Use of Internet in the Engineering Colleges of Orissa: An Analysis

By

K. C. Panda

Sr, Lect, UGC – SAP – DRS P.G. Dept of

Lib. & Info' Sc

Sambalpur University

Jyoti Vihar – 768019

N. K. Sahu

Sr. M.Phil. Scholar

DLIS

Sambalpur University

Jyoti Vihar – 768019

E- mail: krushna52@yahoo.co.in

E-mail: nabin_sahu1@rediffmail.com

ABSTRACT

Describes the state of internet connectivity with myriad internet services provided in the Engineering Colleges of Orissa. Analyses the system details, type of browsers and search engines used, and purpose of internet connectivity availed. Also indicates user's demand to access internet, various constraints and suggestions for the improvement of internet use / services in these engineering colleges.

KEYWORDS: Internet – engineering libraries; Academic libraries – internet; Special libraries – internet; Colleges libraries internet; Orissa colleges – internet.

0.   INTRODUCTION

In recent years, internet has emerged as a powerful educational and information tool. With the increasing impact of information technology on higher education, all those concerned with higher education today are attempting to grasp how information technology could help in modernizing the process of teaching, research, and learning. In this context, Internet has emerged as a formidable social and cultural institution of global proportions facilitating access to a wealth of information on the web for the academic society to support their academic and research activities.

The most interesting and visible part of the internet is the World Wide Web or WWW. The World Wide Web is nothing but a gigantic collection of information that contains several millions of pages of information. Each of these pages is called a web page. A web page can contain all types of information including text (characters), graphics (pictures and photographs), and multimedia (animation, video and audio) respectively (Mohanasundaram and Kumaran; 2001; p.8).

1. SCOPE AND LIMITATIONS

For the purpose of the present study, the following limitations have been set forth:

1.1   This study covers in its ambit those engineering colleges engaged in imparting only degree-level courses in the field of engineering and technologies (i.e., limitation by the type of institution being covered for investigation).

1.2   This study is primarily concerned with those degree engineering colleges functioning within the territorial jurisdiction of the state of Orissa (i.e., limitation by the geographical region/ territory being covered); and

1.3   It is mainly concerned with the extent and / the purpose for which, Internet is being used by the users of degree engineering colleges, but does not consider any other technology in use in those engineering colleges (i.e., limitation by the type of subject area covered in the investigation).[1]

2. METHODOLOGY

In the present study, a structured questionnaire was administered to collect information relevant to the study from the respondents, followed by observation and interview as and when became necessary to achieve the survey objectives.

3. HYPOTHESES

For the purpose of this study, the following hypotheses have been formulated:

3.1   Since engineering colleges usually do not suffer from paucity of funds unlike the general colleges, all the engineering colleges in the state must have been the internet connectivity for the benefit of their users;

3.2 Though majority of the library users are engineering college students, internet services available in those engineering colleges perhaps are mostly used by them in searching materials related to their course curriculum;

3.3 A major chunk of the internet browsing time in these engineering colleges must have been utilized for on-line classroom demonstration and for practical purposes rather than for the personal use of the users and/ or recreation.

4. SAMPLE SIZE

For the purpose of the present study, information collected from 21(75%) out of 28 degree engineering colleges of Orissa constituted the major database for this investigation. Owing to non-compliance of relevant information by 1 engineering college, analysis, however, has been conducted taking data received from 20 engineering colleges, thus, the response rate remains at 71.42%.

5. ANALYSIS AND INTERPRETATION OF DATA

5.1 State of Internet Connectivity

In order to ascertain the type of connectivity, the engineering colleges have taken; the respondents were asked to state one out of the four major types of connectivities they have taken. The responses received there on are reflected under table - 1 for necessary statistical interpretation.

TABLE – 1

State of Internet Connectivity Available in Engineering Colleges of Orissa

Type(s) of Internet Connectivity	Number of Engineering Colleges	Percentage %	Cumulative Percentage
Dial up	10	50 %	-
Leased line	6	30 %	80%
V-Sat	7	35 %	115%
Micro wave link	0	0 %	115%
Total	**23**	**115%**	

Table-1 above clearly shows that, 10 (50%) out of 20 engineering colleges in the state have taken the dial-up connection; followed by 7 (35 %) have V-Sat connectivity; and 6 (30%)ECs have taken the leased line connection respectively. Interestingly, none of the engineering colleges have the internet connectivity of microwave link. Since 3(15%) colleges have taken more than one type of connectivity, the number of colleges, therefore, rose to 23 (instead of 20) so also the % from 100 % to 115 %.

5.2 State of Telecom Networks in Internet Services

There are mainly two major types of telecommunication networks used for internet connection, viz. PSTN and ISDN, which are stated in the questionnaire. In order to ascertain the type of telecommunication network(s) used for internet connection, respondents were asked to choose any one or both of the above stated networks currently being used by them. The responses elicited from them are depicted in table- 2.

TABLE-2

Telecommunication Networks in Internet Service in ECs of Orissa

Connection of Telephone/ Network Lines	Number of Engineering Colleges	Percentage %	Cumulative Percentage
PSTN	10	50 %	
ISDN	3	15 %	65%
Total	13	65%	

It is observed from Table-2 that, out of 20 Engineering Colleges, half of them i.e., 10 (50 %) have PSTN connection, followed by 3 (15%) ECs having ISDN connection. It seems that, PSTN is found as the most favored and popularly used telecom link for Internet connection in the engineering colleges. The remaining 7 ECs, however, have not furnished any information regarding this.

5.3 Internet Service Providers in Engineering Colleges of Orissa

The most economical way to surf the internet is to get a connection from the local Internet Service Provider (ISP) for which VSNL, Satyam Info' are some of the popular ISPs in India (MICE). To ascertain the ISPs of engineering colleges, the respondents were asked to state anyone of the six cited ISPs in the questionnaire and the collective responses are depicted in table-3.

TABLE –3

Internet Service Providers in Engineering Colleges of Orissa

Internet Service Providers	Number of Engineering Colleges	Percentage %	Cumulative Percentage
VSNL	6	30 %	
Dot/BSNL	4	20%	50%
Satyam Info'	5	25 %	75%
NIC	2	10%	85%
STPI *	4	20%	105%
HCL	3	15%	120%
Total	**24**	**120%**	

From Table-3, it is observed that, 6 (30%) out of the 20 Engineering Colleges of Orissa have VSNL as their internet Service Provider; followed by 5(25%) have internet service from Satyam Info. On the other hand, Dot/BSNL and STPI, both as the internet Service Providers, are found only in 4 (20 %) engineering colleges each; followed by 3(15%) have received from HCL and 2(10 %) have their services from NIC respectively. Since, 4 ECs have furnished the information about internet Connectivity from more than one ISPs, the total number of respondents have exceeded 20 so also the percentage has crossed to more then 100%. But, practically it is not necessary to have for internet connectivity from 2 ISPs.

5.4   System Details

One of the objectives of this investigation was to ascertain the system infrastructure (such as PCs, processors, HD storage capacity, multimedia facility, modem, etc.), which the engineering colleges have at their disposal in order to provide Internet service to their clientele. The responses elicited from them are depicted under table-4 for statistical interpretation.

TABLE-4

System Details of Ecs

Sr.No	Name of the Institutions	System Details				
		No. of PCs	Processors	HD Storage Capacity	Availability of Multimedia kits	Modem-(Make),-(Speed)
1	REC	5	P-III	20 gb	Yes	-
2	PIET	40	P-III	20gb	Yes	D-link, 56Kbps
3	PCE	13	P-III	20 gb	No	Conexant 56 kbps

4	UCE	More than 100	P-III & above	More than 20 gb	Yes	-
5	KEC	32	P-III	More than 20gb	Yes	D-link , 56 Kbps
6	ITER	35	P-I,P-II & P-III	10 gb	Yes	Multi-tech ,56 Kbps
7	CVRCE	-	P-I,P-II & P-III	20 gb & above	Yes	-
8	COEB	-	P-III	20 gb & above	Yes	56 Kbps
9	OEC	160	P-I,P-II,& P-III	10 gb & 20 gb	Yes	-
10	DRIEMS	35	P-III	10 gb	No	56 kbps
11	JIET	60	P-III	20 gb	Yes	D-link ,56 Kbps
12	ITT	2	P-III	10 gb	Yes	56 Kbps
13	GIET	25	P-III	10 gb	Yes	-
14	SEC	160	P-I,P-II & P-III	10 & 20 gb	Yes	-
15	KIIT	600	P-I,P-II & P-III	10 & 20 gb	Yes	D-link ,56 Kbps
16	CET	20	P-III	20 gb	No	-
17	SIET	70	P-III	20 gb & above	Yes	D-link ,56 Kbps
18	ABIT	42	P-III	20 gb	Yes	Motorola ,56 Kbps
19	NIST	456	P-I,P-II & P-III	10,20 & 40 gb	Yes	D-link,10-100 Mbps
20	BIET	80	P-I,P-II & P-III	20 gb	Yes	HCL ,64 Kbps

Table –4 above shows that, KIIT has the highest number of 600 PCs; followed by NIST having 456PCs, OEC and SEC each has 160 PCs and, UCE being the oldest and largest EC, has more than 100 PCs. Besides these, 3 (15%) engineering colleges have 50 to 100 number of PCs, followed by 6 (30%) colleges have 25 to 50 number of PCs and, 4 (20%) engineering colleges have less then 25PCs. Information is, however, not available of the remaining 02 (10 %) engineering colleges.

Out of 20 engineering colleges, 7 (35%) have all the P-I, P-II and P-III processors, while 12 (60%) colleges have only P-III processors and the remaining 01(5%) has P-II processors respectively. In regard to the capacity of the hard disk, 7 (35%) out of 20 engineering colleges have more then 20gb hard disk storage capacity of PCs, followed by 9 (45%) colleges have only 20gb, and the remaining 4 (20%) colleges have 10 gb.

Similarly, multimedia kits are available in 17 (85%) colleges while the remaining 3 (15%) have no multimedia kits.

In regard to modems, 06 (30%) engineering colleges have D-link made modems; followed by 01 (5%) from

HCL, context, 01 (5%) Multi - tech and 01 (5%) Motorola made modems. The remaining 11 ECs did not furnish any information regarding this. In regard to speed of modems 11 (55 %) engineering colleges have 56 kbps speed modems, 01 (5%) has 64 kbps, and another 01 (5%) has 10-100 mbps. However, information is not available from 7 (35%) engineering colleges.

5.5   Type of Browsers Used

A web browser is a software application used to locate and display web pages, such as Internet Explorer, MSN, and NETSCAPE, etc. (ET&T; 1997;p.54). The respondents were asked to choose any one or more than one option as stated in the questionnaire. The collective responses are represented in table –5.

TABLE – 5

Type of Browsers Used in Ecs

Type of browsers	No. of users	Percentage %	Cumulative Percentage
MSN	11	55%	
Netscape	12	60%	115%
Internet Explorer	8	40%	155%
Total	31	155%	

From table- 5, it is clear that, the users of 12(60%)engineering colleges are using the Netscape browser; followed by 11(55%) using MSN and, 8 (40%) using Internet Explorer. Since eight colleges use more than one browser, the number of browsers has gone to 31 and so also the percentage has crossed more than 100%.

5.6   Frequently Used Search Engines

One can search through different ways by topic, companies, goods and services using different search engines such as Yahoo, Googli, Altavista, etc.The respondents were asked to choose any one or more than are from the search engines stated in the questionnaire and the collective responses are depicted in   table-6.

TABLE- 6

Frequently used Search Engines

Search engines	No. of users	Percentage (%)	Cumulative Percentage

Altavista	11	55%	
Yahoo	15	75%	130%
Google	17	85%	215%
Rediff	10	50%	265%
Hotbat	04	20%	285%
Khoj	08	40%	325%
MSN	04	20%	345%
Any other (s)	02	10%	355%
Total	**71**	**355%**	

Table-6 shows that, out of 20 engineering colleges, the users of 17 (85%) colleges are using Google as the search engine; followed by (15) 75% use Yahoo; (11) 55% use Altavista; (10) 50 % use Rediff; (8) 40% use Khoj; and (4) 20% use both Hotbot and MSN, and only 10% are using other than these search engines. Since all ECs use more than one search engine, the number of users have crossed 20, so also their percentage have crossed more then 100%.

5.7 Purpose of Internet connectivity

Internet can be used for various purposes. In order to ascertain the use of Internet particularly in engineering colleges of Orissa, the respondents were asked to state any one or more than one, out of the three purposes stated in the questionnaire. The elicited responses are depicted in table – 7.

TABLE-7

Purpose of Internet Connectivity

Purpose (s)	No.of Users	Percentage %	Cumulative Percentage
It is a part of curriculum	12	60%	
To provide on-line demonstration / hands on experience by faculty / members	15	75%	135%
For Commercial Use	0	0%	135%
Total	**27**	**135%**	

Table-7 clearly depicts that, 15(75%) engineering colleges use Internet to provide on-line demonstration/ hands - on experience to their cliente; followed by 12 (60%) colleges use it as a part of their course curriculum. None of the engineering colleges, however, use internet for commercial purpose, which apparently fall in the expected lines. As 7 colleges use Internet for more than one purpose, the numbers of users have exceeded to 27 so also the corresponding percentage to 135%.

5.8   User's Demand to Access Internet – visa – vis – Their Subject Interest

In engineering colleges, Internet is used to fulfill a variety of information needs of their clientle.To ascertain various demands, the respondents were asked to state their subject interest from their own experience drawn from the students as stated in the questionnaire. Their collective responses are depicted in table-8.

TABLE-8

User's Demand To Access Internet & Their Subject Interest

User's Demand	No. of Users	Percentage%	Cumulative Percentage
Bibliographic Information	05	25%	
Product Profile	09	45%	70%
Patents and Standards	03	15%	85%
Research Articles	14	70%	155%
Educational Information	16	80%	235%
Career Planning and Placements	12	60%	295%
Fellowships / Scholarships	09	45%	340%
Project Reports (on- going /completed)	12	60%	400%
Research Reports	09	45%	445%
Explanatory Search	07	35%	480%
Total	**96**	**480%**	

From table-8, it is clear that, a majority of 16 (80%) users of engineering colleges consult internet for educational information; followed by 14 (70%) for research articles; and 12 (60%) each are interested in both project reports and career planning and placements. Similarly, 9 (45%) engineering colleges demand information from Net on product profile, fellowship / scholarship and research reports, while 7 (35%) for explanatory search; 5 (25%) for bibliographic information; and only 3(15%) want product profile from the net. Since each user approach internet for more than one subject interest / demand, the number of users have exceeded 20 so also the corresponding percentage of users.

5.9   Constraints Encountered During Internet Searching / Browsing

There are some constraints encountered during Internet searching viz. low bandwidth, traffic jam, system hangs-up, etc. To ascertain the specific constraints encountered by the users of engineering colleges during Internet searching / browsing, the respondents were asked to state the constraints encountered by them and the collective responses are given in table-9.

TABLE – 9

Constraints Encountered During Internet Searching / Browsing

Constraints	No.of Respondents	Percentage %	Cumulative Percentage
Varied Searching Pattern	01	5%	
System Hangs-Up	01	5%	10%
Virus affected	01	5%	15%
Delay In Opening the Website	01	5%	20%
Problem faced to get Internet connection	01	5%	25%
Unwanted pages	01	5%	30%
Unwanted links	01	5%	35%
Less band width	02	10%	45%
Less speed of the modem	01	5%	50%
Traffic Jam	02	10%	60%
Power failure	01	5%	65%
Total	13	65%	65%

It is observed from table-9 that, out of 20 respondents, information about constraints encountered during internet searching / browsing is available only from 13 (65%) respondents and the remaining 7 (35%) respondents did not furnish information on this score. Out of 13(65%) respondents, 2 (10%) have stated less bandwidth as their major constraint; followed by 2 (10%) have stated traffic jam as their problem. Besides these, each one of the remaining 9 (45%) respondents have stated. Varied search pattern, system hang-up, virus affected, delay in operating the website, problem faced to get Internet connection, unwanted pages, unwanted links, less speed of the modem and power failure as their major constraint(s) respectively.

5.10 Suggestions for Improvement of Internet Use / Service

For the improvement of Internet use/services, the respondents were asked to give few suggestions and the collective responses are depicted in table- 10

TABLE –10

Suggestions for Improvement of Internet Use / Services

Suggestions given by the respondents of Ecs	No. of Responses	Percentage %	Cumulative Percentage

Bandwidth should be high	02	10%	
More facilities should be given to access Internet	01	5%	15%
Capacity of server and connectivity persistence should be increased	01	5%	20%
Lease lines or cable line is preferable	01	5%	25%
ISDN line / Fiber communication with high bandwidth should be implemented for faster access	01	5%	30%
Cost of using / accessing Internet should be reduced to a grater extent	01	5%	35%
Microwave connection should be available	01	5%	40%
It should be familiarized to all	01	5%	45%
Total	**09**	**45%**	

It is clear from the table –10 that, out of 20 respondents, only 9 (45%) have landed their suggestions for over all improvement of Internet use and the remaining 11(55%) respondents did not prefer to provide any suggestion for this purpose. Out of 9 (45%) respondents, 2(10%) have suggested for the improvement of bandwidth. Besides this, each of the remaining 07 respondents have provided one each suggestions, namely, more facilities should be given to access internet; capacity of server and connectivity persistence should be increased; lease line or cable line is preferable; ISDN line or fiber communication with high bandwidth should be implemented for faster access; cost of using Internet should be reduced to a grater extent; microwave connection should be available; and it should be familiarized to all respectively.

6.   TESTING OF HYPOTHESES

6.1   The hypothesis # 1

"Since engineering colleges usually do not suffer from paucity of funds unlike the general colleges, all the engineering colleges in the state must have been the Internet connectivity for the benefit of their users;" is found true as all the 20 (100%) engineering colleges included in the survey have their own internet connectivity.

6.2   The hypothesis # 2

"Though majority of the library users are engineering college students, internet services available in those engineering colleges perhaps are mostly used by them in searching materials related to their course curriculum;" was tested with the research data and found true as internet in these colleges are either used as a part of their course curriculum or to provide on line demonstration to the students, and none of these colleges, therefore, provide internet service to any one other than their students.

6.3   The hypothesis # 3

"A major chunk of the Internet browsing time in these engineering colleges must have been utilized for on-line classroom demonstration and for practical purposes rather than for the personal use of the users and/ or recreation" is too found true as 15 out of 27 (135%) responses have disclosed that their internet services are used to provide hands on experience to their users/ and for the purpose of online demonstration. Hence, all the three hypotheses are proved correct.

7.   CONCLUSION

Internet is now a part of valuable human life. The present day profession too heavily depends on Internet for a variety of reasons to which, the users of engineering colleges are not the exception. Library users are becoming more net- oriented day by day. Traditional libraries are also going to become digital libraries. They prefer e-journals, e-books online purchase of books and other electronic documents. Libraries are now maintaining a large number of databases and providing an effective user-interface on the Web. Due to its versatile nature with low maintenance cost, web is fast becoming the best medium of communication. Many researchers and academics to day prefer Internet to publish their papers, full text journals, and a variety of electronic documents online including on line interacting with their counterparts. With so much information available online, it is vital to a researcher that the library he/she uses must provide effective and timely access to Internet covering the entire resources of the globe.

This study, ''Use of Internet in the Engineering Colleges of Orissa: An Analysis" has a vital significance as it demonstrates the use pattern of Internet and signifies the myriad services offered to the net users in these colleges including providing an elaborate status of Internet use in the said colleges to a considerable extent. The foregoing findings would certainly be a boon to both the academic planners and ISPs to revamp the internet system removing the constraints.

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BRIEF BIOGRAPHY OF AUTHORS

Dr. Krushna C Panda has served Berhampur University Library and presently at Department of LIS at Sambalpur University as a Lecturer. He was awarded Fulbright Fellowship a He has authored 3 books, 58 research papers, 21 popular articles, reviewed 2 books and has produced 5 Ph.Ds under his guidance. He is a life member of IASLIC, ILA, IIPA, IATLIS, SIS.

Mr. Sahu is the Senior M. Phil Scholar of P. G. Department of Library & Information Science, at Sambalpur University. He is currently receiving training at National Library, Calcutta. His interest lies mainly in Internet and Web resources.