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Information Searching Habits of Internet Users: A Case Study on the Medical Sciences University of Isfahan, Iran

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Abstract

This article reports a survey on the search habits of Internet users at the Medical University of Isfahan (MUI), a governmental university in Isfahan city, Iran. Efforts are on to find the search requirements related to the use of the Internet information. Data were collected by using a questionnaire and follow-up interviews with Internet users from five faculties. Results show that all the respondents are using the Internet frequently because all faculties have provided connection to the Internet. It is revealed that the researchers of MUI are getting quality information through the Internet. Fifty-five percent of respondents search for scientific information through the Internet because the university library has provided access to various databases and online journals for all students and staff. They use the Internet in different ways, such as accessing to online journals, downloading software or text, chatting, discussion, E-mail services and for finding related references. It was unveiled that the Internet services are normally used for research. Also it is observed that the Google and Yahoo search engines are more widely used compared to other search engines. The analysis reveals that 54 percent of Internet users always find useful information on the Internet. Thirty-one percent of respondents believed that quality information is available on the Internet and finally, 35% of the studied population use print, online and offline form of information for updating their subject knowledge.

Keywords

Internet usage, Internet access, Search engines, Search strategy, Information searching, Browsers, Digital information, Iran

Introduction

The Internet plays a crucial role in the access of information resources. "Sources of information and other opportunities available via the Internet are increasing exponentially. This comes with the steady increase in Internet use for education" ([Edwards & Bruce, 2002](#)) and research. Also, with the growth of information on the Internet and the development of more sophisticated searching tools, there is now the more likely possibility of finding information and answers to real questions. But, within the morass of networked data are both valuable nuggets and an incredible amount of junk ([Tillman, 2003](#)).

When you are looking for information, where is a better place to go than a library? The Internet has some incredible electronic libraries ready for you. On a small screen of the

personal computer this digital world of the library is available for users. This library in terms of digital format consists of various electronic resources, such as electronic books, electronic journals, and electronic reports. These resources are available either in CD-ROM format or available online on the Web and constitute the core of the electronic library collection. A new class of digitized documents has been added to the electronic resources category, comprising those documents either originally published in print or other formats converted into the digital format. The entire manuscript collection, over-used printed document, printed material of great archival value, photographic collections, oral history recordings, and other scattered but useful audio-visual collections are now being converted into digital format for preservation purposes.

Many host servers offer free space to web sites; (many of them are free of cost and) government web sites are often a treasure house for those people who are seeking reports and policy papers. Now most of the popular newspapers and magazines have their E-versions providing full text of news items and feature articles ([Patil et al., 2004](#)). As a result, it has become difficult to decide about the quality and authenticity of such information available in digital form. In addition, a user or information searcher needs to have basic skills in finding relevant information in the Internet's ocean of information. "Web search services are now a major source of information for a growing number of people. We need to know more about the information searching habits by users to improve the effectiveness of their information retrieval" ([Spink, Bateman, & Jansen, 1999](#)).

The present article has focused on the information searching habits of Internet users, to find out the status of information searching nature. In the light of this study, efforts are on to find the search requirements, related to the use of the Internet information.

Related Studies

Information searching habits of Internet users is multi-faced and the literature available is extremely broad ranging. An attempt has been made to cover number of works that go beyond discussions of the information seeking behavior itself and its direct applications to closely related topics such as Internet use. This broad review also includes topics like Web searching, search engines, the Internet resources, evaluation of information quality, electronic media, and Web information retrieval.

Chang and Perng (2001) carried out a research work on "*Information search habits of graduate students at Tatung University*". The purpose of their study was to investigate the information requirements and search habits of graduate students at Tatung University in Taipei City, Taiwan. They show that 90% of the subjects conducted information searches using outside sources in addition to the university library. They also reported making extensive use of the Internet in the recent past, mostly World Wide Web-based databases, electronic journals, and search engines.

Dong work emphasized the evaluation of the Internet. He reported the examination of the using the Internet resources and the evaluation of their usefulness from the Chinese students' and academics' point of view ([Dong, 2003](#)). [Hölscherl and Strube](#) (2000) conducted a study about Web search behavior of Internet experts and newbies. They found the differential and combined effects of both Web experience and domain knowledge. A survey on the Internet access and the Internet use for health information among people living with HIV-AIDS was carried out by [Kalichman et al.](#) (2002). [Spink and Jansen](#) (2004) discuss the changes in Web search trends from 1997 to 2003 that explored how people search the Web. They show some patterns and trends in general Web searching. In summary, most Web queries are short, without query reformulation or modification, and have a simple structure.

Goals of the Study

The Medical Sciences University of Isfahan (MUI) is one of the biggest and most important medical universities in Iran. Establishing six decades ago, it was a faculty of Isfahan University for years. Since 1986, MUI is a separate university under the supervision of the Ministry of Health, Treatment and Medical Education. At present, MUI with more than 7000 students, seven faculties, 60 departments, 93 different undergraduate, postgraduate and research majors, and 603 teaching staff (154 lecturers, 345 assistants, 76 assistant professors, and 28 professors) and 20000 non-teaching staff, not only offers educational services but also provides health services for the whole country in general and for Isfahan Province in particular. This university trains young people to take up professional careers in medical services in wide range of programs including Medical Sciences, Health Sciences, Dentistry, Pharmacy, Nursing & Midwifery, Rehabilitation Sciences, and Management & Medical Information Sciences ([Asemi, 2005](#)).

The fast growth of information technology and Internet has changed traditional methods of research, storage and retrieval of information and scholar communication. This reminds the necessity of regular study and development of new facilities and technologies in Iranian universities to synchronize them with the current techniques of education and research. This work intends to study followings in MUI as a prototype of Iranian universities:

1. To evaluate Quality Information through the Internet;
2. To investigate the quality of information search through the Internet;
3. To find out the importance of electronic information;
4. To find the traps while searching information on the Internet by the users; and
5. To find the satisfaction derived by the researchers with the Internet and electronic media.

Need of the study

The Internet is transforming the nature of medical sciences information and its management, thereby altering the traditional responsibilities of medical sciences librarians. Use of the Internet is pervasive, evolving rapidly, and indicative of major changes in the way research and teaching. Necessarily medical librarians must be aware about searching habits of Internet users. The rapid development of using Internet in libraries and information centers in the MUI has made a need to study about the quality of search requirements and search habits of Internet users. The researcher tried to get the answers of the following questions:

1. What are the facts of the access and use of the Internet by the users?
2. What are the thoughts of the users about the quality of information on the Internet?
3. Which are the search engines and browsers that are used by the users?
4. What are the search strategies of them?
5. How is the condition of the users about the updating subject knowledge?
6. What are the problems faced by the users while using the Internet?

Methodology and Scope

The search is confined to the MUI and was exposed to the research users in five faculties. There are 7 total faculties on the campus of the university out of which questionnaires were distributed to 200 respondents. The respondents are postgraduate or doctoral students of Medicine Faculty, Pharmacology Faculty, Dentistry Faculty, Health Faculty, and Nursing Faculty. This is a representative sample of five faculties. The sample for this study was drawn from a random selection (see Table 1).

Table 1. Response from Users

| Sample (Faculty) | Medicine | | Pharmacology | | Dentistry | | Health | | Nursing | | Total |
|---------------------------|----------|------|--------------|----|-----------|------|--------|-----|---------|-----|-------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| Questionnaire Distributed | 71 | 35.5 | 46 | 23 | 51 | 25.5 | 17 | 8.5 | 15 | 7.5 | 200 |
| Response Received | 62 | 33 | 45 | 24 | 49 | 26 | 17 | 9 | 15 | 8 | 188 |

Data Analysis and Finding

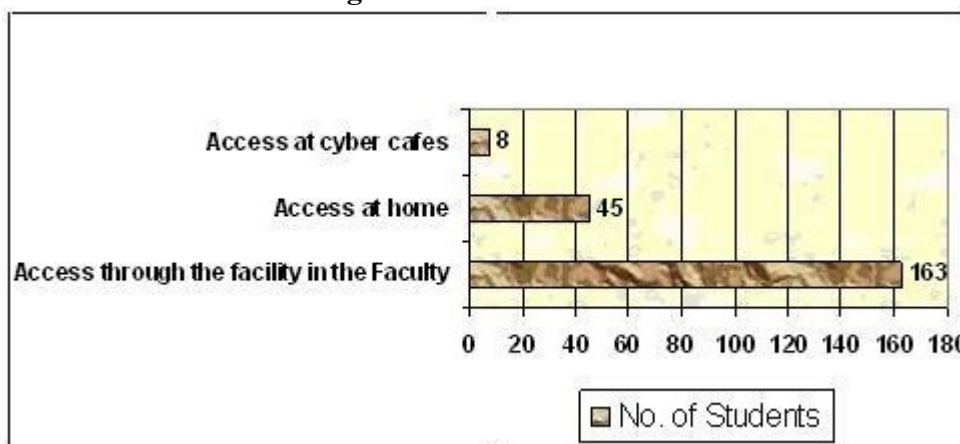
Internet Usages

To find the real users and non-users of the Internet, a questionnaire was distributed among the selected sample of the researchers of various faculties. All users selected as sample are using the Internet (100 percent usage). All the respondents are familiar with the computer (100 percent) and the Internet. The findings revealed that all the respondents are real users (they are 188), upon which the further study is based.

Internet Access

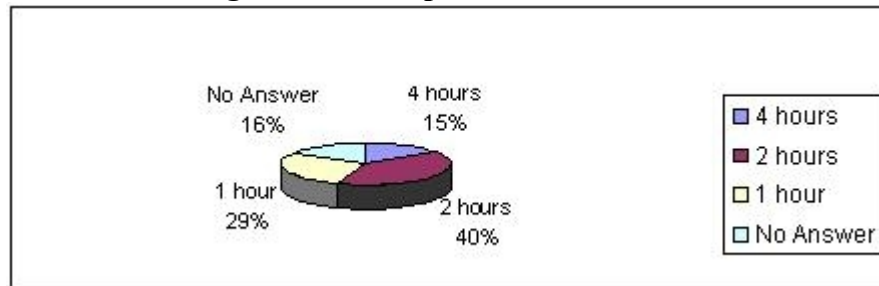
The researchers of all the faculties have access to the Internet in the university departments. Hence various queries have been put to the researchers like how do they access Internet. Figure 1 shows that 163 users (87 percent) access the Internet through the facility in the Faculty. 45 (24 percent) respondents access it at home, 8 (4 percent) respondents access the Internet at cyber cafes. It can be assumed that the researchers of the MUI are the serious users in respect of use of Internet and web resources, available at various web sites. The study reveals that all the 188 respondents are using the Internet because all the faculties have connectivity provided by the University for each faculty.

Figure 1. Internet Access



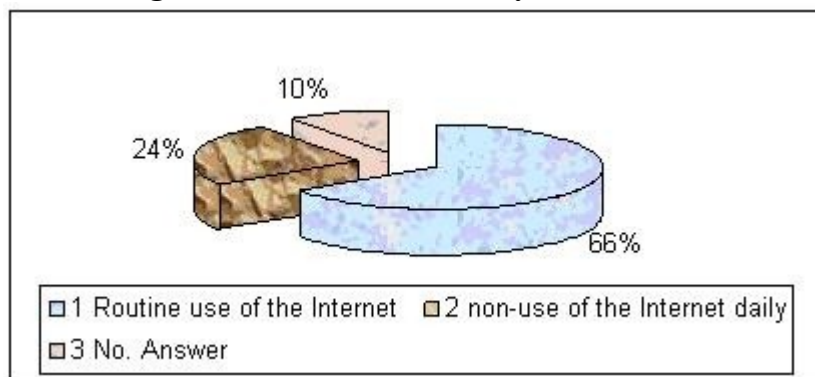
Time Spent for the Internet

Here the questions were asked to find the time spent on the Internet. It is cleared from the analysis that 28 (15 percent) researchers access the Internet four hours a day, 76 (40 percent) researchers spent two hours a day and 54 (29 percent) researchers spent one hour for Internet search (see Figure 2). It is revealed that 76 (40 percent) researchers are more regular in Internet use and spent a minimum of 2 hours daily as compared to other respondents. Thirty (16 percent) respondents did not respond to this question.

Figure 2. Time Spent for the Internet

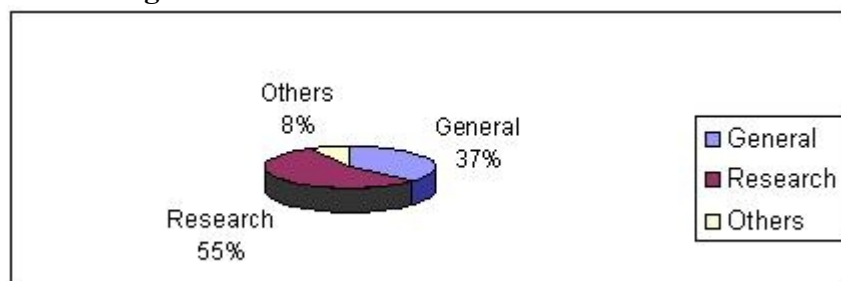
Internet Use is Daily Life Routine

The study reveals that 124 (66 percent) respondents have routine use of the Internet as a daily life routine, whereas 45 (24 percent) researchers are not using the Internet daily (see Figure 3). However, they use Internet as per their convenience.

Figure 3. Internet Use is Daily Life Routine

Information Searches on the Internet

The series of questions have been asked to the researchers to find the kind of information they search through the Internet, 102 (55 percent) respondents search the information for the purpose of research. Sixty-nine (37 percent) respondents are using the Internet to search general kind of information such as travel and tourism. Fifteen (8 percent) respondents are searching information on other aspects such as old and new songs, movies, etc. Hence it can be assessed that the respondents use the Internet not only for study and research purposes but also for other activities (see Figure 4).

Figure 4. Information Searches on the Internet

From the above it can be assumed that the researchers of the MUI are getting quality information through the Internet. Fifty-five percent of respondents search research information through the Internet because the university library has provided access to various databases and online journals for all users of the University.

Purpose of the Internet Services

Respondents access the Internet to obtain various services for research work, such as online journals, download software, download text, chatting, discussion, E-mail and for reference. The researchers have been asked to indicate their preferences. Their preferences are given below in tabulated format (see Table 2).

As shown in Table 2, the researchers indicated that the services provided by the Internet are useful for their research works, as the table indicated 28 percent for research work, 41 percent for E-journals, 22 percent for download text, 32 percent for E-mail and 37 percent of researchers are using Internet for references.

Table 2. Purpose of Internet Use

| Purpose | Preference No. | Preference % |
|-------------------|-----------------------|---------------------|
| Research work | 53 | 28 |
| Online journals | 77 | 41 |
| Download software | 11 | 6 |
| Download text | 41 | 22 |
| Chatting | 6 | 3 |
| Discussion | 8 | 4 |
| E-mail | 60 | 32 |
| Reference | 70 | 37 |

It is also observed that most of the users under survey use the Internet services for E-mail service. E-mail service is essential for every researcher to communicate their ideas or thoughts among them and they should send digital files to others as attachments. Often while surfing electronic information, researchers get useful information, which they would like to send their friends. It is possible only through the Internet services. The table 2 shows that the Internet services are used moderately for research work.

Search Engines

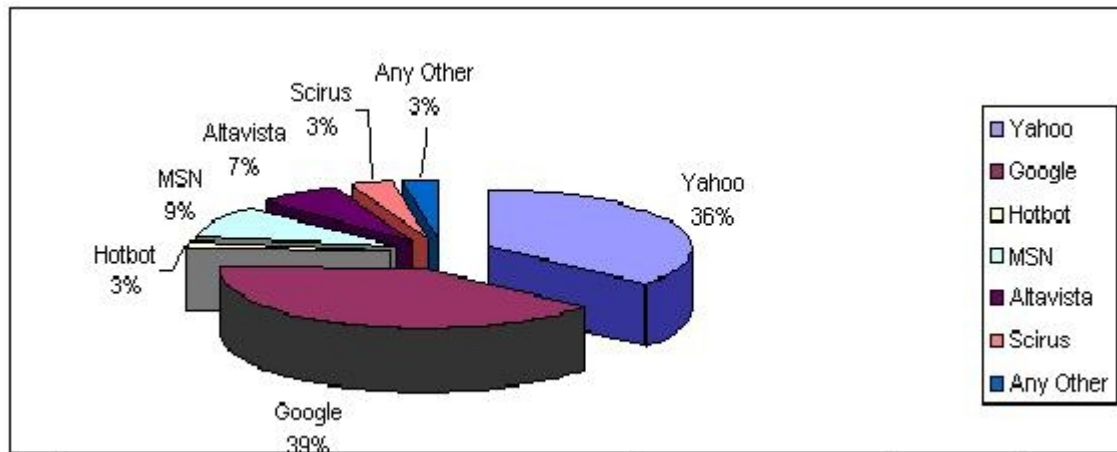
Search engines play a vital role in maintaining the data in electronic form and this information collected by the team of search engines are updated regularly, so that the users are benefited. All the search engines provided information to all kinds of users at no cost (see Table 3).

Table 3. Search Engines

| Search Engines | Preference No. | Preference % |
|-----------------------|-----------------------|---------------------|
| Yahoo | 115 | 61 |
| Google | 128 | 68 |
| HotBot | 8 | 4 |
| MSN | 28 | 15 |
| AltaVista | 21 | 11 |
| Scirus | 11 | 6 |
| Any other | 9 | 5 |

The above table gives the details about the usages of search engines mostly used by the researchers. The findings reveal that Yahoo and Google are the most popular and widely used (i.e. 61 percent and 68 percent), search engines followed by HotBot, MSN, AltaVista, and Scirus by 4 percent, 15 percent, 11 percent, and 6 percent respectively (see Figure 5).

Figure 5. Use of Search Engine



While analyzing this in detail, it is observed that the Google and Yahoo search engines are widely used as compared to other search engines for the following reasons:

1. They are fast in access;
2. Information contained on these search engines is updated regularly;
3. Links are provided to web sites in the world.

Browsers

Table 4 gives the details about the use of browsers used by researchers. It is evident that Internet explorer is the most widely used browser, i.e. by 80 percent users (see Table 4).

Table 4. Browsers

| Browsers | Use by researchers | % Use |
|-------------------|--------------------|-------|
| MSN | 12 | 6 |
| Netscape | 6 | 3 |
| Internet Explorer | 151 | 80 |
| No answer | 19 | 10 |

Search Strategy

Here a series of questions were framed to find out about the Internet usefulness and quality information. It is shown in the below mentioned tabulated format (see Table 5).

Table 5. Search Strategy

| Search Strategy through the Internet | Agree | | Disagree | |
|--------------------------------------|-------|----|----------|----|
| | No. | % | No. | % |
| Always finds useful information | 101 | 54 | 47 | 25 |
| Always finds answers to queries | 77 | 41 | 90 | 48 |
| Replaced the print media | 34 | 18 | 130 | 69 |

| | | | | |
|--|-----|----|-----|----|
| Best source of information | 96 | 51 | 60 | 32 |
| Subject search sometimes problematic | 115 | 61 | 41 | 22 |
| Useful information on general topics | 118 | 63 | 36 | 19 |
| Research-oriented information is not available | 45 | 24 | 135 | 72 |

The analysis reveals that 101 (54 percent) respondents always find useful information on the Internet, whereas 47 (25 percent) respondents disagreed. Ninety-six (51 percent) respondents agreed that it is the best source of information, whereas 60 (32 percent) respondents disagreed, 45 (24 percent) respondents do not always find research-oriented information on the Internet, whereas 135 (72 percent) respondents indicated that research-oriented information is available on the Internet. Thirty-four (18 percent) respondents agreed that electronic media replaced the print media and 130 (69 percent) disagreed.

Problems with the Internet

The interpretation of opinions of respondents about access problems reveals that the researchers face problems with the Internet, which are shown in Table 6.

Table 6. Problems Faced by Researchers

| Problems | Agree | | Disagree | |
|--------------------------------------|-------|----|----------|----|
| | No. | % | No. | % |
| Internet charges | 41 | 22 | 81 | 43 |
| Lack of quality information | 26 | 14 | 122 | 65 |
| So much information | 79 | 42 | 96 | 51 |
| Irrelevant information | 60 | 32 | 81 | 43 |
| Lack of organized information | 45 | 24 | 137 | 73 |
| URL may change | 34 | 18 | 152 | 81 |
| Reliability | 60 | 32 | 100 | 53 |
| Quality information | 117 | 62 | 38 | 20 |
| Speed is slow | 71 | 38 | 79 | 42 |
| Downloading PDF files take more time | 83 | 44 | 71 | 38 |
| Downloading softwares take more time | 77 | 41 | 62 | 33 |

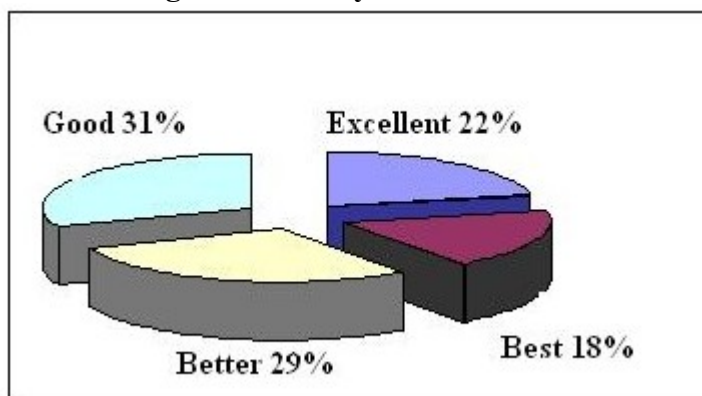
Table 6 shows that users face problems, using the Internet. The users experience that most of the time the server is down and so the problem of a slow Internet connection arises. It is observed that 122 (65 percent) respondents disagree about lack of quality information and that they get quality information on various web sites. The Internet is a medium to access the information. We have asked researchers about information found on the Internet, which is relevant or irrelevant. Most respondents, i.e. 81 (43 percent) respondents have replied that they are getting relevant information. Sixty (32 percent) respondents are getting irrelevant information. So we can say that most researchers are getting quality information on the Internet.

Quality Information

Thirty-One percent of respondents believed that quality information is available on the Internet, 18 percent said it is the best, 29 percent of respondents replied that it is better and 22 percent were of view that it is excellent. It means that the excellent information is less than good. To improve the excellent information the web site designers, information managers and information producers have to think of improving the quality, originality of information, use of multimedia and presentation skills.

It is observed that very few databases such as PubMed and ScienceDirect are maintaining quality information. PubMed is basically an archive of medical journals starting from 1966. This is why these databases are not available free to all (see Figure 6).

Figure 6. Quality of Information



Form of Material

Respondents intend to know about the popular use of form of material and for that purpose questions were framed (see Table 7).

Table 7. Form of Material

| Form of Material | Respondents | |
|------------------|-------------|----|
| | No. | % |
| Print | 61 | 33 |
| Online | 38 | 20 |
| CD | 19 | 10 |
| Floppy | 29 | 15 |
| Both | 41 | 21 |

From the above table we can say that awareness of using online, CD, floppy form of material is increasing. But 33 percent of the researchers prefer to use print form. Online has not replaced print.

Updating Subject Knowledge

To know about the researchers' behavior for updating their subject knowledge questions were asked. Table 8 reveals that most respondents (35 percent) are using print and online and offline form of information for updating their subject knowledge. Whereas 32 percent of respondents are using online, 18 percent are using print, 15 percent are using offline form to update their subject knowledge. From the analysis it is found that 82 percent of respondents are using electronic media for delivering of the non-print literature (see Table 8).

Table 8. Updating Subject Knowledge

| Form of Material | Respondents | |
|------------------|-------------|----|
| | No. | % |
| Print | 34 | 18 |
| Online resources | 60 | 32 |

| | | |
|-------------------------|----|----|
| Offline resources | 28 | 15 |
| Both (Online & Offline) | 66 | 35 |

Conclusion and Suggestions

The Internet provides a wealth of information. The students are using the Internet significantly and it occupies an important place among various information sources. It is widely used by the students for their research purposes and it plays an active role in searching of information.

Students still depend on print media. Electronic media has not replaced print media. The students need to get skills for searching on the Internet. The information searching practice needs a methodical training to gain the quality in information searching. Of course, "three elements are essential to users in the evaluation of online information retrieval systems: interface design, system performance and collection coverage" (Xie, 2004). The observation of these elements and training the users will enable users to get useful and relevant information. Library professionals, on the campus, may take initiatives to improve the information searching on the Internet process among Internet users or digital resources users. These initiatives can be in terms of formal and informal training specific to information sources skill sets. Librarians may take initiatives to prepare lists of subject web sites that are useful to researchers. Link to free online databases on the library's web page is necessary. The library should introduce network literacy program.

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