Usage of Search Engines for Information Retrieval by the Engineering Faculty in Tamil Nadu

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Abstract - **The academicians and researchers collect information of their interest utilizing the Web Search Engines for their day-to-day activities, teaching and research needs. But the users may be ignorant on the effective Search Engine to be used for the purpose. This article examines preference of the Search Engines by engineering faculty and their knowledge on Search Strategies.**

1. INTRODUCTION

The academicians and researchers are using Search Engines, to retrieve necessitated data / information for Web for their day-to-day activities, teaching, and research purposes. According to statistical data from Internet World Statistics on 31st December 2011, Internet users reached the number approximately to 2,267 million or 32.7% of the world population. But, as the Internet usage is sharply increasing day by day, the amount of data available via Web is increasing as well. That is why Internet users utilize Search Engines in order to locate the data / information they want, without wasting much time and avoiding the risk to get lost in the immense amount of data / information available on the net. About 85% of Internet users utilize Web Search Engines for their informational needs, while usage of Search Engines is the second most popular Web service, after Email. In this article, an attempt has been made to find-out preference of the Search Engines by Engineering Faculty and their knowledge on Search Strategies in Tamil Nadu.

A. Information Retrieval (IR)
Information Retrieval deals with the representation, storage, and access to documents or representatives of documents. An Information Retrieval activity is finding valuable information from the universe of knowledge, and begins when a user enters a query in to the system.

B. Search Engines
A Search Engine is a website or type of software that searches files across the Internet for specific keywords or phrases defined by the user.

WWW is itself a big resource of information. Search Engines provide a kind of interface for users to search the Web. A Search Engine basically has 3 components:
- Web Crawler
- Database
- Agent

Web Crawler goes to each and every site over Internet and indexes each word present in the page or sometimes few lines from the page. The index is stored in Databases of Search Engines with corresponding URL. When a search query is given, it searches in Databases of Search Engine and the result is generated.

C. Categories of Search Engines
Search Engines shall be categorized into three main types:

1. Individual Search Engines - text or image based Search Engines.
   Example:Google (www.google.com)

2. Subject Directories - Subject based Search Engines. Example: Yahoo (www.yahoo.com)

3. Meta Search Engines - Search Engines of Search Engines. Example: Askjeeves (www.askjeeves.com)

D. Engineering Colleges in Tamil Nadu
At present, more than 450 Engineering Colleges are functioning in Tamil Nadu under the control of Anna University, Chennai. The first Engineering College established in Tamil Nadu during 1886 was the College of Engineering (now named as Anna University), Guindy, Chennai (formerly Madras). Later on, a number of Engineering Colleges were established, and functioning as Colleges of state government, government-aided, self financing, etc.

II. OBJECTIVES

The Research is based on the following objectives:

1. To identify all major Search Engines used by the Engineering Faculty.
2. To survey the Engineering Faculty on retrieval of information through their preferred Search Engines.
3. To identify and suggest suitable Search Engines for Engineering Faculty.

III. RESEARCH METHODOLOGY

At present, more than 450 Engineering Colleges are functioning in Tamil Nadu. Out of which, about 300 Colleges were selected randomly for sending the questionnaires. Ten copies of the Questionnaire were sent to identified faculty members (Assistant Professors, Associate Professors, Professors and Research Scholars) of each of the 300 colleges, totaling to about 3,000 and requested them to fill-up completely and send back. For the study purpose, Research Scholars have been included under faculty.

Quantitative Analysis on use of Search Engines by the faculty of Engineering Colleges in Tamil Nadu is carried out. A detailed analysis of the collected data has been attempted as per the objectives stated earlier.

Percentage Analysis is one of the statistical measures used to describe the characteristics of the sample or population in totality. Percentage Analysis involves computing measures of variables selected for the study and its findings will give easy interpretation for the reader.

After considerable reminders and personal visits to the Colleges, 1,724 filled-in Questionnaires (57.7%) have been collected back. Analyzed data on various points is presented below in the form of Tables:

TABLE 1 DISTRIBUTION OF QUESTIONNAIRE AND RESPONSES RECEIVED

Gender	Responses received out of 3,000 questionnaires	Percentage
Male	767	44.5
Female	957	55.5
Total:	1,724	100

Observation: Out of 1,724 questionnaire 44.5% of the faculty members are male and 55.5% are female were responded to the questionnaires.

Inference: More responses received from the female faculty for the questionnaire.

TABLE 2 QUALIFICATIONS AND OCCUPATION OF THE FACULTY

Level of Education	Frequency	Percentage
Under Graduates	309	17.9
Post Graduates	1,380	80.0
Doctorals	13	0.8
Research Scholars	22	1.3
Total:	**1,724**	**100**
Occupation		
Professor	13	0.7
Associate Professor	64	3.7
Assistant Professor	1,625	94.3
Research Scholar	22	1.3
Total:	1,724	100

Observation 1: Out of 1,724 respondents, 17.9% of the Faculty members are Under Graduates, 80% are Post Graduates, 0.7% are Ph.D. holders, and 1.3% are Research scholars.

Inference 1: The Faculty members with Post Graduation are more in number when compared to the other groups.

Observation 2: Out of 1,724 respondents, 0.8% of the Faculty members are Professors, 3.7% are Associate Professors, 94.3% are Assistant Professors, and 1.3% are Research Scholars.

Inference 2: The Faculty members serving as Assistant Professors are more in number when compared to the other groups.

TABLE 3 COMPUTER LITERACY OF FACULTY

Computer Literacy	Frequency	Percentage
Expert	326	18.9
Good	1,214	70.4
Average	184	10.7
Total:	1,724	100

Observation: Majority of the Faculty members have good computer literacy. Out of 1,724 respondents, 18.9% of the faculty members are Experts in computer literacy, 70.4% have good computer literacy, and 10.7% have average computer literacy.

Inference: About 1,214 Faculty members (70.4%) out of 1,724 have Good computer literacy.

TABLE 4 USE OF SEARCH STRATEGY BY THE FACULTY

Search Strategy	Frequency	Percentage
Word / Keyword Search	1,202	69.7
Boolean Search	119	6.9
Both	403	23.4
Total:	1,724	100

Observation: The research survey was examined to retrieve information using Internet by the respondents. Data in the Table 4 shows that 69.7% of the Faculty members use Word / Keyword search, 6.9% use Boolean search, and 23.4% use both.

Inference: Most of the Faculty members use Word / Keyword search for their information requirements.

TABLE 5 INTERNET USAGE OF THE FACULTY

Use of Internet	Frequency	Percentage
Daily	1,138	66.0
Thrice weekly	311	18.0
Fortnightly	105	6.1
Monthly	74	4.3
Rarely	96	5.6
Total:	1,724	100

Observation: Table 5 indicates that 66 % of the Faculty members use Internet daily, 18% use Internet thrice in a week, 6.1% use fortnightly. 4.3% use Internet monthly, and 5.6% use rarely.

Inference: Most of the Faculty members use Internet daily.

Observation: Table 6 indicates that 3.8% of the Faculty members are using Internet for about 1 - 2 years, 16.7% using for about 3 - 5 years, and 79.5% are using for more than five years.

Inference: Most of the Faculty members have been using Internet for more than five years.

TABLE 6 NUMBER OF YEARS USING INTERNET FOR INFORMATION SEARCH

No. of Years Using Internet	Frequency	Percentage
1 - 2	66	3.8
3 - 5	288	16.7
Above 5	1,370	79.5
Total:	1,724	100

TABLE 7 INFORMATION SEARCH FIELD OF THE FACULTY

Prepare to Search	Yes		No		Total
	Count	%	Count	%	
Author(s)	347	20.13	1377	79.87	1724
Title	601	34.86	1123	65.14	1724
Author(s) and Title	629	36.48	1095	63.52	1724
Subject	330	19.14	1394	80.86	1724
Place of Publication	7	0.41	1717	99.59	1724
Publisher	66	3.83	1658	96.17	1724
ISBN	11	0.64	1713	99.36	1724

Observation: Table 7 shows that 36.48% of the Faculty members use combination of both Author(s) and Title for searching, 34.86% Title, followed by other fields - Author, Subject, and Publishers.

Inference: It is inferred that most of the Faculty members are using combination of both Author(s) and Title for searching.

TABLE 8 PURPOSE OF SEARCHING INTERNET BY THE FACULTY

Purpose of Searching Internet	Yes		No		Total
	Count	%	Count	%	
Research needs	805	46.69	919	53.31	1724
Current / up to date information	600	34.80	1124	65.20	1724
Teaching	935	54.23	789	45.77	1724
Finding current / old information	458	26.57	1266	73.43	1724
Career development	488	28.31	1236	71.69	1724
Preparing seminar / conference paper	411	23.84	1313	76.16	1724
Communication	391	22.68	1333	77.32	1724
Publication	168	9.74	1556	90.26	1724
Administration	62	3.60	1662	96.40	1724
Recreation	241	13.98	1483	86.02	1724

Observation: Table 8 indicates 54.23% of the Faculty members are searching the Web for the purpose of teaching, 46.69% for the purpose of research needs, and 34.80% for the purpose of current / up-to-date information, followed by career development, finding current and old information, communication, etc.

Inference: Most of the Faculty members searching Internet for the purposes of teaching and research needs.

TABLE 9 PLACE OF SEARCHING INTERNET BY THE FACULTY

Place of Searching Internet	Yes		No		Total
	Count	%	Count	%	
At Home	1,214	70.42	510	29.58	1,724
At Work	846	49.07	878	50.93	1,724
Dormitory	7	0.41	1,717	99.59	1,724
At The Library	2	0.12	1,722	99.88	1,724
Browsing Centre	6	0.35	1,718	99.65	1,724

Observation: Table 9 shows that 70.42% of the Faculty members access Internet at their homes and 49.07% access at their Work Place. Rest are negligible.

Inference: Most of the Faculty members access Internet at home and at workplace.

TABLE 10 MOST FAVORITE SEARCH ENGINE

Favorite Search Engine	Frequency	Percentage
Yahoo	226	13.1
Google	1,401	81.3
Rediff	18	1.0
MSN	58	3.4
AltaVista	21	1.2
Total:	1,724	100

Observation: Table 10 indicates that 13.1% of the Faculty members use Yahoo, 81.3% use Google, 1% use Rediff, 3.4% use MSN, and 1.2% use AltaVista.

Inference: It is inferred that most of the Faculty members use Google. Hence, Google Search Engine is the most Favorite Search Engine of the Faculty members for searching information on the Internet.

IV.CONCLUSION

It is universally accepted that all human beings are in need of suitable information for their day-to-day activities, irrespective of their profession. Although, there are considerable number of methods for collection of data / information, at this juncture, users, especially academicians and researchers are fascinated to use Web / Internet extensively. The users have the option of selecting suitable Search Engine, among the big lot such as, Google, Yahoo, AltaVista, Rediff, etc., for searching Web / Internet and retrieve required information. Based on the analysis of the data, it was found that the Engineering faculty preferred to use Google followed by Yahoo, MSN, AltaVista, and Rediff.

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