The utilization of search engines by students of the Library and Information Science Program at Universitas Padjadjaran

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Abstract. Search engines have become an integral part of student learning activities. This study aims to see how the use of search engines by students, especially by students of the Library and Information Science Program, Faculty of Communication Sciences, Universitas Padjadjaran. This study uses the mixed method. The research data was obtained through questionnaires, in-depth interviews, observations and literature studies. The results of the study showed that in learning activities, the respondents used search engines to find the references for college assignments and thesis writing material. The students also use search engines to meet daily information needs, solve problems, increase knowledge, reduce doubts, clarify things, entertain, fulfill curiosity about others, etc. The retrieval technique used by students is by using keywords/queries, Boolean logic, query strategies in the form of a brief search and using the advanced search feature. This research is expected to contribute to the university in supporting online-based learning facilities for students.

1. Introduction

Search engines are the programs that are used to search the information on the World Wide Web and FTP servers by using keywords [1]. In the beginning, the term of search engine refers to the hardware used for text search, but currently, search engines refer to the use of software systems for information retrieval systems from huge databases using a set of queries [2]. Search engines technology has developed along with the development of website technology. The number of search engine users is also increasing rapidly every day. In 2017, SimilarWeb and Alexa noted that in 2017 and early 2018,
Google was still the most visited search engine by the cyber community with the average visits between 07.07-07.35 visits per day [3]. Meanwhile 10 search engines with the highest market share in June 2018 were Google (71.98%), Baidu (14.04%), Bing (7.76%), Yahoo (4.44%), Yandex (0.92%), Ask (0.33%), DuckDuckGo (0.23%), Naver (0.12%), AOL (0.05%) and Dogpile (0.04%) [4].

The Inclusive Index 2018 shows a definite trend of internet usage, where the access and quality of internet services are increased followed by lower costs [5]. In tertiary institutions, one aspect of the assessment in a web-based university ranking emphasizes the importance of the presence of a college on the internet [6]. For this reason, universities provide various information for the public online. Not only information about universities, but student learning resources are also now wide open on the internet. Search engines become gateways used to track various information needed by students. Some research results show that some students depend on search engines and other online learning resources [7], [8]. This study aims to see how the use of search engines by students, especially by students of the Library and Information Science Program, Faculty of Communication Sciences, Universitas Padjadjaran.

The research covers the understanding of search engines by students, what search engines are used, since when they use search engines, why they use search engines, the frequency of using search engines, what information is searched and how they use search engines. This research is expected to contribute to the university in supporting online-based learning facilities for students.

2. Method
This study uses a mixed method. The mixed method combines qualitative and quantitative methods. This research method is used to obtain a better understanding of research problems [9]. The study was conducted in September 2017-January 2018. The population in this study were the Library and Information Science Students in class A, B, and C in 2014 totaling 120 people. The sample is determined using the Solvin formula as follows [10]:

\[ n = \frac{N}{1 + Ne^2} \]  \hspace{1cm} (1)

\( n \): number of samples
\( N \): Number or population
\( e \): error tolerance

\[ n = \frac{120}{1 + 120 \times 0.1^2} = \frac{120}{1+1.2}= \frac{120}{2.2}=54.54 \approx 55 \]

thus a sample of 55 respondents was obtained.

Research data were obtained through questionnaires, in-depth interviews, observations and literature studies. The results of the study were analyzed through frequency distribution tables for questionnaire data, and descriptions accompanied by interpretations for the data obtained through interviews. Frequency interpretation in the frequency distribution table is based on Arikunto's opinion [12] that is entirely (100%), almost entirely (76-99%), most (51-75%), half (50%), almost half (26-49%), a small portion (1-25%), none (0%) [11].

3. Result And Discussion

3.1. The Definition of Search Engines according to the Students of Library and Information Science Programs Universitas Padjadjaran
To find out what the students think about the meaning of search engines, we interview the students who are the research respondents. From the answers given by students there are four categories of understanding of search engines; search engines which are the information retrieval systems, search engines which are the information retrieval systems, search engines which are the information retrieval columns and search engines which are a system or search engine to find something we want using
keywords. Furthermore, students also give some examples of search engines; they are Google, MSN, Bing, Ask, Yahoo, Lycos, AllTheWeb, Yandex, Baidu, Sin, Live W, Owl, Infospace, MyWebSearch, Altavista, Google scholar and AllTheWeb.

Based on the results of the literature study, it can be seen that the search engines are an information retrieval system that can collect extensive information using queries or keywords [1], [2]. Thus the students have known the meaning of search engines. This can be seen from the respondents' answers about the meaning and examples of search engines given.

3.2. Search Engines Used by the Students

Almost all respondents (80%) know the internet and use the search engines since junior high school, and a small percentage of them (20%) have known the internet and used search engines since elementary school. The search engines that are most often used by almost all respondents (90%) are Google, only a small percentage use Yahoo (0.6%) and Bing (0.4%). Respondents' reasons for using Google can be seen in Table 1.

| No. | Reason |
|-----|--------|
| 1.  | Simple, comfortable to use and very familiar in the community, more accurate than other search engines. For example, to e-journal enter Google Scholar. The results are many, entirely relevant, as well as many other sources, such as journals, e-books, etc., and the results are received quickly. |
| 2.  | Only by using keywords we can get relevant results and more search results. |
| 3.  | Look for anything you can directly because they already have a database. For example, if you want to find regional news, so searching, you can immediately get the information. We have a different result if we type the link www. (Dot), bother. The point is more accessible to use search engines. |
| 4.  | Can be done anywhere and anytime. |
| 5.  | Basic reference information (Ask Google before ask) |
| 6.  | Utilization of the development of information technology and internet networks |
| 7.  | Because the information they have is very much. |
| 8.  | Easier, more famous, relatively easier to use, more resources, the result more specifically because it can use Boolean logic. |
| 9.  | Google is the biggest search engine and is usually embedded in newly purchased PCs. |
| 10. | Google is very usable; because Google can almost do everything, both offline and online. Even one of the speakers mentioned, “ask Google before ask.” |
| 11. | Google is connected to almost the entire web, other search engines, etc.. |
| 12. | Google has complete features, ranging from folders, translate all languages, education, and more. |
| 13. | Google provides up-to-date information than other search engines and provides many and varied search results. Also, the search results are quite relevant and very quickly obtained what is being traced. |
| 14. | Already accustomed to using Google in searching for everything, whether on cell phones or laptops/computers. |
| 15. | The appearance of Google is more ‘easy to see’ than other search engines. |
| 16. | Follow the others, because almost everyone uses Google. |

A small percentage of respondents use Yahoo to search for news, a small percentage of other respondents use Bing because the browser's initial setting on their computer is Bing.

3.3. The Frequency of Using the Search Engines

Almost all respondents (91%) said that they used search engines very often and only a small percentage of respondents (9%) said that they only opened search engines when they needed it, such as when they wanted to know the terms that were not understood or when there were the college assignments. Most respondents said that they used search engines very often because search engines were like necessities. At almost every opportunity they use search engines, almost every day there are the college assignments so they always search for information, even when there are no college
assignments, they still use search engines to browse general things outside the lecture material, when there are things that are not understood, then immediately search on search engines. A respondent says that he uses search engines as often as he sees the sun. The duration of the use of search engines per day between 3-5 to some says 24 hours because it can be accessed via a mobile phone that is always in hand.

3.4. The Information Searched by Students through Search Engines

There are many things that respondents look for through search engines as shown in Table 2.

Table 2

| No. | The Information Searched by Students                                      |
|-----|--------------------------------------------------------------------------|
| 1.  | Reference to assignments from articles, journals, theses, article reviews.|
| 2.  | Looking for seminar proposal material and thesis.                        |
| 2.  | Search for a person's profile and life                                   |
| 3.  | Tracing information about popular idols                                  |
| 4.  | Looking for the problem-solving tips and tricks, software with anime and comics.|
| 5.  | Daily information needs                                                  |
| 6.  | To search for the terms that are not understood.                         |
| 7.  | When too confused about where to look, start with Google then go directly to their respective specialties, for example for music there is Spotify, movies on YouTube, memes on Instagram.|
| 8.  | Latest news for the category of KPOP news, politics, current news, search for songs / MV, pictures, videos, entertainment, health articles, information about futsal or soccer, club favorites, addresses, photos, opening hours, looking for hobby items, place recommendation |
| 9.  | Other things you want to know                                            |

From Table 2, it can be seen that in learning activities, the respondents use search engines to find references for college assignments and thesis writing material. The respondents also use search engines to meet the daily information needs, solve problems, increase knowledge, reduce doubts, clarify things, entertain, fulfill curiosity about others, etc. The role of search engines is significant in growing the habit of reading and learning in the digital era [12]

3.5. The Techniques Used for Tracking the Information in Search Engines

The technique used by respondents in tracing information through search engines can be seen in Table 3.

Table 3

| No. | Information Retrieval Technique                                      | Frequency | Percentage (%) |
|-----|---------------------------------------------------------------------|-----------|----------------|
| 1.  | Keywords/queries, format filetype:pdf, filetype:ppt, pdf, etc       | 22        | 40             |
| 2.  | Boolean logic                                                      | 19        | 35             |
| 3.  | Strategy query: brief search with quotation marks                  | 8         | 15             |
| 4.  | Feature advance search                                             | 6         | 10             |
| Total|                                                                     | 55        | 100            |

From Table 3, it can be seen that almost half of the respondents used keywords/queries and Boolean logic in the information retrieval, and only a small proportion of respondents used query strategies and advance search features. Furthermore, the respondents also mentioned that search engines are effective if they can enter the right keywords. If keywords are incorrect, then the use of search engines is not effective.

4. Conclusion

From the results of the study, it can be concluded that students of the Library and Information Science Program at the Faculty of Communication Sciences Universitas Padjadjaran have understood the
meaning and function of search engines. They use search engines, especially Google very often. In learning activities, the respondents use the search engines to find references for college assignments and thesis writing materials. The respondents also use search engines to meet daily information needs, solve problems, increase knowledge, reduce doubts, clarify things, entertain, fulfill curiosity about others, etc. The retrieval technique used by students is by using keywords/queries, Boolean logic, query strategies in the form of a brief search and using the advanced search feature.

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