UTILIZING ONLINE DATABASE SYSTEM AMONG UNDERGRADUATE STUDENTS

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Abstract- Undergraduate students are generally required to produce their coursework assessment work with research writing quality by using valid academic sources that are available on the library online databases. Studies discover that most undergraduate students rely too much on general Internet resources. The dependency on these Internet resources signifies that they lack skills in securing online information from other valid academic resources. It also indicates their lack of awareness on the importance of obtaining the desired information from valid sources conveniently. This scenario has led to the underutilization of university's information facilities among undergraduate students who form the majority in university. Therefore, this research mainly focuses in investigating how online databases could be of assistance and useful particularly among undergraduate students for their learning and research purposes. It shall promote the use of online databases as well as propose a conducive electronic environment for the students. A series of interviews with the administrative officers of current online database system were conducted together with the study of the current practice of doing research among undergraduate students. As a result, an Ishikawa diagram has been developed that is representing the causes of the usage of online database system among undergraduate students and the additional features for online database system has been discovered that can support the tasks of learning and research. The evaluation of a proposed framework will be followed by a prototype in order to inculcate research skills among undergraduate students. This study shall improve the undergraduates' skill in searching for academic sources, increase their awareness in evaluating the source of information obtain and consecutively expand the utilization of online databases subscribed by the university.

Keywords- Online database, Information Searching Behavior, Learning, and Research.

I. INTRODUCTION

The online database is a platform for the user to search for scholarly information where it consists of several journals, in particular, disciplines and can be accessed via online. Online databases are usually being subscribed by the universities in order to support the research works among students. According to Ani and Ahiauzu (2008) online databases are collections of electronic information sources by publishers from various fields and disciplines. For Koprivica and Grabovac (2010) online databases are organized sets of data, in which each unit is marked and described in the same way. Online databases can also be defined as electronic collections of information accessible via the Internet, often containing journal articles, or references to such articles (Guruprasad, et.al,2012). In other words, online databases are organized sets of scholarly and professional publications in the electronic form accessed through a computer network.

In International Islamic University Malaysia (IIUM), online databases being subscribed based on the request by lecturers, the recommendation by the Kulliyyah (faculty) and also the suggestions from other librarians from other universities. However, the online databases might be unsubscribed due to the lack of usage. The usage of online databases are beneficial to the users due to high authority, giving related results and suitable coverage. However, it is only popular only among postgraduate students and lecturers, but not undergraduate students. Some of the undergraduate students'shifted to use a search engine when there was an unavailability of online databases off campus, more user-friendly and free of charge. It is important for undergraduate students to have awareness on the usage of online databases in order to get trusted and reliable resources to produce a quality research projects, assignments and also their final year projects.

Hence, this study embarks on the following objectives:

1. To study the factors of underutilization of online database system among undergraduate students.
2. To discover the solutions on promoting online database usage among undergraduate students. This will involve the suggestions of potential features that can be added to the current online database system to support undergraduate students in learning and doing research.

In order to fulfill these objectives, a study on the current practice of undergraduate students when they are doing research has been conducted by reviewing and analyzing the current literature. In addition, a series of interviews with the system administrative for current online database system has also been conducted for the scope of IIUM undergraduate students.

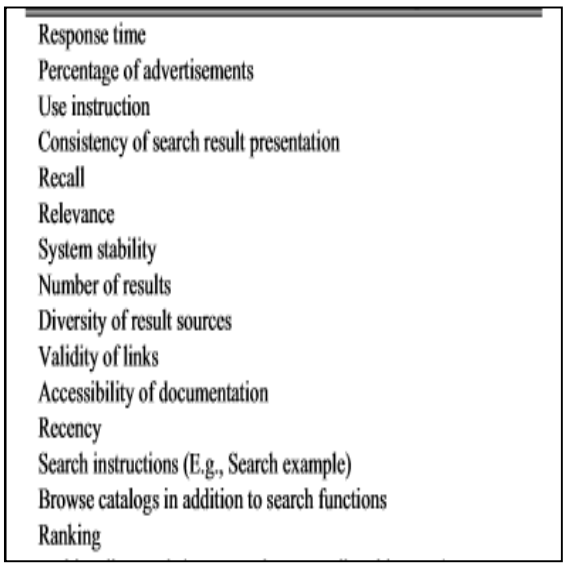
II. REVIEWING THE LITERATURE: CURRENT PRACTICE OF DOING RESEARCH AMONG UNDERGRADUATE STUDENTS

A research has been conducted by a group of researchers from University Teknologi Mara (UITM) to see the users' satisfaction on using online databases. The study uses three qualities as predictors to evaluate user satisfaction of online database service; information quality, systems quality, and service quality. Compared to information quality and systems quality, service quality has the lowest ranked of the mean score (4.70) with 63.46% of the positive statement by respondents. Similar to information quality and systems quality, the respondents of this study had also rated highly for the service quality. The mean score for service quality is positive as the other information quality and system quality dimensions. Conversely, the overall mean score of service quality is the weakest (Nordin, et.al, 2012). It shows that the information system is good, but the service by the librarians is less adequate in assisting the users. The researchers did not get opinions by the librarians. Another research revealed that majority of the respondents agreed that library should produce a guide on information searching skills. In addition, librarians and online database providers can make collaboration to deliver effective user education in utilizing online database (Kassim, et.al, 2008, 2009). More importantly, this is to ensure that users would be able to get full benefits of online database service, can be fully utilized by users and effective cost-benefit can be achieved as online databases are expensive and is the major expenses for the library. Different aspects of online database usage have increasingly become the focus of attention of the research community around the world. Stojanovski (2000) found that most searches through the Centre for Online Databases were conducted by users aged between 26 and 35. With the growing age the number of users decreased. In terms of disciplines, online databases were most frequently used by researchers in biomedicine and chemistry, whereas social sciences and physics took the positions of lowest usage, as those researchers tend to rely more on print-based resources. Within the study among scientists and teaching staff at a Croatian university regarding changes they experienced during the use of ICT in scientific communication, Vrana (2010) examined how much they used full-text databases. Out of 151 participants, 106 (70.2%) confirmed that they used such e-resources. Britannica Concise Encyclopedia defines a search engine as a tool for finding information, especially on the internet or World Wide Web. Barron's Marketing Dictionary describes a search engine as a computer program that has the capability of searching through large volumes of text or other data for specified keywords and then returning a list of files or documents where the keywords were found.

At Yonsei University in Seoul, Korea a survey was conducted and 233 undergraduates' students have participated and the finding revealed that search engines, such as Google, Naver and Daum were the most frequently used sources of information where 16.8% students selected search engines as a source to begin a search task compare to digital libraries 4.5%, Google Scholar 7.5% and scholarly online databases 8.3% (Lee, Paik, & Joo, 2012).

It is supported with Purdy(2012) reported that 73.6 percent which are 406 out of 552 students stated that their favorite platform to find research resources were Google and Google Scholar when the survey was conducted at Midwestern University. Even though Google and Google Scholar were in the same brand, most of the students preferred Google search engine compare to Google Scholar. A study has found that Google brand elicited positive emotional responses from the students they observed and interviewed. It is far different with library databases and library website. Both were selected only by 75 out of 552 which are 13.6 percent of students (Hargittai, et.al.. 2010)

According to Chuang & Wu (2007), the search engines characteristics are the main factor that incline users to use the search engine to find information. The characteristics including response time, relevance, precision, a number of results, stability and dead. These characteristics are the core competencies of a search engine, whose purposes are to give users a set of search results according to the given keywords. The capabilities of search engine that can provide the undergraduates students with exact information that they needed in a short response time is one of the factor influence them to use the search engine. Furthermore, the relevance answer that search engine can provide to the students is another factor that influence students to use the search engine. Figure 1 below listed the search engine characteristics that became factors influenced students to use the search engine to find information.



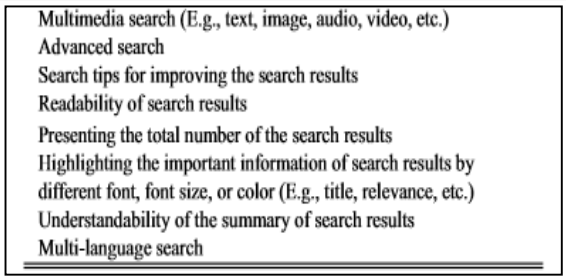


Figure 1: Search Engine Characteristics

Figure 1 shows Search Engine Characteristics that was adapted from Chuang, et.al., (2007). Other than that, Purdy (2012) also highlighted the ten factors influenced students to choose research resources as their favorites. The research resources and factors influenced the student to choose research resources as their favorites are illustrated in Figure 2 and Figure 3 below.

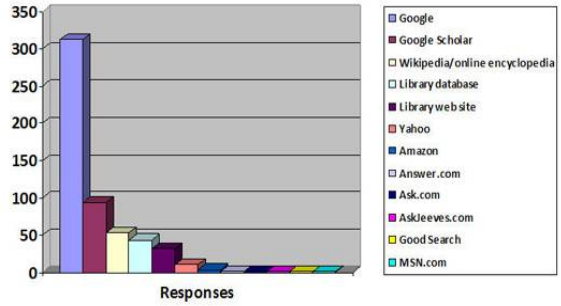


Figure 2: Research Resources Students Selected as Their Favourite

Figure 2 shows the Research Resources Students Selected as Their Favorite that was adapted from Purdy,J.(2012).

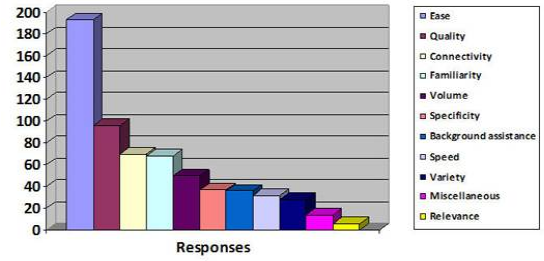


Figure 3: Factors Students Chose Research Resources as Their Favourite.

From Figure 2 and Figure 3, the most favorite research resources that selected by students is Google search engine compare to other search engines and online platforms. Factors that influenced the student to choose Google search engine as their most favorite research resources is due to the ease of use that Google search engine provided. Moreover, the search engine features also are one of the factors that influenced students to use the search engine to find information. Lee, Paik, & Joo (2012) summarize the selection factors of resource type based on resource features and it is illustrated in details in Table 1 below.

Table 1: Selection Factor of Resources Types-Resource Features.

	Dimension: Resource feature									
	Credibility	Coverage	Ease of under-standing	Accessibility	Recency	Portability	Efficiency	Ease of use	Language	Free access
Experts & professionals	5 (20.8%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Professors & lecturers	3 (2.9%)	2 (1.9%)	2 (1.9%)	4 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Librarians	1	0	0	0	0	0	0	0	0	0
Colleagues & friends	0 (0.0%)	2 (1.6%)	4 (3.3%)	14 (11.4%)	0 (0.0%)	0 (0.0%)	5 (4.1%)	0 (0.0%)	1 (0.8%)	0 (0.0%)
Family	0 (0.0%)	0 (0.0%)	1 (4.3%)	9 (39.1%)	0 (0.0%)	0 (0.0%)	2 (8.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Books	15 (13.2%)	17 (14.9%)	3 (2.6%)	4 (3.5%)	1 (0.9%)	2 (1.8%)	2 (1.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Magazines	0	2	0	0	0	0	0	0	0	0
Research reports	4 (19.0%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	3 (14.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Lecture notes	1	0	2	0	0	0	0	0	0	0
Search engines	0 (0.0%)	32 (17.3%)	0 (0.0%)	22 (11.9%)	1 (0.5%)	0 (0.0%)	26 (14.1%)	33 (17.8%)	4 (2.2%)	0 (0.0%)
Individual Web pages	0 (0.0%)	10 (11.0%)	2 (2.2%)	10 (11.0%)	2 (2.2%)	0 (0.0%)	2 (2.2%)	1 (1.1%)	0 (0.0%)	1 (1.1%)
Organizational Web pages	26 (32.5%)	2 (2.5%)	0 (0.0%)	3 (3.8%)	3 (3.8%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Institutional repository	6 (15.0%)	4 (10.0%)	0 (0.0%)	0 (0.0%)	6 (15.0%)	0 (0.0%)	1 (2.5%)	1 (2.5%)	0 (0.0%)	0 (0.0%)

From Table 1, it shows that search engines hold the highest percentage in term of ease of use with 17.8% compare to other resources types following with coverage 17.3%, efficiency 14.1%, and accessibility 11.9%, language 2.2% and recency 0.5%. The search engine features became factors that influenced most of the students use search engine to find information as the search engine can give ease of use to student when they find information, give wider coverage on the specific information that students find, provide greater efficiency and accessibility when students use the search engine, provide multiple languages that easy for students to understand and give quality to the search information.

From the discussion above, this is the right time to create the awareness of the existing online databases among undergraduate students in order to encourage the students to use reliable academic resources available on the online databases.

III. INTERVIEWS

A series of interviews has been conducted with the two librarians of International Islamic University Malaysia, who are the administrative officer for online database system in IIUM. According to one of the librarian, [L2] though Malaysian government has allocated the budget that can cover half of the subscription fees of online databases, due to the decreasing usage of the online databases, recently 10 online databases have been unsubscribed by the IIUM. He highlighted most of the students do not use online databases services because they are not aware with the existence, functions, and benefit of the services. Students' awareness toward library services provided is low. Another librarian [L1] added most of the students do not know how to use library online databases provided by the university. They found it is difficult to use and some of them never thought of using it all since they never get any exposures to use the library online database services. When they have assignments given by their lecturers, there are prefer to use the search engine rather that online database

system that they found difficult to use. Sometimes, the information needed are not specifically available in the library online databases.

This respond agreed by Cockrell and Jayne (2002), they said that students would rather stick with their World Wide Web search skills than try to learn new skills needed for searching different scholarly databases. It happens because there are many obstacles getting to database information. For example for IIUM online database, most of the students are having difficulties to find where the direct links for online databases located. Students need to click many drops down list buttons in order to find the direct links and it is totally different with the search engine service provided. Furthermore, the information was given and database listed in IIUM library web page for an online database is limited. It is difficult for students to find the online database that they needed and it is one of the factors most of the students are more interested in using search engine specially Google and Yahoo.

In addition, the interfaces of the IIUM library web page is full with too much information and not ease to use compared to search engines. [L2] Search engine like Google offers students with the simple interface that ease to use for searching information purposes. It covers wider coverage including journals, web pages, e-books and all information compare to the online database that resources are limited within the databases itself.

They used other resources for information needs because they did not know how to use the online database. In addition, undergraduate students preferred search engine rather than online databases because they do not aware of their existence. Based on the current activity among undergraduate students, they are usually using the search engine in order to get resources for their assignments and projects without knowing the reliability and original sources of the information. Members of the academic and research community agreed that online databases are a very useful source of information and a beneficial support in research and teaching. Another significant limiting factor that should be considered is that users lack the skills for work with databases, they lack adequate training. In this sense, it can be noted that the role of librarians in training the users and promoting online databases has been poorly explored

IV. RESULTS AND DISCUSSIONS

Fishbone (Ishikawa) Diagram was devised by Professor Kaoru Ishikawa, a pioneer of quality management, in the 1960s. The diagram also known as Cause and Effect Diagram (Whitten & Bentley, 2007). The diagram is the best technique to identify the possible cause of the problem. All the problems gathered from the literature review and series of interviews were displayed in the diagram to have a bigger picture and understanding on the problem situation.

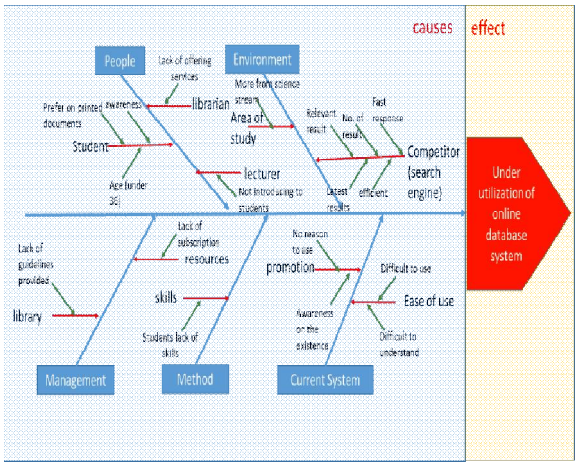


Figure 4: Ishikawa Diagram

In Figure 4 above, the 'fish head' shows the main problem (effect) while the 'bones' are the causes. Based on the objectives of this paper, the problem statement that has been identified is the underutilization of online database system among undergraduate students. Five categories of causes have been discovered which are, People, Environment, Management, Method, and Current System. Each of the categories then divided into several more causes as shown in the figure above.

In order to utilize the usage of the online database system, the librarian [L1], suggested that the university can make the library skill course as a mandatory course for all undergraduate students. Lecturers also need to involve in encouraging students to use online database system for completing their assignments and studies. At the end of the day, the students can share their feedback on using the system and the system improvement can be done.

CONCLUSIONS & FUTURE WORKS

In conclusion, the main causes of the underutilization of online database system People, Environment, Management, Method, and Current System. This may lead to the improvement of the current system. By looking at the suggestions from the librarians, it is believed that developing some new features to the current system can help the undergraduate students to use the system more. Recent research finds that accessibility, efficiency, ease of use, coverage, language and updated information features are essential in the library online database system. It should be adapted in the future development of library online database system in IIUM. It can attract the undergraduates students to use library online databases system and services. Besides, adding attractive interface of the system and website. IIUM

needs to subscribe more library online databases to encourage students use the future library online database system and eliminate the urge for them to use Google search engine to find information and resources. These findings are believed to be the solution of decreasing usage of library online database services issues and problems. If the problems continue to happen, it will affect the research quality when the number of library online databases subscribed decrease each year. The students will have limitation to have references to do researchers. With the suggested solutions, in a long run, it can improve the university ranking, research values and contribution for country development.

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