WHICH SEARCH ENGINE IS THE MOST USED ONE AMONG UNIVERSITY STUDENTS?

Nadire Cavus, Kezban Alpan
Department of Computer Information Systems
Near East University, Cyprus
nadirecavus@neu.edu.tr, kezban_alpan@yahoo.com

Abstract: The importance of information is increasing in the information age that we are living in with internet becoming the major information resource for people with rapidly increasing number of documents. This situation makes finding information on the internet without web search engines impossible. The aim of the study is revealing most widely used search engine among university students. The investigation described in the study was carried out with 300 random voluntary students. The results obtained were analyzed using descriptive methods and constructed. The results indicated that Google is the most widely used search engine by students. To enlarge the scope of the research, number of universities and students might increase. The results of this study add empirical data to the relevant field and are expected to help computer science students, experts, instructors, and everyone else who wants to reach information via the internet.
Keywords: Search engine; information retrieval; internet; Google; Yahoo; Bing, Ask, AOLSearch.

1. INTRODUCTION

Search engine is an information retrieval system based web site that helps users to retrieve any information from huge internet database and it is a kind of tool that crawls in the web according to user direction and it will record everywhere it has been and everything user look for (Capra & Quinones, 2005). The search engine software is a kind of information retrieval program and it has two major task: Searching through the billions of terms recorded in the index to find matches to a search and ranking retrieved records in order to decide most relevant (Chowdhury, 1999) Usually, internet users prefer search engines to access required information from the internet because search engines are open for public use with billions of web sites and during last years, there are many important researches about this area. Bases of search engines are information retrieval systems which are improving for 50 years but according to architecture and process specifications, search engines shows some differences form information retrieval systems (Lavrence & Giles, 1999).
One of the main components of search engine is a robot which is called as Web Crawler (or Spider) and it works as a network surfer and it downloads a searched web site to local disk. Web crawler is a kind of computer program that browses the Web in a methodical, automated way (Hu et al., 2001). This process is called as Web Crawling or spidering. Search engines use spidering to provide up-to-date information. The most important aim of web crawler is copying all visited web pages for later searches to make next searches faster. Web crawlers can also used for automating maintenance task on a web site like checking links or validating code. Also web crawlers are used to collect specific information from Web pages (Batzios et al., 2007). Even web crawlers are very easy programs, they finds million of documents and helps to IR systems to retrieve correct information in easy way. Also sometimes, crawler can find the information which is hiden by website owner or webmaster. Because of this, many web crawlers has to work according to robots exclusion protocol. Some search engines use more than one web crawler for different purposes but not all web crawlers are works to find information. Web crawlers also may work as link checker, page change monitor, validator, file transfer protocol client or web browser (Dolowitz, Buckler & Sweeney, 2008).
There are two types of search engines: first type is the search index which is a vast catalog made up of every word taken from all the web pages searched by crawler. Google is an example for this kind of search engines (Schwarts, 1998). Other type is the web directory is compiled by real people who organize web pages into categories and subcategories and they lets user to search very effectively. Yahoo is a kind of web directory and a good example for this kind of search engines. Most popular search engines are combination of these two principles (Cooper, Milner & Worsley, 2000). Today, Google is working as primary information resource of internet users (Ganzha, Paprzycki & Stadnik, 2010). If we check the statistics about search engines for last four years, we can see that Google and Yahoo! are leading the top search engines list since 2006. Since 2006, Google is the top and most used search engine. Yahoo! follows Google at the second place. Between 2006 and 2008, Msn/Live was the third most used search engine but in 2009, Msn/Live gave the place to their new and successful search engine Bing. These ranks determined according to the preferences of users. At the end of 2009,

Google is most used search engine, Yahoo! is the second one and Bing is the third one. Bing followed by Ask and AOLSearch is the fifth with (Hitwise Press Releases, 2010).

The Aim of the Study

The main purpose of this thesis is to find out which search engine is the most used one among university students. The study attempts to find answers to the following questions:

1. What are the search engine usage frequencies of students?
2. What are the students' criterions for search engine prefers?
3. What are the students' opinions about search engines?
4. What are the differences between search engines?

2. METHODOLOGY

Participants

The research was conducted at Near East University in Turkish Republic of Northern Cyprus during 2009-2010 fall semester and 300 voluntary students from 15 different faculties took part in the study. Twenty different students were selected randomly from each faculty with 20-22 age average. Faculties that took part in the research were Faculty of Atatürk Education, Faculty of Maritime Studies, Faculty of Dentistry, Faculty of Pharmacy, Faculty of Arts and Sciences, Faculty of Fine Arts and Design, Faculty of Law, Faculty of Economics and Administrative Sciences, Faculty of Communication, Faculty of Architecture, Faculty of Engineering, Faculty of Health Sciences, Faculty of Medicine, Faculty of Performing Arts and Faculty of Tourism. Departments of students are Medicine, Computer Education and educational Teaching, Guidance and Psychological Counseling, Elementary Teaching, History Teaching, Deck, Maritime Business Administration and Governance, Dentistry, Pharmacy, Turkish Language and Literature, Psychology, Graphic Design, Law, Business Administration, Economics, International Relations, Computer Information Systems, European Union Relations, Radio-Television-Cinema, Journalism, Public Relations and Advertising, Architecture, Interior Design, Computer Engineering, Mechanical Engineering, Nursing, Nutrition and Dietetics, Theater, Author and Tourism and there are students from undergraduate, masters and PhD degrees.

Data Collection

"The Opinions of University Students about Search Engines" named questionnaire was prepared by the author and confirmed by 3 experts. The questionnaire has reliability Cronbach's alpha of 0.89. The questionnaire consisted of 3 parts. Part 1 aimed to collect personal information from the respondents with 6 questions. The part aimed to gather general information about some subjects like faculty, department and etc. Part 2 of the questionnaire consisted of 6 questions again and it is focused on gathering information about computer skills of respondent students. This part brought information about why and how students are using computer and internet. Part 3 of the questionnaire was about SE usage and it consisted of 9 questions. This last part reveals which SE is the most used one and why it is preferred. Also this part gathers information about complaints of students about search engines.

Data Analysis

During the survey, a questionnaire was used to collect data. After that SPSS 12.0 was used to analyze and interpret the collected data. Frequency, mean, standard deviation, one sample *t*-test and percentage methods were used during the analysis process. Mean difference is categorized from 1 to 6 as always used and never used.

3. RESULTS

Search Engine Usage of Students

Table 1: Search engine usage frequencies of students

	Always Use	Mostly Use	With Another	Rarely Use	Never Heard	Never Use	Don't Like
Google	74.30%	15.70%	9.30%	0.30%	0%	0.30%	0%
Yahoo	2.30%	5%	9.30%	20.70%	52.70%	1.30%	8.70%
Bing	0.30%	0.70%	3%	5.70%	51%	34.70%	4.70%
MSN/Live	4%	5%	13.30%	9.30%	49.70%	6%	12.70%
Ask	0.30%	0.30%	1.30%	3.70%	52.70%	36.70%	5%
AOLSearch	0.30%	0.30%	0.70%	1.70%	56%	36%	5.30%

According to Table 1, 74.30% of students always use Google. 15.70% of students stated Google as mostly used one. The Google is enough alone for students and only 9.30% use Google with another search engine if they can not find what they are looking for. Google is working as primary information resource of internet users (Ganzha, Paprzycki & Stadnik, 2010). This situation makes Google the most famous search engine for students in this research. With respect to Yahoo, 52.70% of students said that they never heard this search engine and 1.3% never used Yahoo. Only 2.3% indicate Yahoo as their favorite. On the other hand, results indicate that Bing has never been used by 34.70% of students and 51% of students indicating that they have never heard of such a search engine. 4.70% tried but did not like the Bing and only 0.30% indicated Bing as favorite. Furthermore, MSN/Live never been heard by 49.70% of students and 12.70% of students tried and didn't like it. Only 4% of students said they always use this search engine. The other search engine Ask have not been used by 36.70% of students and 52.70% of students never heard about this SE. Ask is favorite search engine of 0.30%. On the other hand, results indicate that 36% of students have never used AOLSearch as search engine and 56% have never heard of it. Exactly as Bing and Ask, only 0.30% chooses AOLSearch as favorite search engine.

Differences Between Search Engines

Table 2: One-sample *t*-test for search engine usage frequencies among students

						95% Confidence Interval of the Difference	
SEs	N	Mean	SD	Sig. (2-tailed)	*T*	Lower	Upper
Google	300	1.37	0.69	0.00	34.15	1.29	1.45
Yahoo	300	4.55	1.25	0.00	62.98	4.41	4.69
Bing	300	5.29	0.86	0.00	106.39	5.19	5.39
Ask	300	5.38	0.77	0.00	120.54	5.29	5.47
AOLSearch	300	5.43	0.68	0.00	137.66	5.35	5.50
MSN/Live	300	4.64	1.47	0.00	54.68	4.48	4.81

*Significant at the 0.05 level of confidence

According to the result of One Sample *t*-test for search engine usage of students, there is significant difference between selections of SEs. Google is the one which students always use with 1.37 mean differences. Beside Google, other search engines' means stacked between being rarely used search engine or never used search engine. Yahoo and MSN/Live are rarely used search engines with 4.55 and 4.64 mean differences. On the other hand; Bing, Ask and AOLSearch has never used search engine mean with 5.29, 5.38 and 5.43 mean differences.

Students Criterions for Search Engine Prefers

There are some factors which influence students in their preference of a search engine. These factors include homepage style, result page style, number of retrieved results, number of retrieved relevant results, popularity of search engines, and easy user interface (Bitirim, Tonta, Sever, 2002). Figure 1 represents students' most important preference criterions for this study.

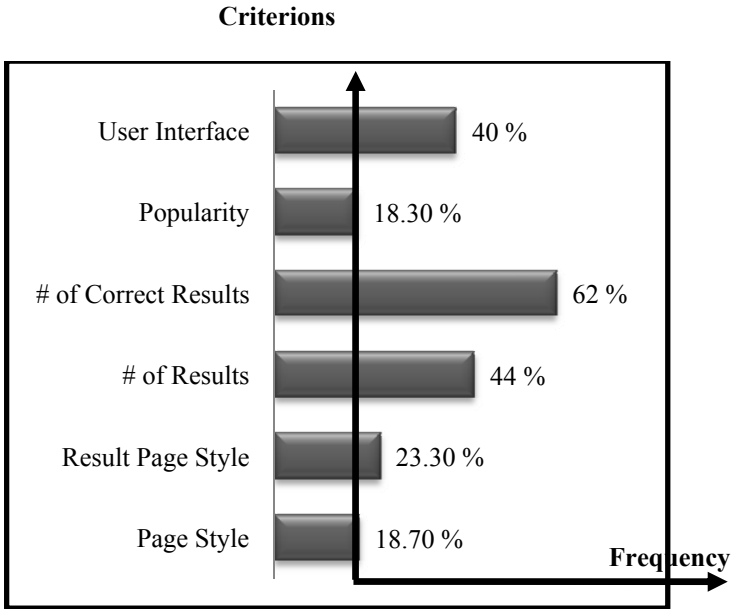

Figure 1: Important criterions for SE preferring

As Figure 1, the most important criterion for students is number of correct results with 62% frequency. Number of results is another important criterion and has 44% frequency. User interface has 40% frequency and it is another important criterion for students that influence them for search engine preferring. While result page style is important for 23.30% of students, 18.70% gives importance of page style. Popularity of search engine has the lowest importance with 18.30% frequency for students.

Students' Opinions about Search Engines

Opinions of students about other features of search engines are indicated in the Figure 5.3.

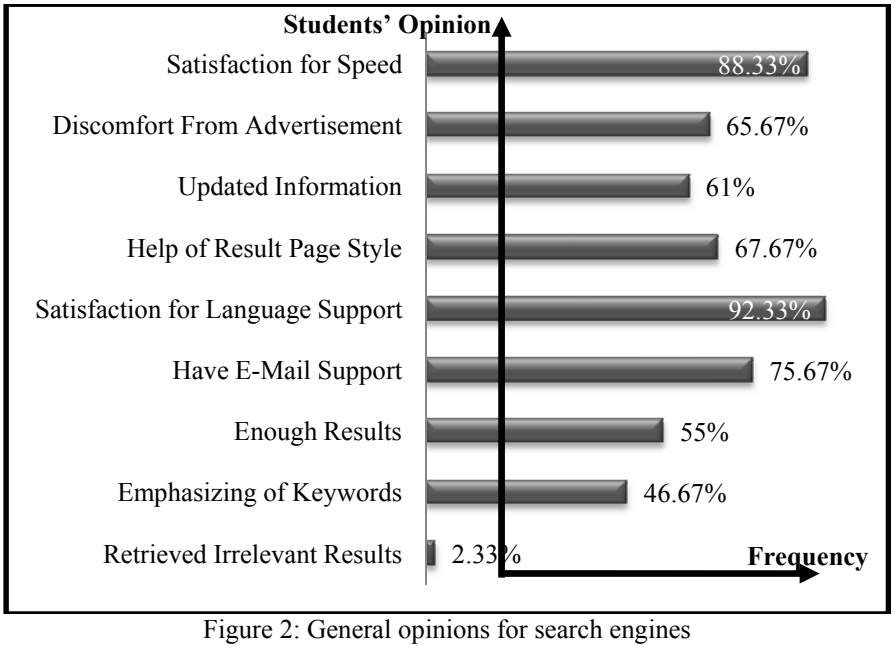

Figure 2: General opinions for search engines

As seen in Figure 2, students satisfied with the speed of their favorite search engine is a total of 88.33%. Nearly all search engines publish some advertisements, especially on the result page. Students evaluated the published advertisement on search engines and 65.67% of them underlined that advertisements bother them. 61% of

students feel that their favorite search engine is updated daily. As clarified before, style of result page is very important for user. Also 92.33% of students are satisfied from language support of their favorite search engine. 75.67% of students use e-mail support of their favorite search engine. 55% of students needs to see enough results at the end of their searches. Emphasizing of keywords helps 46.67% of students and 2.33% of students complains about retrieved irrelevant results during search process.

4. DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

In Near east University, Google is the most used search engine and Yahoo is the rarely used one but students generally have never heard of the rest of the SEs including Yahoo with 52.7%. These search engines are the ones that are leading the sector in the world but Near East University students may not well enough informed about these search engines. Exactly as in our study Tezer and Bicen (2009) stated Google as mostly used search engines in Near East University. Most important criterion for users is number of retrieved correct results and also number of results in another important criterion. Because user interface is another important criterion, homepage style and result page style is important as well. Overall results of this study add empirical data to the relevant field and are expected to help computer science students, experts, instructors, and everyone else who wants to reach information via the internet.

In addition, we can make the following proposals to future researches in this field:

- Some conferences or seminars may arranged by experts in order to give information to students about search engines.
- Spreading this research among universities in Cyprus.
- Applying the research on Turkish Republic universities.
- Applying the research on European universities.
- Increasing number of students.

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