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Information Search Pattern of Engineering and Arts & Science Students in Web Environment: A Comparative Study

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Abstract

This paper investigates to find out the purposes of searching information on internet andcompared among the respondents in respect of search engines and information resources areused. The study was conducted among engineering and arts& science students who are pursuing their education at undergraduate and postgraduate level at various colleges located in and around Chennai. It is found that majority of the respondents are using internet to search information forthe preparationof their examinations. The respondents belong to art and science disciplines are used "Google" search engine to locate information in the internet. The engineering students are widely used internet to collect information for their academic performance. The study is also recommended that the teachers and librarians may organize the information literacy programme regularly on search engines, search techniques and to evaluate the right resources for their academic and other purposes.

Keyword: Internet, Search Engine, Information Resources, ICT, e-journals, e-books

1. INTRODUCTION

The generation of world can be classified into three categories such as Agricultural age, Industrial age and Information age. People were depended agricultural products and there were no opportunities to share knowledge in the agricultural age. There were remarkable

developments in industries and technologies after the French revaluation. At present we are living in the information world. The invention of telephone technology and printing technology were base for knowledge development and information explosion in the information age. The combination of computer technology, communication technology, web technology and database technology are playing most important role for personal development as well as national development. Library and Information Centres also effectively use these technologies to provide exhaustive, pinpointed and timely system based services to the users. WWW or Web is the software application which allows both distribution of information on the internet and access to information on the internet. Web is the part of internet and consists of huge collection of documents stored on computers around the world. Web documents can have text, pictures, drawing, tables and charts, audio and video clips etc. Search engine is an information retrieval tool that has been developed to locate information in the internet. Search engines are very large databases of information about web resources.

2. OBJECTIVES OF THE STUDY

1. To identify the purpose of searching information on internet
2. To compare the preferred search engines between Engineering and Arts & Science students
3. To compare the preferred information resourcesbetween Engineering and Arts and Science students

3. REVIEW OF LITERATURE

Thanuskodi and Ravi (2011)[1] emphasized that the utilization of digital resources by faculty and research scholars and found that majority respondents are browsed the Internet for teaching, research, and learning. **Sharma, Shawla and Madaam** (2011)[2] found that mostly faculty members and students in various discipline use internet services like e-mail, chatting, search engines, remote login, FTP, FAQ and also found less number of users use archives, Listserv.**Sudhier and Seethalakshmi** (2011)[3]observed that majority of respondents use e-mail services for research activities and also suggested that academic institutions and libraries should facilitate the maximum usage of resources.**Malliari, KorobiliandZapounidou**(2011)[4]explained that the information seeking behavior of students are seems to be influenced by their search

experience, computer and web experience, perceived ability and frequency of use of e-sources, and not by specific personal characteristics or attendance at library instruction programs. **Flavian-Blanco,Gurrea-SarasaandOrús-anclemente** (2011)[5]analyzed the emotional outcomes of the online search process, taking into account the user's (a) perceptions of success and effort exerted on the search process, (b) initial affective state, and (c) emotions felt during the search process.**Hochstotterand Lewandowski** (2009)[6] explained that search engines use quite different approaches to results pages composition and therefore, the user gets to see quite different results sets depending on the search engine and search query used. **Sharma and Gobind** (2009)[7] highlighted that the preference and importance of online resources among the teachers and research scholars. **Verma** (2009)[8]explained the purpose of seeking information, formal and informal sources used by faculty in searching the relevant information. It also discussed the frequency of their visit to the library and tools used for searching the information. **Thatcher** (2008)[9] investigated how the cognitive search strategies of 80 participants might vary with Web experience as they engaged in two researcher-defined tasks and two participant-defined information seeking tasks. **Nazim**(2008)[10]found that the majority of respondents had five years history of Internet access. The academic staff spent more time on the Internet than the students and research scholars. Although Internet search engines were the preferred information searching tool, other methods such as databases, gateways and World Wide Web (WWW) were also used. **Jansen and Spink**(2006)[11] observed that wide spread use of Web search engines, employment of simple queries, and decreased viewing of result pages may have resulted from algorithmic enhancements by Web search engine companies**. Hsieh-Yee** (2001)[12] focused on describing search patterns, and many studies investigated effects of selected factors on search behavior, including information organization and presentation, type of search task, Web experience, cognitive abilities, and affective states.

4. HYPOTHESIS

H_1 There is a significant difference in the purpose of searching information on internet.

H_2 There is no significant difference in the purpose of searching information on internet among Engineering and Arts & Science Students.

H_3 There is a significant difference in the preferred search engines.

H_4 There is no significant difference in the preferred search engines among Engineering and Arts & Science Students.

H_5 There is significant difference in the preferred information sources.

H_6 There is no significant difference in the preferred information sources among Engineering and Arts & Science Students.

5. METHODOLOGY

A well structured questionnaire has been designed to collect data from the respondents.The questionnaire was distributed among engineering and Arts &Science students randomly in and around Chennai. The questionnaire was divided into four sections such as personal information, purpose of searching information on internet, preferred search engine and preferred information sources.A total of 301 respondents have responded, out of 375 questionnaires and it makes 80.26% on overall response. The data were analyzed by using SPSS.

6. DATA ANALYSIS

6.1. Distribution of Respondents

The data were collected from Engineeringand Arts & Science students who are currently pursuing their education in engineering and arts & science disciplines in various colleges located in and around Chennai, Tamil Nadu. The demographic information is given in table 1.a

Table 1
DEMOGRAPHIC INFORMATION

S.No	Description	No. of Respondents	Percentage
1.	Engineering Students	115	38.2
2.	Arts and Science Students	186	61.8
	Total	**301**	**100**

The majority of respondents are belonged to Arts and Science disciplines 186 (61.8%) and followed by engineering disciplines 115(38.2%).

6.2. Purpose of Searching Information on Internet

The information is searched on the internet for various purposes and it differs from user to user.In order to ascertain the purpose, the relevant data were collected among the users and analyzed. The same is given in table 2.

Table 2

PURPOSE OF SEARCHING INFORMATION ON INTERNET

S.No	Description	SD	DA	UD	A	SA	Total	Mean	R	Chi-Square
1.	To prepare for the examination	34 11.3 %	198 65.8 %	15 5.0%	31 10.3%	23 7.6%	301 100 %	2.37	4	397.920
2.	To prepare for the paper presentation	15 5.0%	22 7.3%	82 27.2%	100 33.2%	82 27.2%	301 100 %	3.70	3	100.279
3.	To collect information for assignment	7 2.3%	11 3.7%	42 14.0%	129 42.9%	112 37.2%	301 100 %	4.08	2	215.927
4.	To collect information for the projects	8 2.7%	10 3.3%	55 18.3%	95 31.6%	133 44.2%	301 100 %	4.11	1	195.728

(SD=Strongly Disagree, DA=Disagree, UD=Undecided, A=Agree, SA=Strongly Agree, M=Mean, R=Rank),
(Table Value 9.488, df 4)

Table 2 indicates the purpose of searching information on internet by the respondents. It is revealed that majority of respondents are used internet to collect information for the projects and it stands first rank as its mean secure is 4.11 on five point scale rating, followed by collecting information for assignments and its mean secure is 4.08 on five point scale rating. It is further found that only few respondents are searching information on internet for examination purpose and ranked fourth place and its mean score is 2.37 on five point scale rating. The chi-square was also used to test the hypothesis that there is a significant difference in the purpose of searching

information on internet. The calculated value (195.728) for parameter is more than table value (9.488). Hence, hypothesis isnot significant.

6.3. Purpose of searching information on internet by Students

The study is also made an attempt to ascertain the purpose of searching information on internet. The respondents were categorized into two broad groups such as Engineering and Arts & Sciencestudents. The data were collected from UG, PG students of each category and the same is given in table 3.

Table 3
PURPOSE OF SEARCHING INFORMATION ON INTERNET Vs STUDENTS

S.No	Description	ENGINEERING STUDENTS (n=115)							ARTS & SCIENCE STUDENTS (n=186)							Chi-Square
		SD	DA	UD	A	SA	M	R	SD	DA	UD	A	SA	M	R	
1.	To prepare for the Exams	17 14.8 %	46 40.%	10 8.7%	21 18.3 %	21 18.3 %	2.85	4	17 9.1%	152 81.7%	5 2.7 %	10 5.4 %	2 1.1 %	2.07	4	64.875
2.	To prepare for the paper presentation	3 2.6%	6 5.2%	29 25.2 %	45 39.1 %	32 27.8 %	3.84	3	12 6.5%	16 8.6 %	53 28.5 %	55 29.6 %	50 26.9 %	3.61	3	5.478
3.	To collect information for assignment	3 2.6%	7 6.1%	19 16.5 %	51 44.3 %	35 30.4 %	3.93	2	4 2.2%	4 2.2 %	23 12.4 %	78 41.9 %	77 41.4 %	4.18	1	6.349
4.	To collect information for the projects	3 2.6%	4 3.5%	26 22.6 %	28 24.3 %	54 47.0 %	4.09	1	5 2.7%	6 3.2 %	29 15.6 %	67 36.0 %	79 42.5 %	4.12	2	5.322
						Average Mean	**3.67**						**Average Mean**	**3.49**		

(SD=Strongly Disagree, DA=Disagree, UD=Undecided, A=Agree, SA=Strongly Agree, M=Mean, R=Rank)
(Table Value 9.488, df 4)

Table 3 indicates the category-wise analysis of searching information on internet. It is found that the engineering students ranked first position in the overall purposes of searching information on internet and their average mean is3.67 on five point scale rating. Thestudents belong to Arts & Science has occupied the second position in their overall purposes and their average mean is 3.49on five point scale rating. The chi-square test is also administrated to test the hypothesis that there is no significant difference in the purpose of searching information on interent.The calculated value (64.875) for parameters is more than table value (9.488). Hence, the hypothesis is not significant.

6.4. Preferred search engine

The information can be searched through various methods such as search engine, websites, library portals etc.In this study, search engine alone was considered to analysis. The preferred search engine is given in table 4. The weightage is assigned from least to highest.

Table 4
PREFERRED SEARCH ENGINES

S.No	Description	YES	NO	Total	Mean	Rank	Chi-Square
1.	Google	286 95.0%	15 5.0%	301 100%	1.04	1	243.990
2.	Yahoo	165 54.8%	136 45.2%	301 100%	1.45	2	2.794
3.	Ask	47 15.6%	254 84.4%	301 100%	1.84	3	142.355
4.	Bing	33 11.0%	268 89.0%	301 100%	1.89	5	183.472
5.	AltaVista	35 11.6%	266 88.4%	301 100%	1.88	4	177.279

(Table value 3.841, df 1)

Table 4 indicates the result of preferred search engine among respondents. It is found that majority of respondents were preferred “Google” to search information and also ranked first position in overall preferred search engines and its mean is 1.04 on two point nominal scale rating. It is followed by “Yahoo” and it occupied second rank based on mean score 1.45 on two point nominal scale rating. The search engine “Ask”hasranked the thirdplace based on secure

mean score 1.84 on two point nominal scale rating. It is further observed that only few respondents were preferred "Bing" search engine since it is ranked the last place based on the mean score 1.89 on two point nominal scale rating. The chi-square was also used to test the hypothesis that there is a significant difference in the preferred search engines. The calculated value (243.990) for parameters is more than table value (3.841). Therefore, the hypothesis is not significant.

6.5. Preferred search engine by students

The search engine plays an important role to locate the information on the internet. It searches information from the various resources and retrieves the relevant information in the desired formats. The selection ofspecific search engine is totally depended upon users' interest. The study is also attempted to find out the preferred search enginesby the students. Five search engines are identified in this study and the same is given in table 5.The weightage is assigned from least to highest.

Table 5
PREFERRED SEARCH ENGINES Vs STUDENTS

S.No	Description	ENGINEERING STUDENTS (n=115)				ARTS& SCIENCE STUDENTS (n=186)				Chi-Square
		YES	NO	Mean	Rank	YES	NO	Mean	Rank	
1.	Google	104 90.4 %	11 9.6%	1.09	1	182 97.8%	4 2.2%	1.02	1	8.251
2.	Yahoo	47 40.9 %	68 59.1 %	1.59	2	118 63.4%	68 36.6 %	1.36	2	14.617
3.	Ask	20 17.4 %	95 82.6 %	1.82	3	27 14.5%	159 85.5 %	1.85	3	.446
4.	Bing	11 9.6%	104 90.4 %	1.90	4	22 11.8%	164 88.2 %	1.88	5	.375
5.	AltaVista	10 8.7%	105 91.3 %	1.91	5	25 13.4%	161 86.6 %	1.86	4	1.557
	Average Mean			**1.66**		**Average Mean**		**1.59**		

(Table value 3.841, df 1)

Table 5 indicates the results of preferred search engines among two categories of respondents. It is found that Arts and Science students ranked first place in overall preferred search engines and their average mean is 1.59, whereas engineering students ranked second position in overall preferred search engines and their mean score is 1.66.Further, the chi-square test is also administrated to test the hypothesis that there is no significant difference in preferred search engines among engineering and arts &science students. The calculated value (14.617) for parameters is more than table value (3.841). Therefore, the hypothesis is not significant.

6.6. Preferred Information Resources

The information is published in a variety of forms like books, journals, reports, thesis, e-books, e-journals, online andoff line databases. The usage of resources is also depended upon the users. The study is made to ascertain the preferred resources among the respondents. The relevant data were collected, analyzed and showed in table 6.

Table 6
PREFERRED INFORMATION RESOURCES

S.No	Description	SD	DA	UD	A	SA	Total	Mean	R	Chi-Square
1.	E-books	21 7.0%	17 5.6%	29 9.6%	161 53.5%	73 24.3%	301 100%	3.82	4	244.199
2.	E-Journals	5 1.7%	11 3.7%	45 15.0%	92 30.6%	148 49.2%	301 100%	4.21	1	239.515
3.	Electronic Databases	9 3.0%	18 6.0%	59 19.6%	81 26.9%	134 44.5%	301 100%	4.03	2	170.811
4.	Online Course Materials	17 5.6%	22 7.3%	61 20.3%	92 30.6%	109 36.2%	301 100%	3.84	3	111.608
5.	Electronic Project Reports	25 8.3%	23 7.6%	65 21.6%	103 34.2%	85 28.2%	301 100%	3.66	5	84.598
6.	E-Thesis and Dissertations	46 15.3 %	42 14.0 %	124 41.2%	66 21.9%	23 7.6%	301 100%	2.92	6	100.013

(SD=Strongly Disagree, DA=Disagree, UD=Undecided, A=Agree, SA=Strongly Agree, M=Mean, R=Rank)
(Table Value 9.488, df 4)

Table 6 indicates the result of preferred information sources among respondents. It is revealed that majority of the respondents were preferred to use the e-journalsfor simple reasons it is easy to access and ranked first place, secured mean is 4.21 on five point scale rating , followed by electronic databases ranked second place and its mean sore is 4.03 on five point scale rating. Further, itis also observed that online course materials are also widely used by the students because it gives the content in the precious form and ranked third place based on mean score 3.84 on five point scale rating .It is also indicated that only few respondents were preferred E-Thesis and Dissertation and their mean score is 2.92 on five point scale rating. The chi-square test is also used to test the hypothesis that there is significant difference in the preferred search engines. The calculated value (244.199) for parameters is greater than table value (9.488).Therefore, the hypothesis is not significant.

6.7. Preferred Information Resources by Students

The preferred information sources were further analyzed among Engineering and Arts & Science Students and the same is given in table 7.

Table 7
PREFERRED INFORMATION RESOURCES Vs STUDENTS

S.No	Description	ENGINEERING STUDENTS (n=115)							ARTS& SCIENCE STUDENTS (n=186)							Chi-Square
		SD	DA	UD	A	SA	M	R	SD	DA	UD	A	SA	M	R	
1.	E-books	10 8.7%	9 7.8%	13 11.3 %	48 41.7 %	35 30.4 %	3.77	5	11 5.9 %	8 4.3%	16 8.6%	113 60.8 %	38 20.4 %	3.85	3	10.626
2.	E-Journals	4 3.5%	5 4.3%	18 15.7 %	26 22.6 %	62 53.9 %	4.19	2	1 .5%	6 3.2%	27 14.5 %	66 35.5 %	86 46.2 %	4.23	1	8.711
3.	Electronic Databases	3 2.6%	6 5.2%	15 13.0 %	28 24.3 %	63 54.8 %	4.23	1	6 3.2 %	12 6.5%	44 23.7 %	53 28.5 %	71 38.2 %	3.91	2	9.213
4.	Online Course Materials	7 6.1%	5 4.3%	27 23.5 %	33 28.7 %	43 37.4 %	3.86	4	10 5.4 %	17 9.1%	34 18.3 %	59 31.7 %	66 35.5 %	3.82	4	3.528
5.	Electronic Project Reports	4 3.5%	2 1.7%	22 19.1 %	39 33.9 %	48 41.7 %	4.08	3	21 11.3 %	21 11.3 %	43 23.1 %	64 34.4 %	37 19.9 %	3.40	5	26.244
6.	E-Thesis and Dissertations	17 14.8 %	11 9.6%	53 46.1 %	26 22.6 %	8 7.0%	2.97	6	29 15.6 %	31 16.7 %	71 38.2 %	40 21.5 %	15 8.1%	2.89	6	3.833
						Average Mean	**3.85**						**Average Mean**	**3.68**		

(SD=Strongly Disagree, DA=Disagree, UD=Undecided, A=Agree, SA=Strongly Agree, M=Mean, R=Rank) (Table value 9.488, df 4)

Table 7 indicates the result of preferred information sources among Engineering and Arts & Science students. It is found that engineering students occupied the first place in overall preferred information sources and their secured mean score is 3.85.The second position is occupied by Arts& Science students in over all preferred information sources and their secured mean score is 3.68.The chi-square is also used to test the hypothesis that there is no significant difference in the preferred information source. The calculated value 26.244 for parameters is more than the table value (9.488). Hence, hypothesis is not significant.

7. MAJOR FINDINGS OF THE STUDY

1. It is found that majority of respondents were used internet to collect information for their projects (Table 2, Mean 4.11)

2. It is also analyzed that the engineering students are widely used internet to collect information pertaining to their academic performance when it is compared with Arts & Science students (Table 3, Average Mean Score 3.67).

3. It is further observed that most of the respondents were preferred "Google" Search Engine to locate information (Table 4, Mean 1.04).

4. It is ascertained that majority of Art & Science Students were used "Google" search engine to locate information on the internet. It is highest rate when compared with engineering students (Table 5, Average Mean Score 1.59).

5. It is further found that most of the respondents were used electronic journals to collect information for their academic performance (Table 6, Mean 4.21).

6. It is indicated that majority engineering students were preferred the electronic resource to collect information when it is compared with Arts and Science students (Table 7, Average Mean score 3.85)

8. CONCLUSION AND RECOMMENDATIONS

ICT plays a vital role in library and information service to introduce new service. At same time, the publishing industry also introduced a variety of resources especially in the digital forms .It enables the user community to locate information easily at least time. The search engine is another milestone in Information and Communication Technologies (ICTs). It searches information from a variety of sources and provides the specific information to user community in the desired forms.Based on the study, the following recommendations are made.

- The usage of scholarly content such as project reports, electronic theses and dissertationsby both categories of students is low. The respondents may also make use of these resources. It helps to invent new concepts or to solve the existing problems.

- The respondents may also prefer to use online course materials which are produced by the various organization. It will provide additional information for their examination because the contents are in precious format.

- The study is also recommended that the teachers and librarians may organize the information literacy programme regularly on search engines, search techniques and to evaluate the right resources for their academic and other purposes.

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