DESIDOC Journal of Library & Information Technology, Vol. 31, No. 6, November 2011, pp. 437-445

Usage of Electronic Resources at Dr T.P.M. Library, Madurai Kamaraj University: A Case Study

S. Thanuskodi

Library & Information Science Wing, Directorate of Distance Education
Annamalai University, Annamalai Nagar–608 002
E-mail: thanuskodi_s@yahoo.com

ABSTRACT

Information technology (IT) has thrown a new challenge to the libraries. The technology has shown a great impact on the services of the libraries. Libraries use IT for better services and satisfying diverse user needs. Libraries have transformed into digital and virtual libraries where books, journals, and magazines have changed into e-books, e-journals, and e-zines. This has increased the global dissemination of information. Electronic resources (e-resources) are easily accessible in the remote areas. The e-resources solve storage problems and control the flood of information. Print sources are being digitised. There is a great need to study the use of e-resources and investigate the factors that are a hindrance to their use. The present study is an attempt to examine the usage of electronic resources at Dr T.P.M. Library, Madurai Kamaraj University. Study revealed that MPhil students respondents took the first position in their overall methods of searching e-resources, postgraduate student respondents the second position, PhD Scholar respondents the last position. The study confirmed that respondents were aware of the e-resources and various types of e-resources, e-database, and e-journals. The study recommended the improvement in the access facilities with high internet speed and subscription to more e-resources at Dr T.P.M. Library, Madurai Kamaraj University.

Keywords: Internet, e-resources, CD-ROM, e-journals, e-books, search engines, library portals, UGC-Infonet

1. INTRODUCTION

The internet provides access to unlimited sources of information and search engines are continuously being advanced to provide efficient ways to help users to find what they want. The internet eases and increases access to a large amount of data, saves time and money, and provides an opportunity to consult several experts with a single request (via discussion groups), and more independence from specific times and places for information seeking. Technology has penetrated all areas of life. Libraries use information technology (IT) for better services and satisfying diverse users' needs. Libraries have transformed into digital and virtual libraries where books, journals, and magazines have changed into e-books, e-journals, and e-zines. This has increased the global dissemination of information. Electronic resources (e-resources) are easily accessible in the remote areas. The e-resources solve storage problems and thus control the flood of information.

Today we are living in the age of information. The information is a dynamic and unending resource that affects all disciplines and walks of life. Over the last decade, electronic resources have become increasingly substantial components of academic library collection. This is due to the continuous development of IT and its impact on library collection development policies due to changing demand of users for the pin-pointed and exhaustive information within a short time. With the growing popularity of e-resources, the traditional libraries are gradually migrating from print documents to e-resources where providing access to information is considered more important than owning it. This has compelled libraries to rethink about their collection development functioning.

Applications of information communication technology (ICT) in libraries have provided enough opportunities for e-resource development and disseminate it in the manner that their users preferred. Among e-resources, the e-journals and e-books are more in demand by the users.

The quality of higher education in India requires ongoing changes and developments in the teaching-

Received on 10 February 2011; Revised on 15 April 2011

learning process. Faculty members in universities need to let go the concept of merely text-book-oriented lecturing system in the changing higher education environment. The countries with advanced education systems developed extensive teaching/learning strategies, planned to train their students for a wider market place, through lectures, seminars, workshops, handouts, and web-based tutorials. The faculty in India must identify and use new teaching strategies designed to support the teaching, learning, and research goals of the university. The further inducements for such a change have been the explosion and proliferation of information in various formats, changing patterns of information seeking and retrieving, hence the need for investigating internet usage in this changing higher education environment. This is the first attempt to study the use of internet and e-resources by the university student and research scholars. Its findings should help the University in drawing its plans and programmes related to e-learning and strengthen pertinent resources and services of its libraries.

The present study is an attempt to analyse the use of e-resources by the PhD scholars, MPhil and Postgraduate (PG) students of Madurai Kamaraj University and to find out the problems and constraints faced by the users in accessing the e-resources with some purposeful suggestions for their development.

2. HISTORY OF DR T.P.M. LIBRARY, MADURAI KAMARAJ UNIVERSITY

Until 1967, there was only the University of Madras, Tamil Nadu, besides the Annamalai University - a privately funded one. It was Dr A. Lakshmanaswamy Mudaliar who thought of a Postgraduate Centre of the University of Madras, down south. The Postgraduate Centre of the University of Madras was started on 15th December 1957 in the premises of American College at Madurai. Dr S.J. Savarirayan, Principal of the American College was Incharge of this Centre. The occasion was marked with the establishment of a small library with Prof S. Gnanamuthu as the Librarian, who later became the first University Librarian. On 2nd February 1957, Dr C.P. Ramaswamy Aiyar laid the foundation stone for a new library building at the N.M.R. Subbaraman Park. The building was inaugurated by Dr C.D. Deshmukh, the then Chairman of the University Grants Commission on 16th October 1961.

In view of the growing number of colleges in the southern districts encircling Madurai as an academic pivotal point, the Government of Tamil Nadu pronounced the opening of a University, bifurcating from the University of Madras. That was the Madurai University that came into being on 1st February 1966. The University of Madras Extension Centre Library was renamed as the Madurai University Library. The city complex could not cater to the growing needs of the new born university, the authorities decided to shift to a new venue named Palkalainagar near Vadapalanji village, on the Theni Main Road. The new building was declared open on 20 November 1973 by Thiru V.R. Nedunchezhiyan, the then Pro-chancellor of the University. The total cost of the building and furniture came up approx. to Rs. 14,04,251. The library was constructed with the financial assistance of the UGC and the Government of Tamil Nadu. The University Library was shifted from the old campus at Tallakulam to Palkalainagar and it started functioning in the new building from 3 April 1974. It is called Dr T.P. Meenakshisundaran Library.

3. OBJECTIVES

Availability and access of e-resources (both online and offline) have become an integral part of any modern library. The basic objectives of the present study are to:

- Analyse the purpose of using e-resources by respondents
- Examine the respondents' duration and quantum of time utilisation in search of information
- Know different types of e-resources commonly used by respondents
- Analyse the methods used by respondents in accessing e-resources
- Find out the preference of respondents in using various categories of e-resources
- Identify the problems faced by respondents in using the e-resources

4. LITERATURE REVIEW

To review the literature, search was conducted with combination of various key terms such as 'e-resources', 'e-journals' and 'e-journals consortia' in *Library and Information Science Abstracts* (*LISA*), *Emerald database*, *EBSCO database*, *Science Direct* and other databases, including search on the e-journals websites and search engines. In addition searches, bibliographies journals were also reviewed for more sources, as well as website of UGC-Infonet digital library consortium and many eminent experts were consulted in the field of e-journals.

The e-resources are invaluable research tools which complement print-based resources in any traditional library. The e-resources provide access to information that might be restricted to the users because of geographical locations or finances. These also provide access to current information as these are often updated frequently. Through their various search techniques, e-resources provide extensive links to explore additional resources or

related content. In addition, e-resources are convenient to use since users are able to access information from the library, cyber cafes or in the comfort of their homes during any time of the day.

Aldojan[1] investigated the internet use among education faculty members in Jordanian public universities. The population of this study included the entire education faculty members (309) in seven Jordanian public universities, ranking instructors/ lecturers, assistants, associates, and full professors. The study explored about no. of times types of internet tools used on a daily basis, and the degree of satisfaction of education faculty members in Jordanian public universities using the internet in their academic work. The purpose of this study was to collect and analyse the data to determine the patterns of internet use and to identify the faculty's concerns and its overall degree of satisfaction of its services.

Ali[2] highlighted the use of electronic information services (EIS) among the users of Indian Institute of Technology (IIT) Delhi library. Data was collected from 300 IIT Delhi library users. Results revealed that 95 per cent of the users had awareness about EIS provided by the library.

Biradar[3], *et al*. reported the results of a study exploring university students' and teachers' use of search engines for retrieval of scholarly information. The main objectives were to examine the use of search engines, use of popular search engines, factors influencing for search engines' use, use of search strategy for information retrieval and also to know the methods of learning search strategy by students and faculty in the university environment. Results of the study showed that 100 per cent of the students and 97.91 per cent of the faculty used search engines for retrieval of information on the internet. Google and Yahoo received the highest overall ratings. The study revealed that majority of the respondents took help from their friends and used help messages of search engines to learn the search strategy.

Dadzie[4] investigated the use of e-resources by students and faculty of Asheshi University, Ghana, to determine the level of use, the type of information accessed and the effectiveness of the library's communication tools for information research and problems faced in using e-resources. Results indicate that 85 per cent of respondents used the internet to access information, and that respondents mainly accessed information in the library by browsing books on the shelves.

A doctoral study by Fortin[5] explored faculty members' use and their information seeking behaviours and activities on the internet at Angelo State University. Using both quantitative and qualitative methodologies, differences were found between tenured and tenure-track faculty members on the perceived value of the internet to meet their research and classroom information needs. Similar differences were also found among faculty members in the broad discipline areas of the humanities, social sciences, and sciences. Tenure-track faculty members reported a higher average internet use per week than tenured faculty members.

Adika[6] analysed internet use among faculty members of universities in Ghana. Research results showed that in spite of the benefits of the internet, its use among faculty was still very low. The main reasons for this were the lack of access to the internet and the need for training. It was suggested that university authorities must take immediate steps to provide general access points to faculty through computer laboratories. Here, librarians, information professionals, and computer scientists have vital roles to play in organising training and refresher sessions for faculty in getting up-to-date information via Internet for teaching and research.

Al-Ansari[7] conducted a study on internet use by the faculty members of Kuwait University. This study was designed to investigate the patterns of internet use by faculty including purposes of use, its impact on teaching and research, internet resources used, and the problems faced while using the internet. A structured questionnaire was used to collect data from the faculty of four colleges of Kuwait University, i.e., arts, social sciences, sciences, and engineering. The study revealed that the internet was mostly used for communication, research, and publication for saving time, to find up-to-date information, and to cooperate with their colleagues. Slow speed, lack of time, and lack of access from home were some of the major problems.

Majid & Abazova[8] explored the use of e-resources relevant to computer literacy among academic staff of the International Islamic University, Malaysia. Nearly all respondents considered themselves to have good or very good computer skills.

Madusudhan[9] focused on the use of e-resources by research scholars of Kurukshetra University. The main aim was to determine the use of e-resources, users' skills in handling e-resources, and the purposes of their use. Further, the paper aimed to highlight the problems faced by research scholars in accessing e-resources, their opinions on features of e-resources and their views on usefulness of e-resources compared to those of conventional sources. The findings showed that e-resources have become an integral part of the information needs of research scholars at Kurukshetra University. Further, it was found that e-resources could be good substitutes for conventional resources, if the access becomes fast and more computer terminals could be

installed to provide fast access to e-resources. Google wasthe most widely used search engine for locating information electronically.

Rehman & Ramzy[10] investigated the awareness and use of electronic information resources among health academics. Results shosw that libraries were extensively used for research needs, preparation of lectures, and for obtaining current knowledge. Lack of time was the main reason given for not using electronic resources (37 %). Unfamiliarity with computerised searching came next (22.6 %).

Chirra & Madhusudhan[11] analysed use of e-journals by doctoral research scholars of Goa University, India. The e-journals have become vital part of information for research work. This study could help in knowing the importance and use of e-journals in comparison to printed journals, particularly by the research community. Most of the respondents were accessing e-journals from the department computer labs for their research work and e-journals could meet the instant desire of users to have an access to information.

Springer and Kluwer is the leading publisher. Boolean Search is the most popular advance search technique. The study showed that there was a need for user orientation for efficient searching of e-journals. The most common problem faced by the respondents was that there was difficulty in accessing full text and many of the respondents were not satisfied with the internet facilities available in Goa University and they had provided some constructive suggestions for improving the accessing of e-journals.

Shuling[12] analysed the use of e-resources in Shaanxi University of Science and Technology. The sample consisted of 909 respondents of all types of library users. The study found that nearly 80 per cent of respondents knew little about e-resources. Nearly half of the respondents use both printed and electronic resources, followed by print periodicals.

Agarwal & Dave[13] have studied the use of internet by the scientists and research fellows of Central Arid Zone Research Institute, Jodhpur (Rajasthan). Assessment was done on the basis of the results of a questionnaire survey in CAZRI, Jodhpur. Further, they also attempted to assess the frequency of use, location, search engine, purpose of use, etc. The study revealed that the respondents accessed Google search frequently (100 %) followed by Yahoo (85.29 %).

It was also observed that equally (97.06 %) respondents used the internet for education and research. The respondents strongly desired that the library should initiate various functions and services like e-portals, online information, abstracts retrieval along with providing access to internet.

5. METHODOLOGY

To fulfill the objectives of the study, a structured questionnaire covering relevant aspects of the study was distributed among the PhD scholars, MPhil and PG students of Madurai Kamaraj University of 2009 batch. Further, random sampling techniques were used for distribution of questionnaire as it was not possible to collect data from all the target respondents under the scope of the study. Besides in some cases, personal interactions, verifications of records were made to get first hand information. The questionnaire was prepared in such a way that the respondents could easily understand the items. Total 300 questionnaires were distributed randomly among the PhD scholars, MPhil and PG students. The investigator could collect questionnaires from only 260 out of 300 respondents. This constitutes 86.66 per cent (260/300) of the total response.

6. DATA ANALYSIS

Analysis of data is the ultimate step in a research process. It is the link between raw data and significant results, leading to conclusions. This process of analysis has to be result-oriented.

6.1 Population Study

The attitude and use of library resources of users varies among them. Realising the importance of this, the respondents of the present study have been grouped into different categories for the convenience of the study. The analysis of data in Table 1 shows that out of 260 respondents, maximum numbers of respondents, i.e., 152 representing 58.46 per cent of total respondents, were PG students. It was followed by 62 respondents (23.85 %) were MPhil students, and 46 respondents (17.69 %) are PhD scholars.

Table 1. Category-wise distribution of respondents

Category	No. of respondents	Percentage
PhD scholars	46	17.69
MPhil students	62	23.85
PG students	152	58.46
Total	260	100

A study of data in Table 2 indicates the sex distribution of respondents. It could be noted that out of the total 260 respondents, majority of the respondents (66.92 %) belonged to the male group.

Table 2. Sex-wise distribution of respondents

Sex	No. of respondents	Percentage
Male	174	66.92
Female	86	33.08
Total	260	100.00

Realising the importance of computer knowledge to access e-resources, data revealed that all respondents were computer literate and had possess basic knowledge on computers and other IT tools. Further attempts were made to know about the degree of knowledge of respondents which has been tabulated in Table 3 which depicts that according to their own assessment one-third of the respondents in all the categories (29.23 %) had excellent knowledge of computer and IT tools. It was followed by average knowledge (27.69 %), good knowledge (23.84 %) and poor knowledge (19.24 %) by respondents.

6.3 Frequency of Library Visits

The frequency of library visits by the users is usually influenced by factors such as collection, organisation, and maintenance of the library resources along with the library resources, facilities and the library services.

To ascertain the frequency and purpose of library visit by respondents, data were collected and has been presented in Table 4. The analysis of data in Table 4 shows that, amongst PhD scholars, one-third of the respondents visit library almost daily, i.e., 16 (34.79 %), followed by 12 (26.08 %) twice a week, 10 (21.74 %) once a week and 8 (17.39 %) thrice a week. Among the MPhil students, one-third of the respondents visits library almost daily 19 (30.64 %), followed by thrice a week 18 (29.05 %), once in a week 15(24.19 %) and twice a week 10 (16.14 %). Among PG students, maximum respondents visited library almost daily 52 (34.21 %), followed by thrice a week 48 (31.57 %), twice a week 30 (19.74 %) and once a week 22 (14.48 %). However, irrespective of categories, one-third of the respondents 87 (33.46 %) visited library almost daily.

6.4 Preference in Using Print over E-resources

The use of e-resources is increasing day-by-day due to the advantages associated with it such as copying, storing, multiple search facilities, etc. To find out if preference of respondents in using e-resources over print resources, collected data have been tabulated in Table 5. The analysis of data 5 showed that all the three categories of respondents preferrd e-resources than print resources. Further among the respondents, in the PhD category, the preference was more, i.e., 16 (34.78 %) and 14 (30.44 %) for e-resources and print resources respectively, whereas among MPhil respondents, it was 12 (19.36 %) and 24 (38.70 %) and among PG students it was 48 (31.57 %) and 62 (40.79 %). Also as per analysis of data, 16 (34.78 %) of PhD respondents, 26 (41.94 %) of MPhil students and 42 (27.64 %) of PG students preferred both print and e-resources. However, irrespective of categories, maximum respondents 100 (38.47 %) preferred e-resources.

Table 3. Levels of computer literacy

Category	Almost daily	Thrice a week	Twice a week	Once a week	Total
PhD scholars	12 (26.08)	10 (21.74)	16 (34.79)	8 (17.39)	46
MPhil students	22 (35.48)	12 (19.38)	18 (29.04)	10 (16.13)	62
PG students	42 (27.63)	40 (26.31)	38 (25.00)	32 (21.06)	152
Total	76 (29.23)	62 (23.84)	72 (27.69)	50 (19.24)	260

Table 4. Frequency of library visits

Category	Almost daily	Thrice a week	Twice a week	Once a week	Total
PhD scholars	16 (34.79)	8 (17.39)	12 (26.08)	10 (21.74)	46
MPhil students	19 (30.64)	18 (29.05)	10 (16.14)	15 (24.19)	62
PG students	52 (34.21)	48 (31.57)	30 (19.74)	22 (14.48)	152
Total	87 (33.46)	74 (28.46)	52 (20.00)	47 (18.08)	260

Table 5. Preferences in using print and e-resources

Category	Print resources	e-resources	Both print and e-resources	Total
PhD scholars	16 (34.78)	14 (30.44)	16 (34.78)	46
MPhil students	12 (19.36)	24 (38.70)	26 (41.94)	62
PG students	48 (31.57)	62 (40.79)	42 (27.64)	152
Total	76 (29.23)	100 (38.47)	84 (32.30)	260

6.5 Purpose of Using E-resources

The e-resources are used for various purposes, such as for study, research, publication, e-journals, e-books, career information, entertainment, etc., which also differs from user to user. The data collected also have been summarised in Table 6. A study of data in Table 6 indicates the category-wise respondents' purposes of using e-resources. The category-wise analysis examined the following:

- The PhD scholar respondents occupied the first position with respect to their overall purpose of using e-resources as their secured mean score was 3.35 on a 5 point rating scale.
- The MPhil student respondents took the second position in their overall purpose of using e-resources as their secured mean score was 3.16 on a 5-point rating scale.
- The PG student respondents ranked the last position in their overall purpose of using e-resources as their secured mean score was 2.99 on a 5-point rating scale.

6.6 Sources of E-resources Used

The e-resources available in the library are basically the subscribed online resources through UGC-Infonet consortium, online resources freely available on internet and open access journals/books and the offline e-resources in the form of CDs/DVDs. A study of data in Table 7 indicates the category-wise respondents' sources of e-resources used. The category-wise analysis examined the following:

- The PhD scholar respondents occupied the first position w.r.t their overall sources of e-resources used as their secured mean score was 3.39 on a 5 point rating scale.
- The MPhil student respondents took the second position in their overall sources of e-resources used as their secured mean score was 3.32 on a 5-point rating scale.
- The PG student respondents ranked in the last position with mean score was 3.18 on a 5-point rating scale.

6.7 Methods of Searching E-resources

The e-resources can be searched in different ways, such as through websites of online databases/journals/ publishers, search engines, subject gateways, library portals, etc. The study made an attempt to know the methods adopt by the respondents to search e-resources and the result has been analysed in Table 8. Table 8

Table 6. Purpose of using e-resources

Purpose	Category			Total
	PhD scholars	MPhil students	PG students	
Study	3.32	2.51	2.22	3.37
Research	4.10	4.26	4.36	7.44
Publication	2.56	3.79	3.82	3.77
E-journals	3.71	3.72	3.52	3.96
E-books	2.35	2.36	2.26	2.75
Career information	3.82	3.85	3.89	3.90
General information	3.51	2.36	2.44	2.80
Sending and receiving e-mail	3.89	3.79	3.76	4.00
Entertainment	2.12	2.89	2.59	2.45
Total	3.35	3.16	2.99	3.46

Table 7. Sources of e-resources used

Sources	Category			Total
	PhD scholars	MPhil students	PG students	
UGC-Infonet	2.90	3.11	2.52	3.04
Internet resources	3.16	3.78	3.52	3.77
Open access resources	3.78	4.01	3.79	4.15
CD/DVD	2.56	2.52	2.56	2.40
Total (mean score)	3.39	3.32	3.18	3.57

Table 8. Methods of searching e-resources

Method of search	Category			Total
	PhD scholars	MPhil students	PG students	
Through search engine	4.11	4.26	4.36	3.90
Through websites	2.76	3.36	3.52	2.80
Through library portals	4.01	4.11	4.26	4.00
Total (mean score)	2.56	2.96	2.88	2.45

indicates the category-wise respondents' methods of searching e-resources.

The category-wise analysis examined the following:

- The MPhil respondents occupied the first position w.r.t to their overall methods of searching e-resources as their secured mean score was 2.96 on a 5-point rating scale.
- The PG student respondents took the second position with secured mean score is 2.88 on a 5-point rating scale.
- PhD respondents ranked in the last position as their secured mean score was 2.56 on a 5-point rating scale.

6.8 Frequency of E-resources Used

The frequency of e-resources used by the respondents as revealed from the analysis of Table 9 is mostly daily 72 (27.69 %) followed by once a month 67 (25.77 %), once a week 63 (24.24 %) and when they desire 58 (22.30 %). However, irrespective of categories, maximum respondents 72 (27.69%) used e-resources daily.

6.9 Problems Faced in Accessing E-resources

There are various problems associated with the access of e-resources by users. Realising its importance, the study attempted to collect data on this and data as presented in Table 10 which indicates the category-wise respondents' problems in accessing e-resources. It can be assessed with the help of 7 factors on a 5-point rating scale. These includes power failure, slow accessibility, lack of IT knowledge, limited access to computers, lack of time, virus problem and poor personal assistance. The PG student respondents took the first position in their overall problems in accessing e-resources as their secured mean score was 3.56 on a 5-point rating scale. The MPhil scholar respondents occupied the second position with mean score was 3.39 on a 5-point rating scale. The PhD scholar respondents ranked the last position as their secured mean score was 2.86 on a 5-point rating scale.

6.10 Satisfaction Level of Access to E-resources

The satisfaction level of respondents as opined by them has been shown in Table 11, which indicates that

Table 9. Frequency of e-resources used

Category	Daily	Once a week	Once a month	When they feel	Total
PhD scholars	12 (26.08)	10 (21.74)	16 (34.79)	8 (17.39)	46
MPhil students	18 (29.05)	15 (24.19)	19 (30.64)	10 (16.14)	62
PG students	42 (27.63)	38 (25.00)	32 (21.06)	40 (26.31)	152
Total	72 (27.69)	63 (24.24)	67 (25.77)	58 (22.30)	260

Table 10. Problems experienced by respondents on various factors

Purpose	Category			Total
	PhD scholar	MPhil students	PG students	
Power failure	4.11	4.26	4.36	3.90
Slow accessibility	2.76	3.36	3.52	2.80
Lack of IT knowledge	4.22	4.36	4.52	4.15
Limited access to computers	3.79	3.89	3.92	3.37
Lack of time	4.26	4.36	7.44	4.06
Virus	3.79	3.82	3.77	3.16
Poor personal assistance	4.10	4.12	4.26	3.96
Total	2.86	3.39	3.56	2.75

Table 11. Satisfaction levels of access to e-resources

Category	Highly satisfied	Satisfied	Moderately satisfied	Dissatisfied	Highly dissatisfied	Total
PhD scholars	16 (34.79)	8 (17.39)	12 (26.08)	6 (13.05)	4 (8.69)	46
MPhil students	22 (35.48)	12 (19.35)	14 (22.59)	8 (12.90)	6 (9.68)	62
PG students	64 (42.10)	36 (23.68)	32 (21.06)	12 (7.89)	8 (5.27)	152
Total	102 (39.23)	56 (21.54)	58 (22.30)	26 (10.00)	18 (6.93)	260

maximum respondents were highly satisfied on the access of e-resources in library, i.e., 102 (39.23 %). It was followed by other responses such as moderately satisfied 58 (22.30 %), satisfied 56 (21.54 %), dissatisfied 26 (10.00 %) and highly dissatisfied 18 (6.93 %). However, irrespective of categories, nearly half of the respondents 102 (39.23 %) were highly satisfied on the access of e-resources.

7. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made for the effective use of e-resources by the users of Dr T.P.M. Library, Madurai Kamaraj University.

- The LIS professionals of the Central Library have to spread more awareness on e-resources. In this context the website of library, and newsletter of the Institution should highlight the available e-resources in the library regularly.
- Higher speeds Wi-Fi campus needs to be developed by Central Library, so that users can use online e-resources and internet within the campus according to their convenience.
- Besides e-journals and e-database, e-books and other e-resources (both online and offline) should be acquired by the Central Library.
- The speed of internet needs to be increased for quick access to the available e-resources.
- Qualified IT experts should be made available to solve the problems of networking and hardware.
- Besides UGC-Infonet consortium, e-resources as per the need of the users need to be subscribed from publishers, vendors, etc. Accordingly more funds should be diverted from the library budget towards e-resources.
- The Central Library needs to arrange various users'orientation and training programmes for faculty members for the optimum use of available e-resources, and also subscribe database. Also, product trials of various e-resources for specific user groups need to be introduced.
- Basic training in hardware and software such as MS Office, internet searching, and use of e-resources should be included in the curriculum of each department.

8. CONCLUSIONS

The e-resources are the best means of getting current and up-to-date information. The library environment has currently undergone drastic changes in terms of collections and services. The proliferation of e-resources has had a significant impact on the way the academic community uses, stores, and preserves information. The advantages of e-resources have drawn attention of the library users to a great extent. Accordingly, these resources have occupied a significant place in the collection and budget of almost all libraries. Research scholars' attitude seem to be very positive towards e-resources for their study and research and the role of libraries as gateways to provide assistance in accessing these resources. The study shows that e-resources have radical impact on the changing higher education environment. It is interesting that e-resources usage among postgraduate students, MPhil students and PhD research scholars at the Dr T.P.M. Library, Madurai Kamaraj University is much more than expected. It is broadly used for teaching and research purposes.

This study has highlighted that MPhil student respondents tare at first position in their overall methods of searching e-resources, PG student respondents at the second position, PhD scholar respondents the last position. This study also indicates that PG student respondents took the first position in their overall problems in accessing e-resources, MPhil student respondents the second, PhD scholar respondents, the last position.

The use of electronic information sources for study and research purposes must be encouraged and proper training should be organised from time to time. This is the first comprehensive study of the use of e-resources by the students and research scholars. It is hoped that its findings would help the University and its libraries in framing its policies and programmes related to e-resources to facilitate teaching and research.

REFERENCES

1. Aldojan, M. Internet use among education faculty members in Jordanian public universities. *In* Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications, edited by E. Pearson & P. Bohman, AACE, Chesapeake, VA, 2006. pp. 13-18.

2. Ali, N. The use of electronic resources at IIT Delhi library: A study of search behavior. *Electronic Library*, 2005, **23**(6), 691-700.

3. Biradar, B.S. Use of search engines for retrieval of scholarly information: A case study. *IASLIC Bulletin,* 2008, **53**(4), 215-22.

4. Dadzie, P.S. Electronic resources: Access and usage at Asheshi University College. *Comp. Wide Inf. Sys.*, 2005, **22**(5), 290-97.

5. Fortin, Maurice G. Faculty use of the world wide web: Modeling information seeking behavior in a digital environment. University of North Texas, Denton, Texas, 2000. PhD thesis, http://digital.library.unt.edu/permalink/meta-dc-2723 (accessed on 20 October 2010).

6. Gifty, Adika. Internet use among faculty members of universities in Ghana. *Library Review*, 2003, **52**(1), 29-37.

7. Husain, Al-Ansari. Internet use by the faculty members of Kuwait University. *Electronic Library,* 2006, **24**(6), 791–803.

8. Majid, S. & Abazova, A.F. Computer literacy and use of electronic information sources by academics: A case study of International Islamic University of Malaysia. *Asian Libraries*, 1999, **8**(4), 100-11.

9. Madhusudhan, Margam. Use of electronic resources by research scholars of Kurukshetra University. *Electronic Library*, 2010, **28**(1), 492-506.

10. Rehman, S. & Ramzy, V. Awareness and use of electronic information resources at the Health Science Centre of Kuwait University. *Library Review*, 2004, **53**(3), 150-56.

11. Chirra, Rekha & Madhusudhan, Margam. Use of UGC-Infonet e-journals by research scholars and students of the University of Delhi: A study. *Library Hi Tech,* 2008, **26**(1), 369-86.

12. Shuling, W. Investigation and analysis of current use of electronic resources in university libraries. *Library Management,* 2006, **28**(1), 72-88.

13. Agarwal, Umesh Kumar & Dave, Rajesh Kumar. Use of internet by the scientists of CAZRI: A survey. *Indian J. Lib. Inf. Sci.,* 2009, **3**(1), 14-19.

About the Author

Dr S Thanuskodi is working as Assistant Professor in Library and Information Science, Directorate of Distance Education, Annamalai University. He has around 17 years of professional experience in the field of Library and Information Science. He started his career as Librarian in the Central Law College, Salem. He holds BSc MA, BEd, MLIS, MPhil, PhD, and ML (International Law and Constitutional Law) degrees. His areas of interest include information and communication technology (ICT), user studies, bibliometrics, webometrics, research methodology, and digital libraries. He has written ten chapters in the textbooks of Library and Information Science and published more than 40 research articles in the national and international journals. He has presented around 30 research papers in national and international conferences/seminars. He is a Reviewer and Editorial Board Member for several national and international peer reviewed journals.