Use of Electronic Information Sources by the Users of Engineering Colleges in North Karnataka: A study

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Abstract - *In the present years, e-resources have become most popular and famous sources of Information for all the categories of users at all level. The papers aims to investigate all aspects of level of awareness, extent of use and level of satisfaction, purpose of use ,frequency of use, reasons for using e-resources and problem facing while accessing e-resources by the students and faculty members of the engineering college in North Karnataka. The structure questionnaire has designed based on the objectives, was circulated to collect the needed information from the target population. The study reveals that VTU Consortium e-resources, OPAC, IEEE databases and INDEST consortia are highly aware, used and satisfied e-resources among the students and faculty members of engineering colleges and they have also highly correlated each other. The e-resources are mainly used for the purpose of academic, teaching and research work etc. It is also observed that Low bandwidth, Unorganized elements/contents in a search page and Unfamiliarity with the search are the major problems faced by Students and faculty members under study. Finally it can be concluded that e-resources have made great impact on the academic activities.*

Keywords: E-resources, Engineering Colleges, North Karnataka

Introduction:

Information as an invaluable resource is being collected, organized, disseminated, transformed and communicated through print and electronic media. The electronic resources will be cost-effective and users will be in a position to get pin-pointed information with the help of powerful search engines (Vasudevan-2015). Today's users have their own information needs met via a number of options. They need not come physically to the library to use print formats but can stay at home or the workplace and access online library resources and services via networks or authentication methods at any time. The emergence of internet as a new medium of information storage and delivery represents a revolution. Increasing the number of publishers using the internet as a global way to offer their publications to the user community. The role of library is to provide access to its planned collection. If electronics resources on the web and internet are treated a new media of information access and its

delivery, the library staffs have to play their role of selecting, evaluating, describing, indexing and providing access to electronic information on web.E-resources are easy to access at any place any time, provide right information at right time, and have become widely used tools in engineering education today as well as have benefits over traditional educational resources. Library is one of the most important facilities among students to grow the carrier and future

Electronic resource

The e-Resources are more useful over conventional print resources, which requires computer access or any electronic product that delivers a collection of data, be it text referencing or full text databases. E-resources usually consist of e-books, e-journals, electronic theses and dissertations, electronic databases, CD-ROMs, which are likely to be the alternative to the print media. Access to electronic information of all kinds has been a major boon to academic libraries. Today, we have access to more accurate and precise information than ever before. Electronic management requires higher skill levels including greater technical,

Review of literature.

A large number of studies have been conducted on e-resources and use of ICT applications in library over the last decade. The some of the important studies have been reviewed and scanned in the following section. Adithyakumari, Chandrashekara and Shivakumaraswamy5 conducted a study on usage of e-resources by the users of Mysore University Library. The study revealed that majority of the users use e-resource daily and insufficiency of computer is the major obstacle faced by the users while accessing e-resources. In an another study, Shaji and Jalaja3 conducted a study on the perception and usage of electronic information resources among the faculty members of University of Calicut and suggested that library must conduct training programs for faculty members and also more e-journals should be included for the benefit of faculty members. In a study, Boshorun, Abdulmmin and Adisa investigated user perception of electronic resources in University of Ilorin, Nigeria and found that frequency of use of e-resources was low. The study recommended that library should provide adequate training in Information and Communication Technologies (ICT) for all categories of academic staff, and provision of adequate power supply. In a study, Leshmi found that majority of the faculty of Engineering colleges were aware of e-resources and they were able to use e-resources like internet, e-journals, e-books, OPAC etc. and also found that there exists heterogeneity among different cadres of faculty of JNTU affiliated Engineering colleges in the ability to use the e-resources available in their respective Engineering college libraries. In another study, Reddy and Thangave revealed that majority of the faculties are very interest.

Need for the study:

Recent developments in Information and Communication Technology (ICT) have forced the libraries of educational institutions and publishers to make it available through internet. The information available through the internet is increasing exponentially year after the year. In the present scenario and situation, libraries need to procure the e-resources which are relevant and useful to the users with the limited budgets as the budget allocation to the library is decreasing. A librarian in the present digital environment has to play major role in procuring the relevant information to the user community with the available budget. Apart from these factors, the prices of the electronic resources are also growing quite often. With these challenges, the libraries should provide service to the users with the available limited budget,

because e-resources can be accessed simultaneously by any number of users from any part of the world at any time. Hence the study has been undertaken to assess the user perception and use of e-resources by the students and faculty members of the engineering colleges under study.

Objectives of the study:

1. To find out the demographic profile of the respondents under study
2. To investigate the purpose of use of e-resources among the users of engineering college under study.
3. To examine the level of awareness of e-resources among the respondents under study.
4. To examine the extent of use of e-resources by the students and faculty members of engineering college under study.
5. To study the benefits for the use of e-resources.
6. To trace the problems encounter while accessing the e-resources by the respondents.

Methodology:

The Survey Method of research was employed for the present study, where in Structured questionnaire was used as a data collection tool to collect required data from the target population, the structured questionnaire was designed based on the objectives of the study to assess the extent of use of e-resources by the students and faculty members of the engineering colleges under study Further, Further stratified random sampling method was adopted for the selection of the study population. Given target population was stratified into branch wise further semester wise and branch wise and category wise The designed questionnaire was circulated to collect needed information. Later the collected data was analyzed with the help of statistical tools like percentage, average mean, SD, to draw the meaningful conclusions and further substantiate through appropriate statistical tests and also testing the formulated hypotheses of the study.

Formulation of Hypotheses:

- There is a positive correlation is found between level of awareness , extent of use and level of satisfaction of electronic information resources among the students and teachers of engineering colleges.

Analysis and interpretation:

A sample of 1550 structured questionnaire were distributed to the students and teachers of the engineering colleges under study , of which 680 completely filled questionnaire was received from the five basic branches of engineering.

Table-1 Gender wise distribution of respondents

Sl no	Gender	Frequency	Percentage
1	Male	430	63.24
2	Female	250	36.76
	Total	680	100

Table -1 shows the gender wise distribution of the study population under study, large majority of the study population belongs to male respondents and remaining 36.76% of the study population belong to female respondents.

Table-2 Age-wise distribution of users of the library

Sl no	Age	Frequency	Percentage
1	< 25 years	460	67.65
2	20-30 years	135	19.85
	30-40 years	60	8.82
	40-50 years	15	2.21
	More than 50 years	10	1.47
	Total	680	100

Table-2 shows the age-wise distribution of users of the library, it is observed that a large majority of the (67.65% -460) respondents are below the age of 25 years. While 19.85% of the respondents belong to the age group of 25-30 years. Hardly more than 10% of the respondents have more than 30 years of age under study. It can be concluded that majority of the respondents are below the age of 20 years. It is quite obvious that majority of the respondents belongs to undergraduate students their age may be less than 20 years.

Table-3 Qualification wise distribution of study population

Sl no	Social Background	Frequency	Percentage
1	BE	270	39.71
2	M.Tech	365	53.68
3	Ph.D	45	6.62
	Total	680	100

The study population is comprised of BE/B.Tech, M.Tech and PhD qualification of the respondents, the greater majority of the respondents are from M.Tech holders, followed by B.Tech holder, only a few of the faculty members under study have a doctorate degree. It can be summarised from the above discussion that the majority of the study population having PG degree only.

Table-4 Branch wise distribution of respondents

Sl no	Branch	Frequency	Percentage
1	Mechanical engineering	120	17.65
2	Electronics and communication	221	32.50
3	Computer science	201	29.56
4	Civil engineering	75	11.03
5	Electrical engineering	63	9.26
	Total	680	100

The researcher has selected only five basic branches of engineering, these branches are available in almost all the college understudy. The study population is maily comprised with Electronics and communication and Computer science engineering, which amounts to 62.06% (422) reasons for the more number of samples,

Table-5 Frequency of library visit

Sl. No	Frequency	Frequency N=680	Percentage
1	Every Day	88	12.94
2	Once in a Week	142	20.88
3	Twice in a Week	262	38.53
4	Fortnightly	136	20.00
5	Once in Month	27	3.97
6	Very rarely	22	3.24
7	Never	3	0.44
	Total	680	100.00

It may be seen from the table-5 that frequency of visit to the library is ranging from daily to occasionally by the users of the library. A significant number of respondents under study visits the library twice in a week. Nearly 20% of the respondents visit the library fortnightly and at the same time, equally percentage of the respondents also visit the library once in a Week. Only 12.94% of the respondents visit the library every day. It can be seen from the above discussion that a large majority of the respondents fairly visit their college library to fulfil their academic and research assignments.

Electronic information resources

Table-6 Level of awareness among respondents

Sl. No	Level of Awareness of sources N=680	High aware	More aware	Some what aware	Little aware	Not aware	Total scores	Mean	Rank
1	VTU Consortium e-resources	285 41.91	149 21.91	138 20.29	82 12.06	26 3.82	2625	3.860294	1
2	On –line databases	75 11.03	111 16.32	212 31.18	130 19.12	152 22.35	1867	2.745588	11
4	Electronics journals(Full text /Abstract)	21 3.09	33 4.85	74 10.88	332 48.82	220 32.35	1343	1.975	16
5	e- books	98 14.41	101 14.85	210 30.88	140 20.59	131 19.26	1935	2.845588	9
6	OPAC	272 40.00	150 22.06	125 18.38	92 13.53	41 6.03	2560	3.764706	2
7	e- thesis and dissertations/shodha/ Ganga/Gangorti	45 6.62	90 13.24	148 21.76	170 25.00	227 33.38	1596	2.347059	14
8	On –line reference books	95 13.97	115 16.91	195 28.68	133 19.56	142 20.88	1928	2.835294	10
9	e- news papers	42 6.18	93 13.68	170 25.00	202 29.71	173 25.44	1669	2.454412	12
10	Website web resources	33 4.85	68 10.00	137 20.15	258 37.94	184 27.06	1548	2.276471	15
11	INDEST consortia	180 26.47	122 17.94	145 21.32	155 22.79	78 11.47	2211	3.251471	4
12	Search engines	170 25.00	130 19.12	101 14.85	125 18.38	154 22.65	2077	3.054412	7

13	Institutional Repositories	20 2.94	40 5.88	62 9.12	225 33.09	333 48.97	1229	1.807353	17
14	IEEE databases	201 29.56	189 27.79	115 16.91	93 13.68	82 12.06	2374	3.491176	3
15	Scopus database	185 27.21	142 20.88	101 14.85	142 20.88	110 16.18	2190	3.220588	5
16	Web of science database	163 23.97	135 19.85	141 20.74	111 16.32	130 19.12	2130	3.132353	6

One of the main objectives of the study was to know the level of awareness of electronic information resources among the students and faculty members under study. The list of e-resources as shown in the above table which have been asked in the five point scale from highly aware to not aware among the students and faculty members under study. The frequency of each statement is multiplied with corresponding scale value, then the total score is calculated by   summing of all the product values is dividing by the sample size, based on the mean value ranks are assigned as shown in the table-6. It is observed that VTU Consortium e-resources, OPAC, IEEE databases and INDEST consortia are highly aware resources among the students and faculty members having 1st. 2nd ,3rd and 4th rank respectively , the next more aware electronic information resources are Scopus database, Web of science database and Search engines having 5th, 6th and 7th rank respectively. On the other hand Website web resources,Electronics journals(Full text /Abstract) and Institutional Repositories are least aware electronic resources having the rank of 15th, 16th and 17th respectively among the students and faculty members of engineering colleges . From the above discussion it can be summarized that VTU Consortium e-resources, OPAC, IEEE databases and INDEST consortia are most aware electronic informationresources among the students and faculty members under study.

Table-7 Extent of use of the following e-resources by the students and teachers

Sl. No	Extent of use of e-resources N=680	Very Great extent	Great extent	Some extent	Little extent	No extent	Total scores	Mean	Rank
1	VTU Consortium e-resources	275 41.91	159 21.91	138 20.29	82 12.06	26 3.82	2625	3.860294	1
2	On –line databases	65 10.03	121 18.32	212 31.18	130 19.12	152 22.35	1867	2.745588	11
4	Electronics journals(Full text /Abstract)	41 5.09	33 4.85	74 10.88	332 48.82	220 32.35	1343	1.875	15
5	e- books	170 25.00	130 19.12	101 14.85	125 18.38	154 22.65	2077	3.054412	7
6	OPAC	201 29.56	189 27.79	115 16.91	93 13.68	82 12.06	2374	3.491176	3
7	e- thesis and dissertations/shodha/ Ganga/Gangorti	45 6.62	90 13.24	148 21.76	170 25.00	227 33.38	1596	2.347059	13
8	On –line reference books	95 13.97	115 16.91	195 28.68	133 19.56	142 20.88	1928	2.835294	10

9	e- news papers	42 6.18	93 13.68	170 25.00	202 29.71	173 25.44	1669	2.454412	12
10	Website web resources	33 4.85	68 10.00	137 20.15	258 37.94	184 27.06	1548	2.276471	14
11	INDEST consortia	272 40.00	150 22.06	125 18.38	92 13.53	41 6.03	2560	3.764706	2
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13	Institutional Repositories	20 2.94	40 5.88	62 9.12	225 33.09	333 48.97	1229	1.807353	16
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15	Scopus database	185 27.21	142 20.88	101 14.85	142 20.88	110 16.18	2190	3.220588	5
16	Web of science database	163 23.97	135 19.85	141 20.74	111 16.32	130 19.12	2130	3.132353	6

One of the main objectives of the study was to know the extent of use of electronic information resources among the students and faculty members under study. The list of e-resources as shown in the above table which have been asked in the five point scale from highly used to not at all used among the students and faculty members under study. The frequency of each statement is multiplied with corresponding scale value, then the total score is calculated by summing of all the product values, which is dividing by the size of sample, based on the mean value ranks are assigned as shown in the table-7. It is observed that VTU Consortium e-resources, ,INDEST consortia, OPAC and IEEE databases are highly used e-resources among the students and faculty members having 1st. 2nd ,3rd and 4th rank respectively , the next more used electronic information resources are Scopus database, Web of science database and e-books having 5th, 6th and 7th rank respectively. On the other hand Website web resources, Electronics journals(Full text /Abstract) and Institutional Repositories are least used electronic resources having the rank of 14th, 15th and 16th respectively among the students and faculty members of engineering colleges . From the above discussion it can be summarized that VTU Consortium e-resources, ,INDESTconsortia,OPAC and IEEE databases are highly used electronic information resources by the students and faculty members of engineering colleges under study.

H_0: There is no positive correlation found exist between level of awareness and extent of use of electronic information resources among the students and teachers of engineering colleges.
H_2: There is a correlation observed between level of awareness and extent of use of electronic information resources among the students and teachers of engineering colleges

Table-8 Correlation between Level of Awareness and Extent of Use of e-resources by the students and teachers of engineering colleges under study

Sl. No	e-resources N=680	Awareness D_1	Extent of use D_2	D=d1-d2	D^2
1	VTU Consortium e-resources	1	1	0	0
2	On –line databases	11	11	0	0
4	Electronics journals(Full text /Abstract)	16	15	1	1
5	e- books	9	7	2	4
6	OPAC	2	3	-1	1
7	e- thesis and dissertations/shodha/ Ganga/Gangorti	14	13	1	1
8	On –line reference books	10	10	0	0
9	e- news papers	12	12	0	0
10	Website web resources	15	14	1	1
11	INDEST consortia	4	2	2	4
12	Search engines	7	9	2	4
13	Institutional Repositories	17	16	1	1
14	IEEE databases	3	4	1	1
15	Scopus database	5	5	0	0
16	Web of science database	6	6	0	0
	Total			Total $\sum d_i^2$	18

$$r= 1- \left(\frac{\sum 6d^2}{n(n^2-1)}\right) \qquad r=1-\left(\frac{6X18}{16(16^2-1)}\right) =.973$$

To see the correlation between the level of awareness and extent of use of electronic information resources among the students and teachers of engineering colleges, A spearman coefficient correlation test was applied, it is observed that there is very high positive correlation   (r=.973) observed at 5% level of significance. This indicates that there is a perfect agreement found between level of awareness and extent of use of electronic information resources among the students and teachers of engineering colleges.

Table-9 Opinion Regarding Electronic servicesamong the users of library

Sl. No	Electronic services	Mean	SD
1	Electronic document delivery services	4.01	1.02
2	Electronic current awareness services	3.9	.9
3	Electronic SDI services	2.52	1.1
4	Virtual references desk	1.92	.85
5	Web OPAC	3.8	1.01
6	Inter library services	2.76	.75
7	Online library news	2.01	.78
8	Web based library services	2.75	1.12
9	Library blog	2.37	1.32
10	Library websites	3.33	1.23
11	Online library chart	1.5	.6
12	Library wiki	1.86	.82

Table-9 shows the mean and SD scores of services of the library provided to their usersin engineering collegesof north Karnataka. It is observed that Electronic document delivery services have highest scores among the students and faculty members with 4.01with the deviation of ±1.02mean score value, followed, Electronic current awareness servicesthe next mean score values found to be 3.9 with deviation of ±.9. The third highest mean score value is found to be with Web OPAChaving mean score value of 3.8±1.1. While, Library websites (3.3±1.23), Web based library services (2.751±1.12) and Inter library services (2.76±.75) services provided by the their college library. However, Virtual references desk Library wiki and Online library chart are least mean scores of services provided by libraries . From the above discussion it can be summarized that Electronic document delivery services, Electronic current awareness services andWeb OPAC are very popular electronic based services provided by the engineering college libraries under study.

Table-10 Opinion Regarding the Awareness of databases among the study population

Sl. No	Aware of e-resources	Frequency	Percentage
1	IEEE	369	54.26
2	ASME	132	19.41
3	AICC	189	27.79
4	Sage publication	229	33.68
5	Taylor and Francis e-book	131	19.26
6	Mcgraw hill	162	23.82
7	Services on-line	39	5.74
8	Springer e-books	117	17.21
9	Word e-book Library	90	13.24

One of the main objectives of the study was to know awareness of the various types of e-resources covered under INDEST consortia. It can be seen that good number of respondents under study aware of IEEE database which is one of the most popular and famous database in the field of engineering. Further 229 respondents (33.68%) aware of Sage Publications another 162 know about Mcgraw Hill database. Nearly 117 respondents aware about Springer e-books followed by Taylor and Francis e-books. Majority of the mechanical and civil engineering students used ASME and AICC databases. So it can be concluded that IEEE, ASME, Sage Publication and Mcgraw Hill are the major databases sources in the field of engineering and technology.

Table-11 Purpose of use of e-resources (only for teachers)

Sl. No	Purpose of use of e-resources	Frequency N=680	Percentage
1	For prepare Teaching	246	36.18
2	To Update Knowledge	101	14.85
3	To write a research paper for journals	123	18.09
4	To write a paper for seminar, conference	140	20.59
5	General Purpose	38	18.91
6	Personal use	25	12.44

One of the major objectives of the study was to know the purpose of use of e-resources by the faculty member of engineering colleges. In this regard the questioned was asked to the faculty members to indicate the purpose for which e-

resource are using, majority of 246(36.18%) respondents use for the purpose of for prepare Teaching, 140(20.59%)of them use tTo write a paper for seminar, conference purpose, 123(18.09%) of them use to write a research paper for journals, 101(14.85%) of them use to Update Knowledge, 45(6.62%) of them use gGeneral purpose, and 25(3.68%) of the respondents use for personal use.

Table-12 Benefits of Use of e-Resources

Sl. No	Benefits of Use of e- Resources	Frequency N=680	Percentage
1	Time-saving	91	13.38
2	Access to up to date information	85	12.50
3	Easy to use	92	13.53
4	Better source of information	62	9.12
5	Less Expenses	78	11.47
6	Information available in various formats	68	10.00
7	24/7 Access	80	11.76
8	Improve the quality of professional works	64	9.41
9	Easily portable of e-resources	60	8.82

One of the main objectives of the study was to know the benefits of use of e-resources the list of benefits as shown above table which is raging from time saving to easily portable. In this regard question was asked to the respondents, their responses were recorded as shown in the above table-12. The majority of 92(13.53%) respondents use fro the benefit of Easy to use, 91(13.38%) of them use Time-saving, 85(12.5%) of them use to Access to up to date information, 80(11.76) of them use 24/7 Access, 78(11.47%) use Less Expenses, 68(10%) Information available in various formats, 64(9.41%) of them use to Improve the quality of professional works, 62(9.12%) of the use better source of information and 60(8.82%) of the respondents use for the benefit of Easily portable of e-resources.

Table-13 Majorproblems faced by students and faculty members while of use of e- Resources

Sl. No	Constraints with e- Resources	Frequency N=680	Percentage
1	Low bandwidth	180	26.47
2	Unfamiliarity with the search methods	95	13.97
3	Unorganized elements/contents in a search page	97	14.26
4	Too much time consuming for searching the information	101	14.85
5	Lack of skills	110	16.18
6	Too much of information	97	14.26

Above table shows the common problems faced by respondents while searching the electronic information resources. Major problem is Low bandwidth 180(26.47%) followed by lack of skills 110(16.18%), Too much time consuming for searching the information 101(14.85%) , Unorganized elements/contents in a search page and Too much of information 97(14.26%) and Unfamiliarity with the search methods 95(13.97%) These are the major problems faced by the members of the respondents.

Major finding of the study

Following are the major finding of the study.
- Majority of the study population belongs to male respondents.
- Large majority of the users of the libraries have less than 25 years of age.
- Greater majority of the study population belongs to electronic and communication and computer science engineering branch.
- Majority of the users visit library every day or once in a week.
- VTU Consortium e-resources, ,INDEST consortia,OPAC and IEEE databases are highly awared and used electronic information resources by the students and faculty members of engineering colleges under study
- There is a high positive correlation is observed between level of awareness and extent of use of electronic information resources among the students and teachers of engineering colleges
- Low bandwidth,Unorganized elements/contents in a search page and Unfamiliarity with the search are the major problems faced by Students and faculty members under study.
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Summary and conclusions

The analysis of the findings of the study use of electronic information sources by the students and faculty members of the selected engineering colleges in North Karnataka observed that the respondents have well aware and used some of the e-resources, still they have to aware some more e-resources like Website web resources,Electronics journals(Full text /Abstract) and Institutional Repositories. Librarian must understand information requirements ofusers,accordingly they redesigned their services and provide information efficiently. Hence, it can be conclude that information seeking pattern of students and teachers of engineering college is dependent on both traditional as well as digital sources of information. As they are already very familiar with modern technologies, they have more inclination towards the digital information seeking behaviors. It is high time that the library professionals to support their information support system by providing stateof-art facilities in the libraries to meet their information needs. It is the duty of the library professionals to provide proper guidance and support to boost use of electronic information sources.

References

1. VasudevanTM and Rakhi N R. (2012) Use of electronic information resoruces by the doctorate students of Calicut University, SRELS, Journal of informationManagemenVol 52(3) June, 2015p205-212.

2. Nagesh, D.V. and Ramesh, M.G. (2012). Use of electronic information resources and services by the scientists of DRDO libraries in Bangalore city. International Conference on Electronic Publications, 1-2 March 2012. Retrieved on May 28, 2012.

3. Hughes, H. (2005). Actions and reactions: Exploring international doctoral students use of online information resources. Australian Academic and Research Libraries, 36(4): 169–179. Retrieved April 12, 2012.

4. Shaji, B. and Jalaja, V. (2012). Perception and usage of electronic information resources among the faculty members of university of Calicut: A survey. KelproBullettin, 16(2): 63–71. Retrieved on April 25, 2012.

5. Murugeshan, M. and Pandian, M. (2012). Use of Digital library resources by the doctoral students of Engineering colleges of Trichy in Tamilnadu: A survey. International Conference on Electronic Publications. 1-2 March 2012, p. 310–315. Retrieved on April 24, 2012.9.

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