

Online Search Behavior of Students- A Study at Tata Institute of Social Sciences (TISS), Mumbai



**Nishant Kashyap
Ghatowar**

Research Scholar,
Master of Library and Information
Science,
Centre for Library and Information
Management Studies,
Tata Institute of Social Sciences,
Mumbai

Abstract

Web/ Online Search Engines, and Google in particular, have created a generation of searchers who are choosing the simplicity of search engines on the open free web over the perceived complexity of library services. In this study, an attempt to understand their online search behavior and determine whether search behavior and satisfaction levels vary by academic degree and to understand how the students retrieve information from online search engines, their online search results satisfaction, and their implications of the online search results. The rise of Online search engines has brought with it some shifts in user behavior. Online search engines suggest that all information available can be searched within just one system. Online search behavior is prevalent more in Masters' program (43 percent) students than Bachelors' students (41 percent). Master's program students (40 percent) use simple search words for online search engine more than Bachelor's program students (28 percent). Majority of the students (84 percent) trust the search engine and enter a few more words to better their target of search if they do not find the needed search results in an online search engine. Here the difference between the Master's program students (43 percent) and Bachelor's program students (41 percent) is less. More and more scholarly content is provided exclusively on the web. Search engines are typically developed to be easy for everyone to use.

Keywords: Online Search Engine, Online Search Behavior, Students, Information Searching Strategies, Satisfaction Levels, Academic Degree

Introduction

Regardless of the young age, online search technology has recreated how people act and do things at home, at work, and increasingly while on the go. It empowers people and organizations in every corner of the world. A world without search technology has become unimaginable—so much so that we take it for granted and underestimates its value.

The Internet has become an essential component of their everyday social and business lives for billions of people. And though they seldom give it a moment's thought, the search engines that help them navigate through the plethora of pages, images, video clips, and audio recordings found on the World Wide Web have also become essential. Search technology—shortened simply to “search” in the IT is only two decades old, but it is a cornerstone of the Internet economy (Bughin et al., 2011).

Search maintains to adapt swiftly as a result of changes in user behavior; the content this is searchable; search technology; in which seek happens—for example, within social networks and on new devices; and the arrival of new participants in the search market (Bughin et al., 2011).

Search engines are typically developed to be easy for everyone to use. Web/ Online Search Engines, and Google in particular, have created a generation of searchers who are choosing the simplicity of search engines on the open free web over the perceived complexity of library services.

The rise of Online search engines has brought with it some shifts in user behavior. Online search engines suggest that all information available can be searched within just one system. The search process itself is easy and highly self-explanatory. Within the last few years, professional information vendors (and libraries) have found that search engine technology can easily fit their needs for making academic content available for end-user searching. Keeping in mind that search engine technology is

also widely used in a business context, it can be said that this technology is the new key concept in searching (see Lewandowski, 2006).

The reasons for this shift in information behavior are relatively clear. More and more scholarly content is provided exclusively on the web. The Open Access movement is only one current example for this paradigm change: from the traditional print publishing system to the electronic publishing paradigm. The consequence is a situation which Krause calls the poly-central information provision (Krause, 2003).

University students use Internet for Online searching for fulfilling academic tasks. In this study, there is an attempt to understand their online search behavior. The study tries to understand how the students retrieve information from online search engines, their online search results satisfaction, and their implications of the online search results.

Review of Literature

Online Search Behavior of Students

Scoyoc & Cason, (2015); Gillette & Videon, (1998) *From their studies it was found that -Analyses of student bibliographies show heavy use of Internet sources, often of poor academic quality or no longer available online.*

OCLC Online Computer Center Inc., (2002) When asked to rate their Internet search skills and ability to evaluate Web page content, however, students consistently give themselves high marks. When asked what criteria they use to assess Web sites, among their top consideration is ease of access.

Tenopir (2003) Carol Tenopir summarized and analyzed over 200 scholarly works (from 1995 to 2003) on the use of electronic resources for research. She concludes from her review that regardless of the type of online resource used, whether library database or Internet site, "convenience remains the single most important factor for information use."

In order to evaluate and describe the Internet search strategies of adolescent learner, Guinee, Eagleton, and Hall (2003) conducted a study with 161 middle and high school students. Data were collected through students' descriptions of their search process, observations of students searching behaviors and audit trial list of search strings used by students. Approaches adopted by students to locate information were listed as dot-com formula, shopping mall, and search engine all of which were used by students regardless of the computer experience. They revealed four techniques for recovering from unsuccessful search attempts, which were switching topics, visiting additional web sites, trying new keywords, and continuous instruction and support, students fall back on their previous stage of web search results from ineffective search queries. Thus, it was suggested that students should be trained in a way that they may become more metacognitive about their searching to differentiate between successful search and unsuccessful Search.

Kumar & Shukla (2013) conducted a study related to information seeking being conducted whereby a comparison was made between arts and science researchers. It was found that both groups of researchers are required to use electronics resources

for information seeking. However, it was found that the researchers from the Arts discipline have never used or accessed electronic resources, while Science scholars on the other hand used to spend more than 20 hours per week searching for information using electronic resources

Students Views on Online Search Results

Another factor in information seeking behavior which is particularly relevant to this study, is that students rarely look beyond the first few pages (or even the first page) of search engine results.

Jansen, Spink, Bateman, & Saracevic, (1998) In a separate study into search engine use, the same team discovered that 58 per cent of users viewed page one only, while only 4 per cent viewed more than four pages

Craven and Griffiths (2002) for example report two independent studies with two very different groups of students (one visually impaired, one not) both of which report that the average number of pages evaluated was only one. They summarise that "Overwhelming numbers of both sets of participants looked at only the first page of results" while the Craven study goes even further to report that "All looked at only the first page of returned results – usually just the first two or three hits, before pursuing one of these links further or reformulating the query" a pattern of behaviour which, they say, is reiterated in other studies. Although not reporting this precise finding,

Spink (2002) - illustrates that for users generally the incidence of "one page only" viewing is certainly a rising trend. They give figures from three iterations of an extensive longitudinal study which show clearly that between 1997 and 2001 the number of users viewing only the first page rose from 28.6 to 50.5 per cent, while the number viewing three or more pages fell from 51.9 to 29.2 per cent, with over 70 per cent of users looking at "two pages or fewer" by 2001.

Brophy et al. (2004) report "Unlike the academic researcher who usually has a requirement to locate the key paper in his or her field in order to ensure that an approach or finding has not been overlooked, learners are often satisfied with 'any' resource which comes close to meeting their expressed need – and there are often many alternatives available". This finding might in fact mitigate in favour of resources such as the RDN. *If high quality, precisely targeted resources can be delivered to the learner with the minimum of effort on his or her part, this should overcome the two obstacles of reluctance to look beyond the first page or two of results, and making do with whatever they find there.*

Research Methodology

General Information of the Study Area

The Tata Institute of Social Sciences (TISS) was established in 1936 and is a deemed university fully funded by the University Grants Commission, Government of India. TISS offers over 50 Master's Degree from its Mumbai, Tuljapur, Guwahati and Hyderabad Campuses and 3 Bachelor's programmes from its Guwahati, Tuljapur, and Hyderabad Campuses. Masters' programmes are offered in a

range of socially relevant inter-disciplinary areas of Social Work, Social Sciences, Health, Management, Labour Studies and Habitat Studies. TISS is a research university with M. Phil. and Ph. D. programme and basic and applied research in a range of areas. A high degree of freedom and autonomy shape the positive work ethos and creativity in the Institute facilitating strong linkages between education, research, field action and dissemination. The Institute provides significant space and resources for basic and policy research; and has research collaboration with some of the best universities and institutions across all continents.

Need for and Significance of Study

The value and need of the study relates to preferences for online information formats and content by students, and thus to the quality and effectiveness of user/information interactions. Given the trends identified in the literature, online information tools, learning materials and other services are here to stay, making this investigation important. Research study in the fields of education, and library and information science will benefit from the study.

This study is significant because a better understanding of online behavior of university students will help educators across a range of disciplines plan and create improved online search learning assessments and activities. Creating online search learning exercises for the appropriate academic stage of degree study is important as it provides a scaffold for students whose tertiary study settings and requirements vary.

Research Objectives of the Study

Research Objectives of the study include:

1. To find out the online search behavior of students and the strategies used for the online search behavior varying by academic degree
2. To determine whether satisfaction levels vary by academic degree.

Details of Respondents/ Participants of Study

The web questionnaire was distributed via email to the Tata Institute of Social Sciences, Mumbai (Guwahati and Mumbai Campus) out of which 100 responses were received. Thus, 100 responses were recorded for the study.

Table 1
Details of Respondents/ Participants of Study

Groups	Number	Gender	Course Years
Bachelor's students	n ₁ = 50	Male – 26	Three
		Female – 24	
Master's students	n ₂ = 50	Males – 25	Two
		Female – 25	

Tools for Data Collection Used for the Study

The tool used in the present study was a Web questionnaire which was created using the Google Forms and mailed online to the students of TISS. The responses received were analyzed using Microsoft Excel software. Data was collected mainly from responses from web questionnaires mainly classified under primary sources.

Scope of the Study

The study is conducted on online search engines use in Tata Institute of Social Sciences, Mumbai. The researcher has recorded respondents from Bachelor's and Master's degree of TISS, Mumbai (Mumbai and Guwahati Campus). Quantitative data is collected from web questionnaire. The analysis is based on the data provided by the students of TISS.

Limitations and Implications of the Study

This study has some limitations and thus some implications can be drawn for future research. Interviews with those (e.g., librarians, system developers, peers, colleagues, or advisors) who facilitate the participants to conduct their online searching may be needed in order to triangulate varied perspectives of their searching processes. Adopting mixed methods including surveys and interviews could perhaps gather a broader picture of users' searching perceptions and behaviors.

The study is limited to the students of Bachelor's and Master's academic program of TISS Mumbai (Guwahati and Mumbai Campus). Future studies could include scholars (M.Phil. and Ph.D.) and other campuses of TISS, Mumbai (Tuljapur and Hyderabad Campus) for better research study findings.

Future studies could expand the sample size and include more students from different backgrounds and educational contexts in order to gain a wide range of views.

The findings of this study can serve as the basis for developing survey items to further explore how factors such as gender and different search contexts influence researchers' searching processes.

Sampling Technique Used in the Study

The sampling technique used in the present study is the Convenience Sampling method of non-probability sampling methods. The study was conducted using Convenience Sampling method from the Bachelor's students and Master's students of Tata Institute of Social Sciences, Mumbai (Guwahati and Mumbai campus) using an online questionnaire. The method was chosen due to the unavailability of the total list of students along with their email list.

Ethical Concerns of the Study

The results of the research cannot be generalized to the entire TISS Mumbai and Guwahati students' community. The data collected by the researcher does not include any personal details of the respondents and the findings of the research are not biased and were done in an objective manner.

**Data Analysis and Interpretation
Search Behavior of Students of Tata Institute of
Social Sciences
Strategies used for Online Search Engine**

**Figure 1
Strategies used for Online Search Engine**

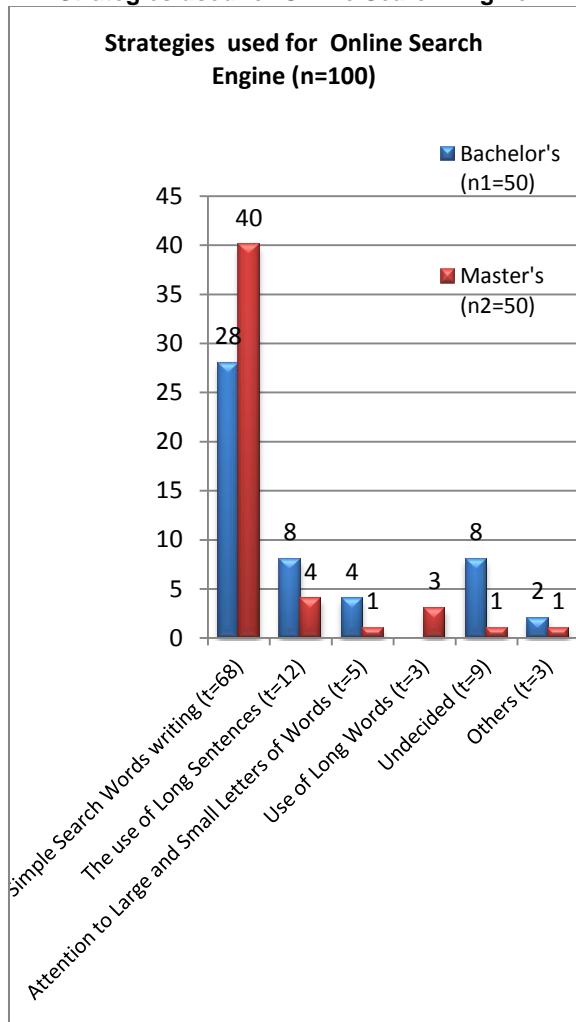


Figure 1 show that 68 percent of the students use simple search words for searching information on Online Search Engine. 40 percent of the Master's program students responded that they use simple search words for online searching in comparison to 28 percent of the Bachelor's program students.

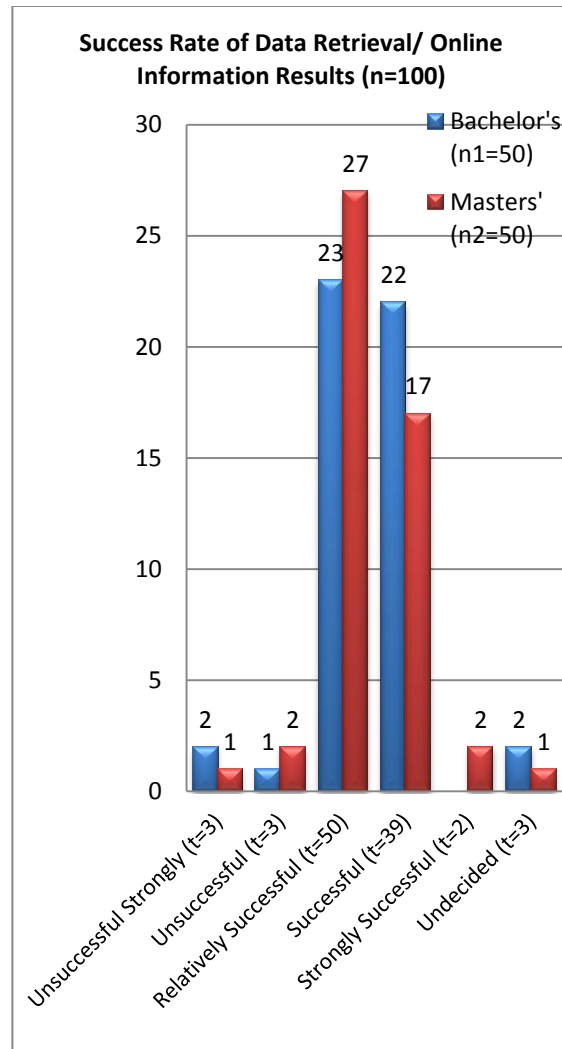
Again, 12 percent of the students state that they use long words for online searching. 8 percent of the Bachelor's program students use long sentences in online search engines in comparison to 4 percent of the Master's program students.

9 percent of the students felt undecided how they used online search engine (8 percent of the Bachelor's program students in comparison to 1 percent of Master's students).

5 percent of the students responded they used both large and small letters of words for online searching (4 percent of the Bachelor's students in comparison to 1 percent of the Master's students).

**Success Rate of Data Retrieval/ Online
Information Results**

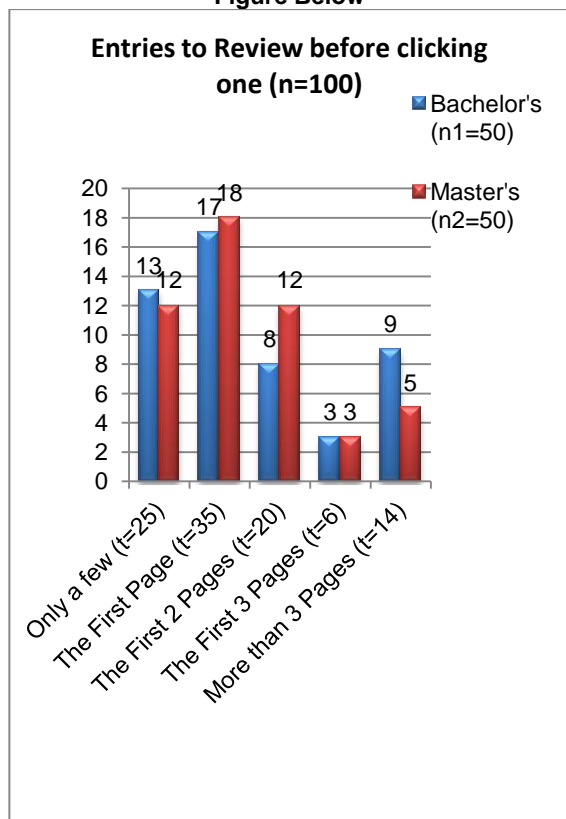
**Figure 2
Success Rate of Data Retrieval/ Online
Information Results**



89 percent of the students indicated that the Success Rate of Data Retrieval / Online Information Results were successful i.e. 50 percent indicated they were relatively successful whereas 39 percent responded that they were successful (Figure 2). 27 percent of the Master's program students responded that they were relatively successful in retrieval of data in comparison to 23 percent of Bachelor's program students.

In case of successful rate (39 percent) of online information results, 22 percent of the Bachelor's program students in comparison to 17 percent of the Master's program students.

Figure 3
Entries to Review before Clicking One from the Figure Below



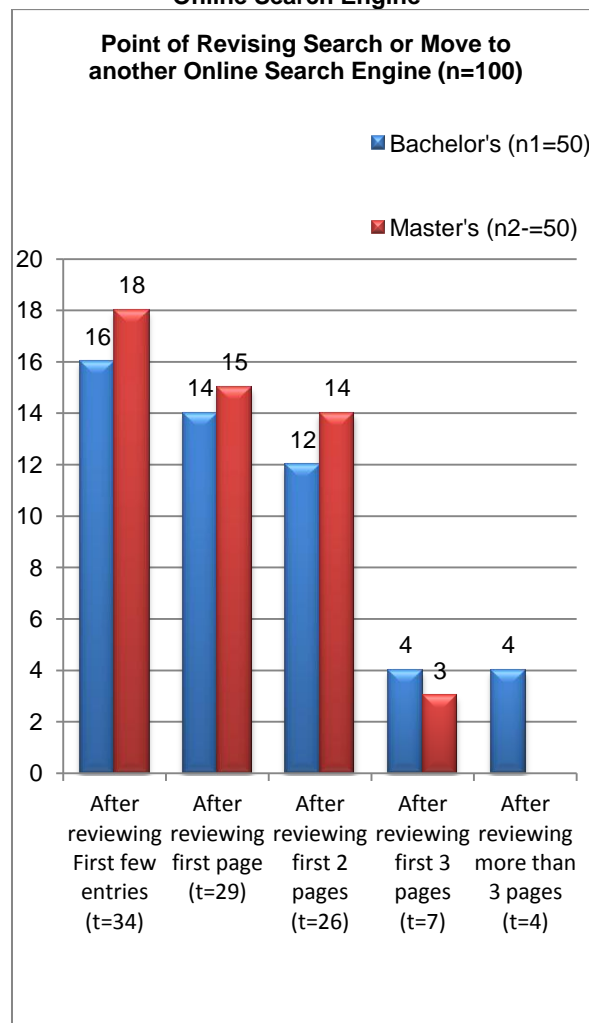
From the figure above, it can be understood that 35 percent of the total students responded that they only review the first page before clicking one of the Online Search Engine results. 18 percent of the Master's program students only reviewed the first page in comparison to 17 percent of the Bachelor's program students.

25 percent of the total students responded they just review only a few online search results. In comparison between the two categories, it can be seen that 13 percent of the Bachelor's program students review only a few search results in comparison to 12 percent of the Master's program students.

20 percent of the total students responded they review the first two pages before clicking one search result. 12 percent of the Master's program students review the first two pages before clicking one in comparison to 8 percent of Bachelor's program students.

14 percent of the total students responded they reviewed more than 3 pages before clicking one search result (9 percent of Bachelor's program students in comparison to 5 percent of Master's program students).

Figure 3
Point of Revising Search or Move to another Online Search Engine



From the figure above, it can be understood that 34 percent of the total students review only the first few entries of the online search results before moving to another Online Search Engine. From the figure it can be said that 18 percent of the Master's program students review only the first few entries of the online search results before moving to another online search engine in comparison to 16 percent of the Bachelor's program students.

Also, a majority of the students responded that they review only the first page (29 percent) and the first 2 pages (26 percent) before moving to another Online Search Engine.

7 percent students responded that they review at least first 3 pages before moving to another online search engine. Also, 4 percent of the students responded they review more than 3 pages before moving to another online search engine.

When you Perform a Search on an Online Search Engine and don't find what you are Looking for, what are you typically more likely to do? (Select one)

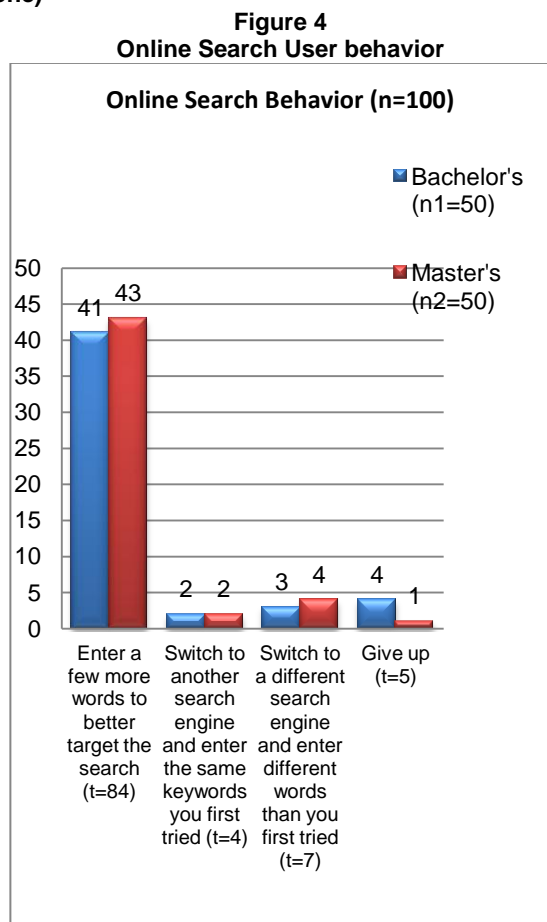
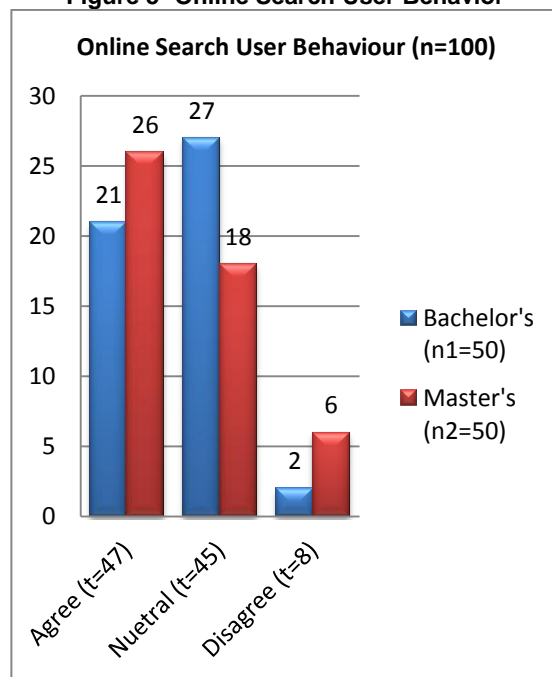


Figure 5 reveals that 84 percent of the total students responded that they enter a few more words to better the target of search if they do not find the needed search results in an Online Search Engine. Students trust the Online Search Engine that they are using and only change the keywords in the Online Search Engine to get better results further. When we see the figure above, we can understand that there is not much difference between the Master's (43 percent) and Bachelor's program students (41 percent) in online search user behavior.

Only 7 percent of the students switch to a different search engine and enter different words than first tried in previous search engine while 5 percent of the total students give up when they do not find information on an online search engine and 4 percent switch to another search engine and enter the same keywords they first tried.

Please state how much you agree/disagree with the following statement: "Seeing a result listed among the top results on an Online Search Engine makes me think that the result is a good one within all the results". (Select one)

Figure 5- Online Search User Behavior



From the figure above, it can be understood that majority of the total students (47 percent) agree that the top results in the Online Search Engine are the best information available within all the results. In that 26 percent of the Master's program students responded they agree the top results on an online search engine are the good results among all the results in comparison to 21 percent of Bachelor's program students.

45 percent of the total students selected neutral option when asked about the same (27 percent of the Bachelor's program students' selected neutral option in selecting the top results on an online search engine in comparison to 18 percent of Master's students).

8 percent of the total students responded they disagreed that the top results were the good results among the results (Master's program students (6 percent) disagreed more than in comparison to 2 percent of the bachelor's program students).

Findings and Recommendation

Findings

1. Simple Search words (68 percent) are the main strategy used by students for online search engines. Master's program students (40 percent) use simple search words for online search engine more than Bachelor's program students (28 percent).
2. Students were successful (89 percent) in data retrieval from online search engines. Master's program students (27 percent) were relatively successful in comparison to Bachelor's program students (23 percent) who were successful in data retrieval from online search engines. 22 percent of Bachelor's program students were successful in compared to 17 percent of Master's program students.
3. The first few entries (25 percent) are reviewed before clicking one result from an online search

- engine. Students review the first page (35 percent) before moving to another search engine for better results and desired information. Master's program students (18 percent) review only the first page before clicking one of the online search results in comparison to 17 percent of Bachelor's program students.
4. When students do not find desired information, they are likely to enter a few more words (84 percent) to better target the search. This online search behavior is prevalent more in Masters' program (43 percent) students than Bachelors' students (41 percent).
 5. Majority (34 percent) of the students review only the first few entries of the online search results before moving to another online search engine. Here, it can be found that Master's program students (18 percent) review the first few entries in compared to 16 percent of Bachelor's program students.
 6. Majority of the students (84 percent) trust the search engine and enter a few more words to better their target of search if they do not find the needed search results in an online search engine. Here the difference between the Master's program students (43 percent) and Bachelor's program students (41 percent) is less.
 7. Students agreed (47 percent) and gave neutral views (45 percent) about seeing a result listed among the top results on an online search engine and think it as a good result within all results. Masters' program students (26 percent) agreed top results are the good results within all results in comparison to 21 percent of Bachelor's program students. Bachelors' program students (27 percent) expressed neutral views on top results being the good one within all results in comparison to Bachelor's program students (18 percent).

Recommendations

1. Library services require appropriate facilities to accomplish their missions. So adequate ICT infrastructure should be provided in the library.
2. Awareness programmes, training sessions and other information literacy programmes should be conducted at the beginning of the first semester in Bachelors' and Masters' degree on a timely basis.
3. Libraries should demonstrate that they are positioning themselves to meet the challenges of the new information environment. Students will search the Internet with or without them; it is to the students' benefit if libraries provide paths to help Internet search engines with licensed library resources(Wright, 2004).
4. Library Web homepage is expected to serve as an Information Portal; providing information resources, services, facilities, etc. Since many students will be conducting research from hostels, libraries and other remote locales, it would be advantageous to design library websites that direct students to high quality web resources.

5. In general, the library should keep track of the online search tools, techniques and technologies to harvest the knowledge resources and supply them to the students.
6. Certain skills, however, are specific to conducting research on the Internet. The use of Boolean operators is an important skill when using electronic journal indexes, as well as Internet search engines. Search engines may vary in what Boolean operators they allow so it is important to emphasize how to find the help features available in every search engine.
7. Library databases also vary in the particular search features they offer. If students know to automatically look for help information or search tips, the library databases can become their starting point for performing more efficient and sophisticated searches in these sources.
8. Learning to navigate search engines also involves differentiating between true search engines, which employ technologies to actively search the Web for new web pages, and directories, which are static databases of web pages, often arranged by pre-defined subjects. Certain search engines have unique features, such as the ability to search within sets of results, or to find pages similar in content to a particular result. Students should be taught some basic features so that they can be better informed consumers on the Web.
9. There is no perfect place or "all in one" search engine to do all internet searching because different online search engines will give different results. However, certain search engines do provide better results for certain searches. Most importantly, students must spend some time getting used to the different search engines to see what they have to offer. Moreover, students must try out the super searches or advanced search tools.

Conclusion

"Use technology intelligently to enhance service"-

Michael Gorman and Walt Crawford

For billions of people around the world, the online search engines have become an essential component of their everyday social lives. Online search engines help students to navigate the plenty of pages, images, video clips, and audio files found on the World Wide Web.

Search maintains to adapt swiftly as a result of changes in user behavior; the content this is searchable; search technology; in which seek happens—for example, within social networks and on new devices; and the arrival of new participants in the search market.

The searching skills are necessary for searching proper information. These skills are advancing due to e-resources, development of databases and availability of information on internet. The users need to understand method of preparing search strategy for proper searching of information from the available information. Librarians are the only intermediaries for training the users in searching proper information using e-resources.

As the Internet evolves, students' online search behavior will accompany changes. Online search behavior helps to understand the various experiences, perceptions and satisfaction levels of the students. Valuable suggestions can be provided from the varied views expressed. This will help educators to plan and create an improved online learning assessments and activities. Further research is needed in this topic as this will boost the online searching abilities of students.

Search engines have become the most important tools in locating information, so it is important to know how to use them effectively. Search skills can be developed through skills through practice in using the search engines and by reading the help pages provided by the search engines themselves. Overtime, students will learn which search engine is good for pulling up what kind of information.

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