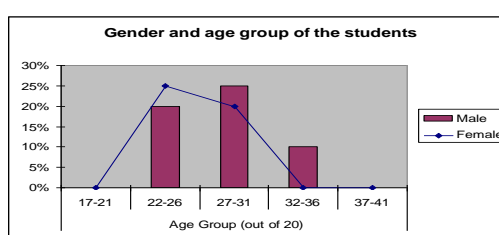Figure 3: Gender and age group of faculty members   Figure 4: Gender and age group of the students.

On the other hand, figure 4 shows among the students, both male and female use e-journal and their highest age groups are between 22-26 and 27-31.

Use of publisher

The faculty members were asked about use of different publishers. The data regarding preference of the publishers of e-journals are summarized and ranked in table 1 based on the percentage of use at DUL.

Table 1: Ranked List of Publishers by use at DUL.

SL.	Name of DU subscribed publishers	Yes	Percentage
1.	Springer	24	80
2.	Wiley (InterScience) & Blackwell Publisher (synergy)	16	53.3
3.	Oxford University Press.	12	40
4.	Cambridge University Press.	10	33.3
5.	Royal Society	7	23.3

6.	HINARI	5	16.6
7.	American Chemical Society	4	13.3
8.	American Physical Society	4	13.3
9.	Institute of physics publishing	4	13.3
10.	University of Chicago Press.	3	10
11.	Cochrane Library	3	10
12.	Annual Review	2	6.6
13.	Multilingual Matters	2	6.6
14.	AGORA	1	3.3
15.	OARE	1	3.3
16.	Mineralogical Abstract	0	0.0
17.	Mary Ann Liebert	0	0.0
Others (without DU subscribed journals)			
18	IEEE	5	16.6
19	ACM	4	13.3
20	ELSEVIER	2	6.6

Table 1 reveals that e-journals from Springer are being used mostly by the DU faculty members amounted 80 percent of the total usage and Mineralogical Abstract & Mary Ann Liebert publication recorded the lowest usage rate with mere nil. Conversely, the largest publisher Wiley InterScience now includes Blackwell publishers and their usages are in second position. In addition to those subscribed e-journal publishers, DU faculty members also use other journal titles. Among these, the highest preference journal titles are IEEE, followed by ACM, and ELSEVIER.

Purpose of use

Both types of respondents were asked "For what purposes do you use electronic/online journal?" The opinions received from the respondents are shown in figure 5.
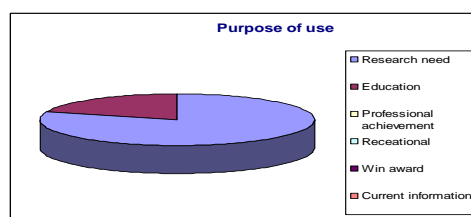

Figure 5: Purpose of use

Figure 5 indicates that electronic journals are mostly used for 'Research needs' followed by 'Education', 'Current information'. It was also found that the e-journals are least used for 'Recreational purpose' and 'Winning awards'.

Referred format of e-journals

The format of e-journals is considered to be one of the many parameters that affect their use, therefore, the respondents were asked to specify their preference of e-journals format, and their views are summarized in figure 6.
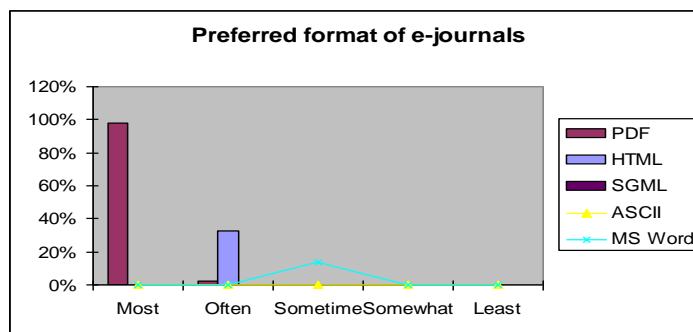

Figure 6: Preferred format of e-journals

Figure 6 shows that PDF and HTML are the two most preferred formats with publishers. It is to be noted here that Acrobat reader for PDF and browser software for HTML formats are available free of cost, therefore they preferred these two format and they are not ready to pay money for other software.

Status of respondents and frequency of use

The status of respondents might have an influence on the frequency of use and the data received from the respondents are shown in figure 7.
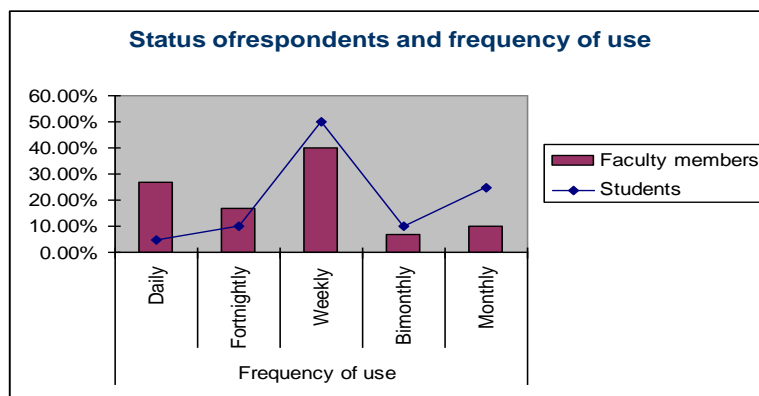

Figure 7: Status of Respondents and Frequency of Use

The figure 7 reveals that there is a significant association between the frequency of use and the status of respondents. It indicates that students are using e-journal weekly most, while the faculty members are using those daily as well as weekly as most of the faculty members are involved in their research work, they need to be up-to-date with current published e-resources. But in case of students, they can't access e-journals daily because all departments are not providing internet

facilities for all students, and some of them have to use the Internet with paying money. Therefore, around 50 percent of students used e- journals weekly.

Importance of e-journals and their use by respondents

The following question was asked: "Do you agree with this statement 'Electronic journals are one of the most important parts of scientific communication?". The responses of the respondents are as follows:

Table 2: Importance of e-journals and use (N= 50)

Importance of E-J	Use of Electronic-Journals	
	Yes	No
Yes (42) 84%	30 (60%)	12 (24%)
No (8) 16%		

Table 2 reveals that the 84 percent of respondents replied positively regarding the importance of e-journals. The result also demonstrates that the strong and predominant role of e-journals in scientific communication. It also shows that 60 percent of those who use electronic journals which strongly underlines the conclusion that "electronic journals are one of the most important parts of scientific communication."

Monitor versus printout reading

The respondents were also asked about the preference of reading on a monitor compared to reading a print out. The result is demonstrated in figure 8.
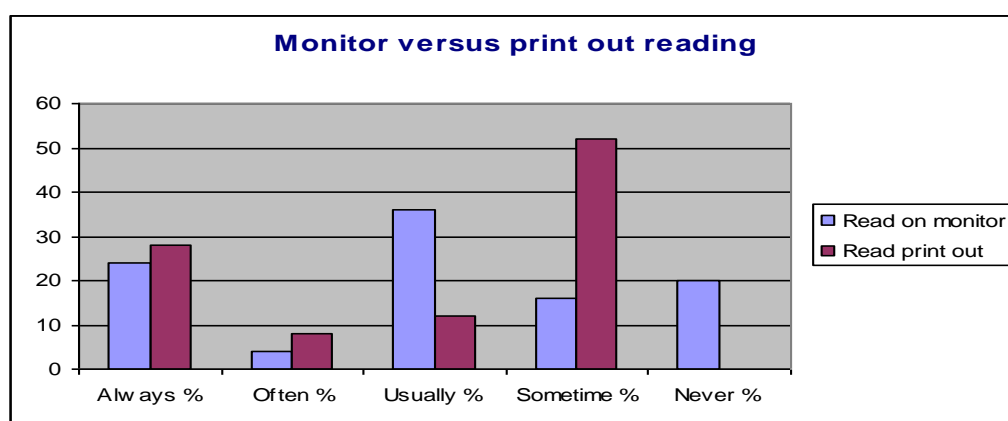

Figure 8: Monitor versus print out reading

Figure 8 indicates that 24 percent of respondents always read on the monitor and 28 percent always read print out. Also, 36 percent of users usually like to read on the monitor, while 52 percent of respondents sometime read print out. These percentages suggest that there is an even balance between the two media preferences.

Reasons for non-use of e-journals

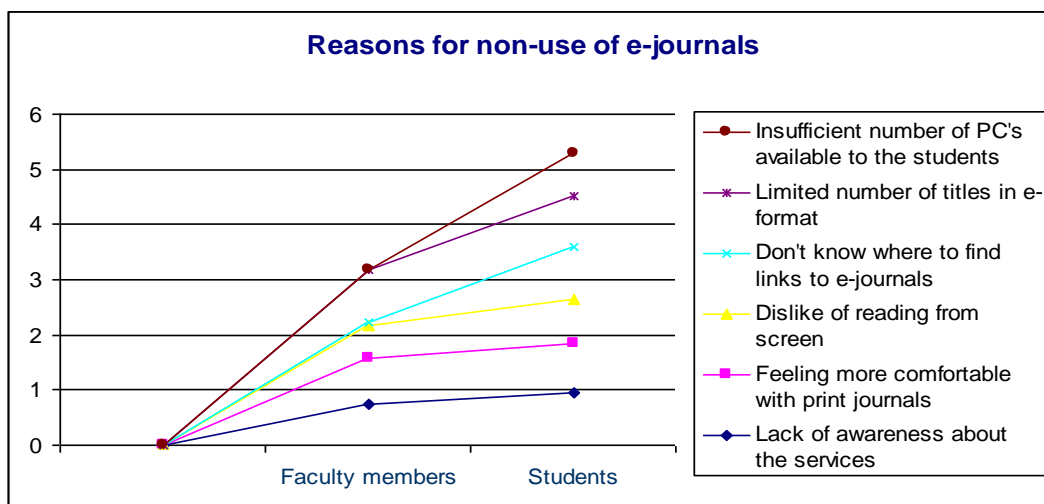The outcome is revealed through the figure 9 for non-use of e-journals

Figure 9: Reasons for non-use of e-journals

It is evident that from the figure 9 that the DUL e-journals are not being popularly used due to insufficient numbers of PCs for the students; many of them don't know how to find the links to e-journals; and lack of awareness about the services among the users.

Methods followed for locating e-journals

The respondents were requested to specify which methods they are following in locating e-journals.

The percentages of their responses regarding the methods are shown in table 3.

Table 3: Methods followed for locating e-journals

Methods followed for locating e-journals:	Faculty Members	Students
Looking up the link e-journals on the DU library website	33.3%	10%)
Using the OPAC	0	0
Having added e-journal links to their bookmarks	26.6%	0
Seeing bibliographical databases with links to e-journals	20%	0
Seeing a web search engine	73.3%	90%
Using a subject guide to web resources	6.6%	0

The table 3 depicts that 33.3 percent of the faculty members follow DUL website to get e-journals whereas most of the students are not aware of the website. It also shows that 73.3 percent of faculty members and 90 percent of students depend on having e-journals by using various search engines.

Time spent on downloading e-journals

The respondents were asked about time they spent downloading the journal articles. Table 4 shows the amount of time spent on electronic journals downloading.

Table 4: Time spent on downloading e-journals

Respondent	Time spent on downloading e-journals:						
	Less than 10 min.	10-20 min.	20-30 min.	30-40 Min.	40-50 Min.	More than 50 min.	Depends on network
Faculty members	25 (83.3%)	0	0	0	0	0	5 (16.6%)
Students	14 (70%)	0	0	0	0	0	6 (30%)

Table 4 reveals that 83.3 percent of the faculty members and 70 percent of students reported that to download e-journal articles maximum time spent less than 10 min. On the other hand, 16.6 percent faculty members and 30 percent students stated that it depends on the speed of the network. Some of them from both group of users reported that that the electricity problems in DUL are hampered to download e-journal.

PROBLEMS FOR E-JOURNAL ACCESS AND USAGE IN DHAKA UNIVERSITY LIBRARY

Electronic journals open up many exciting opportunities and potentials for research and academic libraries. The e-journals have some merits and demerits. (Islam & Chowdhury, 2006). However, some main problems and issues are enumerated below, which were found regarding e-journals at the University of Dhaka during the study:

a) *Lack of knowledge and awareness of e-journal among the users:* Most of the students of DU are not aware about e-journals. Many of the students of DU have come to know about the term e-journals for the first time while the survey was conducted. Very few of the faculty members had no idea about the subscription of e-journals in DUL.

b) *Lack of adequate funds to subscribe more e-journals:* Dhaka University Library subscribes e-journals since 2007 but the yearly funds allocation of DU for e-journal subscription is not sufficient at all, therefore it can't fulfill the requirements of all users.

c) ***Lack of knowledge about the links to e-journals:*** Most of the students don't know where to find the e-journals links, they also don't know that DUL website provide the online journals services link.

d) ***Lack of computer skills:*** Some students don't know how to operate the computer, as their computer skills are very poor. As a result, they are not interested to work with computers.

e) ***More interest to use various search engines****:* Most of the students and some of the faculty members are very much interested to find out e-journals from using various search engines. So many of them are not eager to use DUL online journal services.

f) ***Lack of adequate computer lab facilities:*** In Dhaka University, many departments don't have any computer labs. The students of those departments are not having the facilities to use computer and to access the DUL websites.

g) ***Lack of training and orientation program:*** DU authority doesn't arrange ever any seminar or training program for the faculty members and the students of DU to create awareness of using e-journals and let them know about the benefits of using e-journals.

MEASURES TO SOLVE THE PROBLEMS

Dhaka University library has some problems regarding the access and use of e-journals for both students and faculty members On the basis of those problems, the following measures should be adopted for solving the problems in Dhaka University Library.

a) ***Increase allocation of funds and subscribe more e-journals***

As the biggest University of Bangladesh, DUL should increase the allocation of funds for subscribing more e-journals as the cost of e-journal subscription is increasing day by day and among those the current issues are more costly than back issues. DUL should subscribe more e-journals in order to cover all the subjects content of the university.

b) ***Increase the bandwidth of internet connection and numbers of computers***

Bandwidth for Internet connection and numbers of computers for users must be increased in DUL. It will ensure the faster internet access and usage of e-journals. As a result, the download time will be minimized.

c)   *Establish more consortia or buying clubs*

DUL should take an initiative to establish more consortia or buying clubs participating all public universities as well as some private universities in Bangladesh, which will not only ensure e-journal subscription at reduced a cost, but also gives a suitable platform to share knowledge, conduct joint survey and training program.

d)   *Arrange training program or workshops*

Dhaka University authority should arrange the training program or workshop on e-journal in order to increase awareness among the users and to inform them about the search interface, sophisticated retrieval skills and techniques of e-journals, together with some computer fundamental skills.

e) *Faculty   members   should   encourage   students   to   use   e-journals*
It is a recognized fact that most of the students in DU rely on books and handouts. Faculty members should encourage students in the class room to read more journals and conference proceedings to keep them up-to-date and suitable for the age.

f)   *Appoint more information professionals with ICT skills*

There is also a need of information professionals capable of supporting users in access to not only e-journals but also to all types of e-resources. Most of the information professionals in DUL have no adequate training on e-resources. Therefore, appropriate training should be arranged for them, as well as some expert informational professionals with information and communication technology (ICT) skills should be appointed immediately to accelerate the use and access of e-journals in DUL.

g)   *Receive users' suggestions or opinions for subscribing new e-journals*

Users' opinions or suggestions could help the information professionals for subscribing the most essential and most important e-journals for DUL. Therefore, DUL should also receive information and suggestions from the faculty members and the students about the subscription of new e-journals.

CONCLUTION

The purpose of this study was to investigate access and usage of scholarly e-journals at DUL. The results reflect a growing interest in electronic journals among the faculty members and the students of Dhaka University. This study has shown that PDF format is the most preferred choice of electronic journal, followed by HTML format, MS Word, ASCII and SGML formats. Regarding the media preference (reading on the monitor or reading print out), this study suggests that there is an even balance between the two media preferences. Earlier studies found that users prefer to read print out than read on the monitor (e.g., Woodward, 1998; Rusch-Feja, & Siebeky, 1999; Brown, 1999; Pazur, 2002 cited by Moghaddam and Talawar, 2008). This result shows some changes in this trend. The result of this study confirms the Liu's study in 2005 and Moghaddham and Talawar study in 2008. Both of the studies showed screen-based reading behavior which is characterized by more time spent on browsing and scanning, keywords spotting, one-time reading, reading more selectively and less time is spent on in-depth reading (Liu, 2005). In addition, Islam and Chowdhury in 2006 proposed to establish consortia among public universities and research organizations. This result confirms that the situation has improved and a large number of electronic journals are made available through consortia in DUL. Since the establishment of library consortia and the growth of big deals/major contracts, several studies have appeared in recent years in which the usage of e-journals was researched with respect to their cost-effectiveness, user diversity according to research fields, and other relevant factors (Karasözen, 2008). Bangladesh is becoming active in consortia activities and is providing access to electronic journals through consortia especially for research institutions including DUL.

The study explored the following major problems regarding access and usage of e-journals at DUL: Lack of knowledge and awareness of e-journals among students and faculty members; lack of adequate funds allocation to subscribe e-journals; lack of knowledge about the links to e-journals; Lack of computer skills; lack of adequate computer lab facilities; and lack of training and orientation program. In order to overcome the problems, this study also suggests that DUL should increase funds allocation, the bandwidth of internet connection, the number of computers, and subscription of e-journals. DUL should establish more consortia, arrange training programs for users; appoint more information professionals with ICT skills; and receive users' suggestions or opinions for subscribing new e-journals.

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