Qualitative and Quantitative Methods in Libraries (QQML) 6: 395- 408, 2017

Usage of electronic resources by the students of engineering colleges in southern Tamilnadu, India

Dr. K. Chinnasamy[1] and S. Ravikumar[2]
[1]Associate Professor , [2]Ph.D Research Scholar
Department of Library and Information Science, Madurai Kamaraj University, Madurai, Tamilnadu, India

Abstract. This paper is an attempt to study the usage of electronic resources among the students of engineering colleges in Southern Tamilnadu. This study requires both primary and secondary data. The primary data are collected from the respondents at engineering colleges by using questionnaire. The random sampling method was adopted for collecting primary data. A sample including engineering students were chosen from 10 selected engineering colleges in Southern Tamilnadu, India. A total number of 450 questionnaires were distributed. Secondary data are collected from various books, journals, magazines, newspapers and records. From this study, it is clear that majority of the respondents report the privacy problem is the prime problem in using electronic resources and they need workshop and classes for the effective use of e-resources.

Key Word: E-Resources, types of e-resources, Engineering databases, advantages and disadvantages of e-resources.

1. Introduction

The laws of Library emphasis the promotion of the Library services on various way using new Technology. In the present era, libraries are undergoing a dramatic transformation. On one side, they are facing the challenges of high cost of publications, shrinking budgets, increasing cost of maintenance collection, shortage of space and trained manpower, and on the other side the challenges posed by the advances in the field of information technology. The technology is coming like a speeding train or a tidal wave inevitable and unstoppable. With an exponential growth in the size of storage, a phenomenal increase in the processing speed, decreasing cost of hardware and user- friendly software, the technology provides new services, new products. Electronic books are also one of the products of technology.

Received: 21.5.2017 Accepted: 2.9.2017 ISSN 2241-1925

1.1. E-Resources

An Electronic resource is any information source that the library provides access to in an electronic format. The library has purchased subscriptions to many electronic information resources in order to provide you with access to them free of charge. Our E-Resources include lots of things: full-text journals, newspapers, company information, e-books, dictionaries, encyclopaedias, economic data, digital images, industry profiles, market research, career information, etc.

An Electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These may be delivered on CD ROM, tape, via internet and so on. Over the past few years, a numbers of techniques and related standards have been developed which allow documents to be created and distributed in electric form. Hence to cope with the present situation, libraries are shifting towards new media, namely electronic resources for their collection developments that the demands of users are better fulfilled.

The e-resources on magnetic and optical media have a vast impact on the collections of university libraries. These are more useful due to inherent capabilities for manipulation and searching, providing information access is cheaper to acquiring information resources, savings in storage and maintenance etc. and sometimes the electronic form is the only alternative.

1.2. Advantages of Electronic Resources

- **Multi-access**: A networked product can provide multiple points of access (in the campus) at multiple points in time (24X7X365) and to multiple simultaneous users.
- **Fast retrieval**: An e-resource is lot quicker to browse, to extract and to integrate the information into other material and to cross refer between various publications.
- **Functional aspects**: E-resources will allow the users to approach the publication in order to analyze its content in various new ways and techniques by clicking the mouse on search button.
- **Content analysis**: The E-resources contain a vast amount of information, but more importantly in a mixed format mode i.e. images, video, audio and animation which could not be replicated in print.
- **Consortia mode**: The E-resources can be subscribed in a consortia format too, thus cutting down the costs but reaping the same benefits eg. INDEST Consortia for Engineering College Libraries.
- **Interactivity**: Articles/issues/chapters can be read, commented by the readers, amended quickly and greater feedback can be given through the web.

- **Hypertext**: Format can be used and links to related articles, or other web sites, & URLs for individual articles and email alerts when latest issue/edition is Uploaded can be got.
- **Virtual reality**: Advantages taken on the web is to add value by using animation, virtual reality and interactive physical & mathematical charts.
- **Flexibility**: Resources are evolved quickly i.e. they are not bound to any format, printer, and distribution network.

2. Review of literature

Adithya Kumari H and Talawar (2011) studied the reference sources collection, i.e. handbooks and manuals, bibliographies, dictionaries, encyclopedias, biographies, directories, yearbooks & almanacs, geographical sources, indexing & abstracting sources in seven university libraries of Karnataka. Among the reference collection, dictionaries and encyclopedias are more in number as against geographical sources of information and directories in university libraries. There is a need to strengthen the collection of almanacs, maps and atlases, gazetteers, indexing, abstracting and statistical sources in all the university libraries. **Alison and Kiyingi (2012)** analysis indicated that contextual and environmental factors have an influence one-resources usage. Factors such as students and faculty's personal characteristics influenced their use of the Internet. However, there were other factors that affect usage of e-resources, such as poor searching skills and limited number of resources available to users. Slowness of access to Internet information mainly caused by low and width was one of the main causes of poor use of Internet resources. It was interesting to explore how these and other factors influenced the usage in the Ugandan setting. Mere acquisition of these resources is not an end in itself. There is more to it that enables the environment for optimal usage of e-resources. The study found out that lack awareness of available resources, limited number of facilities not matching the number of users and less of skills to make productive searches affect usage. Although there were factors that supported access to and use of e-resources such as availability of the computers, Internet and e-resources, usage was still low. The university has both common and unique problems that affected e-resources usage. **Chandel, A S (2012)** presented the advent of e-resources and their increased use have changed the library scenario from physical to virtual. Users' preferences are more for e-resources and virtual libraries with little attraction for physical libraries. In spite of innumerable advantages of e-resources, there are certain problems also relating to their acquisition, maintenance, management, etc. which need collaborative efforts of professionals and all other bodies associated with creation, distribution and use of these resources to establish the sound practices and the models. The paper highlights these issues, emphasizing the need to develop or procure an ERMS which can integrate all these resources along with printed material to provide single window approach to all resources available locally as well as globally in a universal library. **Iqbal, Bhat, and Mahesh V. Mudhol (2014)** found several forms and types of electronic resources which are

available on the internet. Some of the popular ones that are gaining ground are the electronic journals, standards, technical specifications, reports, patents, full-text articles, trade reports, and hosts of other document sources. This paper presented the findings of a survey about the awareness and use of electronic resources by medical students available in the medical institute libraries. The subjects chosen for this study were faculty members and medical students of Sher-E-Kashmir Institute of Medical Science (SKIMS), Jammu and Kashmir, India. For evaluating study questions and data collection, the questionnaire was distributed to a random sample of 300 faculty members, MD/MS (i.e., PG) and MBB final year (i.e., UG) students.

3. Research methodology

3.1. Research Design

Research Design is an important one while collecting and analyzing the data in a manner that aims to combine relevance to the research purpose with economy in procedure. The present study is descriptive and analytical. It tries to analyze the use of e-resources and services among the students of selected engineering college students in Southern tamilnadu, India.

3.2. Scope and Objective of the Study

For this study, students of engineering colleges in Southern tamilnadu are taken into consideration. The target respondents in other colleges are not included in this study. There is a scope for other future researchers to take this area for their study. The geographical area of this study is confined only to Southern tamilnadu.

3.3. Objectives

- To provide age wise, gender- wise distribution of respondents.
- To know the period of e resources usage of the respondents.
- To enlist the primary purpose of using the e resources by the respondents.
- To indentify the frequency of e resources usage by the respondents.
- To indentify the information locating pattern adopted and the search strategies.
- To assess the amount of familiarity and frequency in the use of the different types of electronic resources.
- To find out the purpose and utilization of the electronic resources.
- To find out the quality of information retrieved through electronic resources.
- To find out the level of satisfaction of e resources.
- To assess the opinions of users on electronic format over the print format.

3.4. Sampling Technique

For this study, random sampling method was adopted for collecting Primary data. A sample including engineering students were chosen from the four selected engineering colleges in Southern tamilnadu. A total number of 450 Questionnaires were distributed to the students of engineering colleges in tamilnadu, India. Only 418 Questionnaires were received back and 398 Questionnaires were use data analysis remaining 20 Questionnaires rejected for incomplete answers.

3.5. Data Collection

This study requires both primary and secondary data. The primary data are collected from the respondents at engineering colleges by using questionnaire. Secondary data are collected from various books, journals, magazines, newspapers and records.

4. Data analysis and interpretation

Table 1. Demographic Factor of Respondents

S.No	*Gender*	*No. of Respondents*	*Percentage*
1	Male	263	66.08
2	Female	135	33.92
	Total	**398**	**100**
	Age		
1	17-20	169	42.46
2	21-23	143	35.93
3	24-26	42	10.55
4	Above 27	44	11.06
	Total	**398**	**100**
	Year		
1	1 year	64	16.08
2	2 year	129	32.41
3	3 year	74	18.59
4	4 year	131	32.91
	Total	**398**	**100**

Source: Primary data

Table 1 Demographic Factor of Respondents, 263 respondents (66.08%) are male whereas, 137 respondents (33.92%) are female and 170 respondents (42.5%) belong to age category of 17-20. This is followed by 144 respondents (36%) belong to 21-23 age category and 42 respondents (10.5%) belong to 24-26 age category and 44 respondents (11%) belong to above 27 and 129 respondents (32.41%) belong to Second Year B.E students, 131 respondents (32.91 %) belong to Final Year B.E students.

Table 2. Primary purpose of using the library

S.No	*Purpose*	*No. of Respondents*	*Percentage*
1	Study	257	64.57
2	Keeping up to date	40	10.05
3	Research	55	13.82
4	Others	46	11.56
Total		398	100.00

Source: Primary data

Table 2 discusses the purpose of visiting to the library. In this study, 257 respondents (64.57%) visit the library for study, 40 respondents (10.05%) for keeping up to date, 55 respondents (13.82%) for research and 46 respondents (11.56%) for other purpose.

Table 3 discusses that the usage of different form of sources in library. In this study, 199 (50%) use the electronic sources, 127 respondents (31.91%) use the print sources and 72 respondents (18.09%) use the both type of sources.

Table 3. Preference of traditional resources and e-resources

S.No	*Preference*	*No. of Respondents*	*Percentage*
1	Electronic	199	50
2	Print	127	31.91
3	Both equally	72	18.09
	Total	398	100

Source: Primary data

Table 4. Location of access of E-Resources

S.No	*Place of access*	*No. of Respondents*	*Percentage*
1	Library	177	44.47
2	Department	84	21.11
3	Hostel	34	8.54
4	Other places	103	25.88
Total		398	100

Source: Primary data

Table 4 explains the location of accessing E-Resources. 177 respondents (44.47%) access the e-resources from their central library, 84 respondents (21.11%) access the e-resources from the department library, 34 respondents (8.54%) access from hostel. Besides cited above, there are some other locations also 103 (25.88%) respondents.

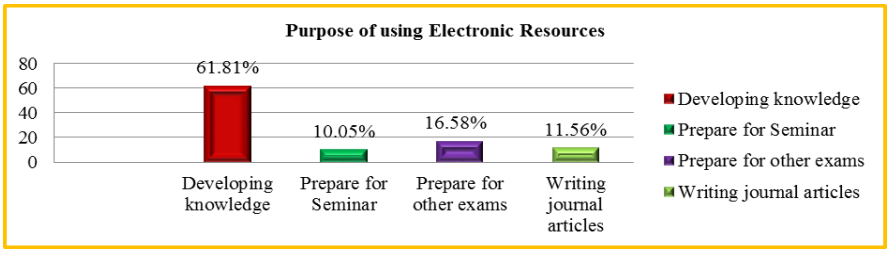
Table 5. Using frequency of e-resources

S.No	*Resources*	*Once in a day*	*Once in a Week*	*Once in a Month*	*Rarely*
1	E- Books	157(39.45)	95(23.87)	62(15.58)	84(21.11)
2	E- Journals	125(31.41)	80(20.10)	66(16.58)	127(31.91)
3	Online Resources	149(37.44)	102(25.63)	62(15.58)	85(21.36)
4	CD-ROM database	103(25.88)	102(25.63)	80(20.10)	113(28.39)
5	A/V Materials	56(14.07)	121(30.40)	90(22.61)	131(32.91)
6	OPAC	80(20.10)	117(29.40)	86(21.61)	115(28.89)

Source: Primary data

Table 5 shows that Users Opinion about the E-Resources. Among 398 respondents, 157 respondents (39.45%) use the e-books once in a day and 62 (16.58%) respondents use the once in a month. Among 398 respondents, 125 respondents (31.41%) use e-journals once in a day and 127 (31.91%) respondents use rarely. Among 398 respondents, 149 respondents (37.44%) use the online resources once in a day and 102 respondents (25.63%) use once in a week. Among 398 respondents, 103 respondents (25.88%) use the CD-ROM database once in a day and 113 (28.39%) respondents use rarely. Among 398 respondents, 121 respondents (30.40%) use once in a week, 90 (22.5%) respondents use once in a month and 131 (32.91%) respondents use rarely. Among 398 respondents, 117 respondents (29.40%) use once in a week and 115 (28.89%) respondents use rarely.

Chart 1 Purpose of using Electronic Resources



Source: Primary data

Chart 1 describes the purpose of using electronic resources. In this study, 246 respondents (61.81%) use the electronic resources for Developing knowledge, 40 respondents (10.05%) use to collect relevant information for preparing seminar, 66 respondents (17%) use to other exams and 46 respondents (11.5%) use for writing journal articles.

Table 6. Purpose of using the e-resources by Gender wise respondents

S.No	*Gender*	*Options*				*Total*
		Developing Knowledge	**Prepare For Seminar**	**Prepare For Other Exams**	**Writing Journals Articles**	
1	**Male**	208(79.09)	25(9.51)	12(4.56)	18(6.84)	263
2	**Female**	38(28.15)	15(11.11)	54(40)	28(20.74)	135
Total		**246**	**40**	**66**	**46**	**398**

Source: Primary data

Table 6 Among the 263 Male respondents, 208 (79.09%) respondents are using the developing knowledge and 12(4.56%) respondents are using the prepare for other exams. Among the 135 Female respondents, 54(40%) respondents are using the prepare for other exams, 38(28.15%) respondents are using the developing knowledge.

Table 7. Methods of searching the e-resources by Year wise respondents

S.No	*Year*	*Options*				*Total*
		Author	**Journal Title**	**Subject**	**Keyword**	
1	**First Year**	18	16	18	12	**64**
2	**Second Year**	29	38	33	29	**129**
3	**Third Year**	17	21	14	22	**74**
4	**Fourth Year**	39	14	60	18	**131**
Total		**103**	**89**	**125**	**81**	**398**

Source: Primary data

Table 7 shows the method of searching the required information through subject, author, journal title and key word approaches in that orders. While, 103 (25.88%) of respondents search the required subject through author approach, 89 (22.36%) use the Journal Title approach, 125 (31.41%) of the respondents search through Subject and 81 (20.35%) use the keyword approach.

Table 8 shows the types of format preferred to download the information. In this study, respondents 259 (65.08%) use PDF for download information from Internet. This is followed by 75 respondents (18.84%) who use Word format, 46 respondents (11.56%) use Multimedia Objects and 18 respondents (4.52%) use HTML format.

Table 8. Accessing format of e-resources

S.No	***Format***	***No. of Respondents***	***Percentage***
1	PDF	259	65.08
2	HTML	18	4.52
3	Word format (Docx)	75	18.84
4	Multimedia Objects	46	11.56
	Total	398	100.00

Source: Primary data

Table 9. Method of learning e- resources

S.No	***Method of learning***	***No. of Respondents***	***Percentage***
1	Training from library	113	28.39
2	Guidance from friends	92	23.12
3	Self instruction	96	24.12
4	External courses	97	24.37
	Total	**398**	**100.00**

Source: Primary data

Table 9 shows the Method of learning e- resources, 113 respondents (28.39%) learn by Training from library, 92 respondents (23.12%) learn by Guidance from friends, 96 respondents (24.12%) learn by self instruction and 97 respondents (24.37%) learn by external courses.

Table 10 shows that Users Opinion about the E-Resources. In this study, 123(30.90%) respondents Excellent with subscribe QUESTIA and 123(30.90%) respondents Excellent with subscribed IEEE, 163(40.95%) respondents Good with subscribe BCLINE, and 161(40.45%) respondents Good with subscribe J-GATE and J-STORE, 125(31.41%) respondents Average with subscribe IEEE and 118(29.62%) respondents Average with subscribe DELNET.

Table 10. Users Opinion about the E-Resources

S.No	*E –resources*	*Excellent*	*Good*	*Average*	*poor*
1	IEEE	123(30.90)	112(28.14)	125(31.41)	38(9.55)
2	DELNET	66(16.58)	176(44.22)	118(29.65)	38(9.55)
3	QUESTIA	127(31.91)	106(26.63)	105(26.38)	60(15.08)
4	BCOLINE	82(20.60)	163(40.95)	99(24.87)	54(13.57)
5	ACE-DIGITAL LIBRARY	101(25.38)	141(35.43)	112(28.14)	44(11.06)
6	J-GATE	89(22.36)	161(40.45)	102(25.63)	46(11.56)
7	J-STORE	97(24.37)	161(40.45)	92(23.12)	48(12.06)
8	ASCE	96(24.12)	145(36.43)	111(27.89)	46(11.56)

Source: Primary data

Table 11. Rating the features of e resources

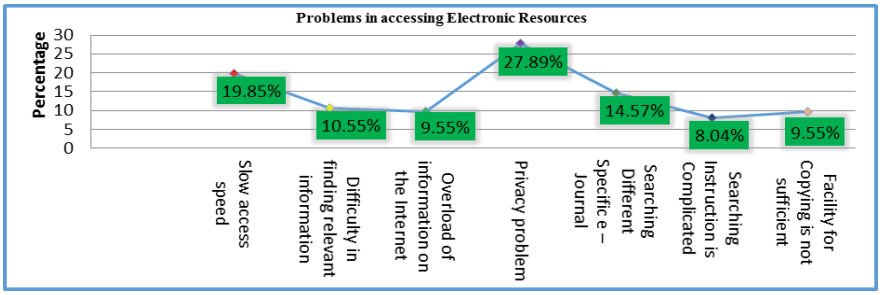
S.No	*Features*	*Very Good*	*Good*	*Poor*	*No comments*
1	Accessibility	127(31.91)	215(54.02)	36(9.05)	20(5.3)
2	Accuracy	99(24.62)	238(59.80)	48(12.06)	14(3.52)
3	Availability	123(30.90)	197(49.50)	58(14.57)	20(5.3)
4	Consistency	121(30.40)	193(48.49)	46(11.56)	38(9.55)
5	Ease of use	143(35.93)	181(45.48)	48(12.06)	26(6.53)
6	Flexibility	147(36.93)	169(42.46)	56(14.07)	26(6.53)
7	Permanence	121(30.40)	183(45.98)	70(17.59)	24(6.03)
8	Timeliness	117(29.40)	175(43.97)	68(17.09)	38(9.53)
9	Uniqueness	119(29.90)	181(45.48)	52(13.07)	46(11.56)

Source: Primary data

Table 11 describes that rating the features of e- resources. In this study, 147 respondents (36.93%) have rated flexibility feature of e-resources as very good and 143 (35.93%) respondents have rated the ease of use of e-resources as very good, 238 (59.80%) respondents have rated accuracy feature of e-resources as good and 215 (54.02%) respondents have rated the accessibility of e-resources as good and 70 respondents (17.59%) have rated the permanence feature of e-

resources as poor and 68 (17.09%) respondents have rated the timeliness feature as poor.

Chart 2. Problems in accessing Electronic Resources



Source: Primary data

Chart 2 describes the Problem faced while using electronic resources. In this study, 79 respondents (19.85%) report that Slow access speed while using electronic resources, 42 (10.55%) report that Difficulty in finding relevant information, 38 respondents (9.55%) report the Overload of information on the Internet, 111 respondents (27.89%) report that Privacy problem, 58 respondents (14.57%) report the Searching Different Specific e – Journal, 32 respondents (8.04%) report the Searching Instruction is Complicated and 38 respondents (9.55%) report the Facility for Copying is not sufficient.

Table 12. Satisfaction level of use different types of e-resources

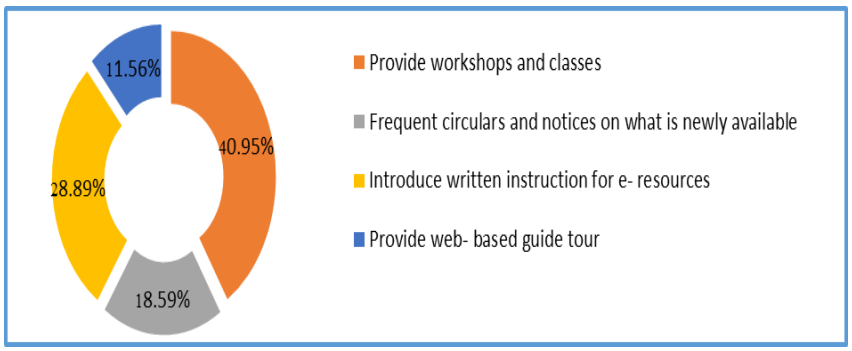
S.No	*Items used*	*Highly satisfied*	*Satisfied*	*Dissatisfied*	*No comments*
1	E-Books	167(41.96)	139(34.92)	72(18.09)	20(5.03)
2	E-Journals	157(39.45)	141(35.43)	82(20.60)	18(4.52)
3	CD-ROM Database	115(28.89)	171(42.96)	84(21.11)	28(7.04)
4	Online database	123(30.90)	167(41.96)	76(19.10)	32(8.04)
5	A/V material	99(24.87)	187(46.98)	84(21.11)	28(7.04)

Source: Primary data

Table 12 reveals that level of satisfaction on electronic information resources. Among 398 respondents, 167 respondents (41.96%) are highly satisfied with e-books, whereas 139 respondents are (34.92%) satisfied with e-books, 72 (18.09%) respondents are dissatisfied and 20(5.03%) did not say any comments on e-books. Among 398 respondents, 157 respondents (39.45%) are highly

satisfied with e-journals, 141 respondents (35.45%) are satisfied with e-journals, 82 respondents (20.60%) are dissatisfied and 18 (4.52%) respondents said no comments about e-journals. Among 398 respondents, 115 respondents (28.89%) are highly satisfied with CD-ROM database, 171 respondents (42.96%) are satisfied with CD-ROM database, 84 respondents (21.11%) are dissatisfied and 28 (7.04%) respondents said no comments about CD-ROM database. Among 398 respondents, 123 respondents (30.90%) are highly satisfied with online database, 167 respondents (41.96%) are satisfied with online database, 76 respondents (19.10%) are dissatisfied and 32 (8.04%) respondents said no comments about online database. Among 398 respondents, 99 (24.87%) respondents are satisfied highly with A/V materials, whereas 187 (46.98%) are satisfied, 84 respondents (21.11%) are dissatisfied and 28 (7.04%) did not say any comments about A/V materials.

Chart 3. Suggestions for effective use of e-resources



Source: Primary data

Chart 3 describe the suggestion about e-resources provide by the library. In this study,163 respondents (40.95%) need workshops and classes, 74 respondents (18.59%) need the frequent circulars and notices on what is newly available, 115 respondents (28.89%) need the written instruction for e-resources and 46 respondents (11.56%) need web based guide tour.

5. Findings

- 66% of male respondents are using the e-resources.
- 42.3% of respondents belong to age category of 17-20 use the electronic resources.
- Majority of respondents are belonging to second and final year students who use the e-resources.
- 64.5% of respondents are use the libraries for study propose.
- 52.5% of respondents visit to the library every day.
- 100% of respondents are aware about the electronic resources.

- 50% of respondents are access the electronic resources.
- 61.5% of respondents are using the electronic resources for developing knowledge.
- Most of the respondents are using the e-books once in a day
- Most of the respondents are use the online database once in a day
- Most of the respondents are using the subject method for access the e-resources.
- Most of the respondents prefer using the PDF format to download
- Majority of the respondents highly satisfied with e-books, e-journals, Online database and CD-ROM.
- 41% of respondents are suggesting them Provide workshops and classes.

6. Conclusion

The emergence of internet as a ubiquitous global information and communication resource propelled people's lives into the digital epoch. Due to rapid advancement in information communication technology the internet has become an inseparable part of today's engineering educational system. With the development in the area of internet and information technology, more and more of the educational resources are being produced, distributed and accessed in the digital format. The dependency on internet based services is increasing every day and users of engineering colleges too are depending much more on information resources available through internet for various educational purposes. It is clear from the study that all the engineering students' access electronic information resources. The use of e-resources benefits the students to access up to date information. Internet explorer and Google are the most preferred web browser and search engine used by the students for accessing electronic resources. There is a very good spread of use of field based search and advance search options among them. For better utilization of electronic information resources, the students' needs to be made aware in using advanced search options available in search menu of electronic information resources. The web designers/ publishers/ distributors should provide online help menu in the search page for better utilization of their information resources. The speed of the internet should be increased and the technical institutions should organize seminars, workshops and orientation programs for students at regular interval of time to keep them in tune with latest technologies. The electronic resources in the virtual world represent a large investment of people's effort, money and wisdom. The users should become familiar with latest search techniques for optimum utilization of available electronic information resources.

Reference:

Adithya Kumar, H. and V.G. Talawar., (2011). Reference sources collection in University Libraries of Karnataka: A Study. *Annals of Library and Information Studies*, 58, 93-99.

Alison, K.A. and Kiyingi, G.W.,(2012). Factors affecting utilization of electronic

health information resources in universities in Uganda. *Annals of library and information studies*, 59 (6), 90-96.

Chandel, A.S. and Saikia, Mukesh., (2012).Challenges and opportunities of e-resources. *Annals of library and information studies*, 59 (9),148-154

Iqbal, Bhat, and Mahesh V. Mudhol,. (2014). Use of E-resources by Faculty Members and Students. *DESIDOC Journal of Library & Information Technology*, 34(1). 28-34

Alison, K.A. and Kiyingi, G.W. (2012). Factors affecting utilization of electronic health information resources in universities in Uganda. *Annals of library and information studies*, 59 (6), 90-96.

Bajpai, R, P. Mal, Bidyat K, and Bajpai Geetanjali., (2009). Use of e-resources through consortia: A boon to users of Indian University Libraries, New Dimensions. *ICAL*, 500-03.

Bansode, S.Y, & Pujar, S.M. (2008). Use of Internet by Research Scholars at Shivaji University, Kolhapur. *Annals of Library and Information Studies*, 55(6), 123-126.

Hadagali et al., (2012). Use of Electronic Resources by Post-Graduate Students in Different Universities of Karnataka State. *International Journal of Information Dissemination and Technology*, 2(3), 189-195.

Kumbar, M. F., (2009). Consortia for Management College Libraries in the E-Publishing Era: A Proposal, 9th annual meet and workshop of INDEST AICTE consortium, 1-9.

Loon and Fayaz Ahmad., (2011). Internet use by the college students across disciplines: A Study. *Annals of library and information studies*, 58, 118-127.

Mai, Neo (2005). Web enhanced learning: Engaging students in constructive learning. *Campus-wide Information Systems*, 22(1), 4-14.

Millawithanachchi, U. S., (2012). Electronic resources usage by postgraduates at the University of Colombo: Identifying the critical success factors, 59, 53-63.

Naqvi, Shehbaz Husain (2007). Use of electronic resources at Jamia Millia Islalima: A case study. *NICLIN*, 320-324