

**Information Seeking Behavior of Library And Information Science Faculty In Research With A Special Reference To The Use Of Networked Information Sources And Services: A Case Study Performed At The Graduate School Of Library And Information Science At The University Of Illinois At Urbana-Champaign / By Dr. Hossam Eldin Mohamed Refaat Abouserie.**

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**Summary**

The purpose of this study was to explore and investigate the ways faculty at The Graduate School of Library and Information Science at The University of Illinois at Urbana-Champaign use Networked Information Sources And Services to support their research task. Library and Information Sciences faculty at the University of Illinois were chosen as the population for this study. The study aimed to answer the following questions: 1-What are the main academic research activities the faculty performs? 2- To what degree does each faculty member depend on Networked Information Sources and Services ? 3- What are the main reasons for using Networked Information Sources and Services? 4-What characteristics of electronic sources limit using of Networked Information Sources and Services? The Web based Questionnaire was the main tool for collecting data. The following two hypothesis were addressed:

1-There will be a difference in using Networked Information Sources and Services to perform the basic research task or activity according to faculty rank, and gender.

2- The second hypothesis indicates that the degree to which faculty depend on Networked Information Sources electronic sources will differ across the research tasks/activities, as follows:

A) They will depend more on electronic mails for research tasks than News groups.

B) They will depend more on electronic journals for research tasks than electronic archives.

C) They will depend more on electronic databases for research tasks than Internet Directories and Search Engines.

## **Background\***

Information is an important and fundamental human need, as important as the need for food or shelter. Throughout history, seeking information has been associated with every task and activity humans do (Large, Tedd, and Hartley, 1999). Seeking information is as old as the human race. Early people looked for information in their daily activity, such as finding the best location to build their houses, the best way to protect themselves from danger, the fastest way to start a fire, the easiest way to hunt, and so on. The five senses-- sight, hearing, smell, taste and touch-- were the only ways to collect information and transfer it from one location to another and from one generation to another as well (Large, Tedd, and Hartley, 1999).

In the current Information Age, seeking information is still a fundamental function and will continue to be so. This age depends on information in all formats. Searching, collecting, organizing, storing, retrieving, and using information are still the main concerns in this age. Information specialists are interested in collecting the right materials and transmitting them to the right people at a suitable time to meet their needs and answer their queries. They are designing databases and information banks. They are worried about the problem of the information explosion. They are trying to understand users' information needs, users' information seeking habits, and the way they use the information they obtain. They are concerned about saving space and are looking for the best media to store information (Dervin, 1976).

New technologies have affected the information seeking process. These new technologies have affected every function and process in universities, schools, libraries, and information centers. Computers and other electronic instrumentation have provided libraries with many advantages. Storing, organizing, retrieving, and providing access to information are the main processes that have been positively affected. Computers and new information technologies have greatly enabled information specialists in performing their main tasks, especially in locating and retrieving information (Chen, 1982).

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\* The Publication Manual of the American Psychological Association , APA, Style is used in this study. "Electronic Reference Format Recommended by the American Psychological Association: [also online], available from <url:<http://www.apa.org/journals/webref.html>>

The World Wide Web is one example of an information source that is increasing and growing over time. In addition to containing information from various fields, the Web also contains information in various formats such as text, audio, video, and audio-video.

Many library materials are available in online databases; by early 1998 an estimated 4,000 electronic journals in various fields were on the Web (Large, 1999). This not only saves space, but facilitates use as well. In addition, it becomes possible for many users to use each database at the same time without affecting the quality of the service or the response rate.

The new generations of computers, programs, search engines and Internet directories have provided many advantages to library science. It has become easy to save time and effort in retrieving information on a topic or to get a certain piece of information by its title, author, subject, date of publication, etc. Therefore, the tasks of building various information seeking strategies and retrieving information have been improved by the appearance of new generations of hardware and software (Machionini, 1995).

### **The American university**

The American university is considered to be “a national treasure, created and developed with ingenuity and devotion and vested with the capacity to serve society into the indefinite future, as it has done since its establishment” (Ehreberg, 1997, P.18). The American university, claimed to be the best in the world, is a unique system because it provides high quality education, uses new methods in teaching, depends on advanced technologies for illustration, and finally provides freedom in performing the major tasks, teaching, research and service.

Although the university as a social institution carries out the main functions and the basic roles, teaching, research, and service, which can be achieved in other institutions, the way it performs its tasks --to reach its goals-- is unique and comprehensive. And although these responsibilities may be differently determined from one person to another, they are classified into three main tasks: teaching, research, and service.

This section discusses the three basic responsibilities of the university showing the main characteristics of each function.

## The Academic World

The following model in Figure (1) shows the academic world that includes the main tasks performed in the academic environment.

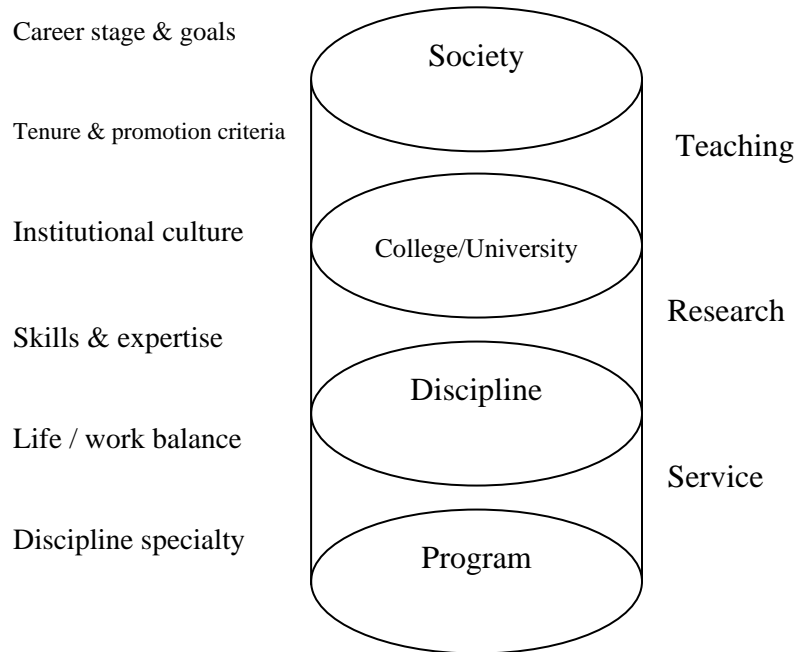


Figure (1) . The academic world (Blackburn and Lawrence, 2001).

### Research

The university is not only an educational institution. In addition to teaching students existing knowledge, it also tries to create new knowledge through research. Therefore, the university in addition to being considered an educational institution, could be considered a research institution as well. The saying "publish or perish" demonstrates the importance of publication to academics for the purpose of getting promotion and tenure in the academic environment; however, publishing research is also important for the purposes of gaining a reputation and success in an academic career.

### Definition

Wilson claims that “the meaning of research is so equivocal that almost any sort of investigative enterprise may be connoted, but academic men ordinarily have in mind the kind of inquiry that yields publishable results” (Wilson, 1995, P.195).

## **Ideology of research**

Creating new knowledge for the sake of developing society is an important task. This can be found in the academic community in two ways: 1) Performing research where the researcher is interested in a specific topic and has some idea of what he or she is looking for. This type of research does not have to be for the purpose of getting a degree like the PhD, but it has to be implemented in new areas that have not been searched before, or it has to build on others' effort in order to add to human knowledge, and avoid duplication of others' effort. 2) Performing research for the purpose of getting a degree like the PhD that is required for virtually all faculty positions in higher education (Blackburn and Lawrence, 1995). This degree has also to be based on work in new areas that have not been researched before, in order to avoid repeating others' effort.

In the university, professors have the freedom to search certain fields and disciplines that meet their interests (Falk, 1990). Research has also helped in the following: 1) Creating new disciplines, 2) financial advantage, and 3) Gaining respect, admiration and reputation. Creating new disciplines depends on research, in that research helps in investigating and exploring connections and relations among disciplines. It helps in explaining certain phenomena, establishing models, building theories, and creating a basis for new disciplines. Therefore, research is considered to be “the key element in the formation of new disciplines” (Finnegan, Webster, and Gamson, 1996, P.398). Research has also become a big business for faculty members because they have the ability to publish their research in books and journals, thus gaining reputation, tenure, promotion, and salary. This results in a higher income, popularity, the chance to travel all over the world, and to consult in various organizations (Blackburn and Lawrence, 1995). Research has also a positive impact on the university reputation, in that the university's rank tends to be affected by the quantity and quality of its own research. Therefore, the more published research, the higher rank the university takes, and therefore, the higher the student enrollments, and the better the support from the surrounding organizations.

## **Information Seeking Process in the electronic environment**

The process of Information Seeking in the electronic environment can be organized in a set of sub-processes. It begins with the recognition of the problem and continues until the problem is solved. The sub-processes are summarized as follows:

- “1-Recognize and accept an information problem,
- 2-Define and understand the problem,
- 3-Choose a search system,
- 4-Formulate a query,
- 5-Execute search,
- 6-Exmine results,
- 7-Extract information,
- 8-Reflect/iterate/stop” (Marchionini, 1995, P51).

From the steps in the information seeking process, we can see that the process starts with facing a certain situation or a problem. The user has to understand the main characteristics and dimensions of that problem, in order to select the best source to use. The source used can be a database or an information bank. The next step is to build a search strategy and check the results retrieved. The user may need to narrow or broaden the terms used to get suitable results. If the system used is a database, the user can get only records that include bibliographic records and –in some cases- a summary of the item or abstract. The user can also get the full text itself in the case of searching a full text database, which are increasingly available. If the system used is an information bank, the user can get the information or the answer itself. These steps could be drawn in the model shown in Figure 2.

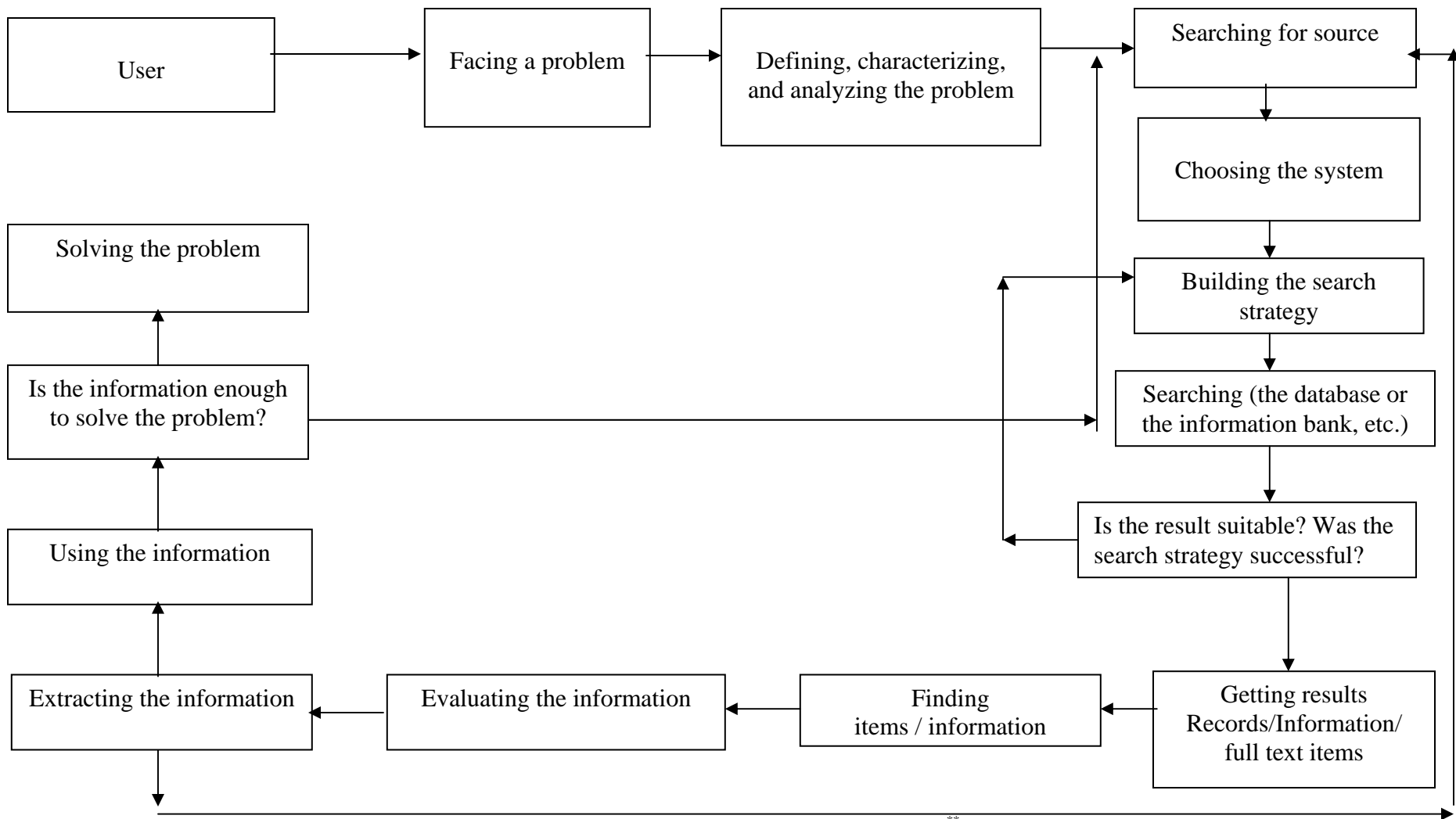


Figure (2 ). Information Seeking Behavior in electronic sources.\*\*

\*\* The Figure was drawn based on the steps of Information Seeking process in Machionini, G, 1995, P.51-58

This model outlines\* the steps in information seeking behavior that the user follows to get information in electronic sources. The user at the early stage faces a problem. This problem could be a simple one that requires little effort to solve, or a major one that requires significant research. In all cases the user has to determine the problem and its main characteristics, then analyze its basic characteristics. The next step is to look for a suitable system that is expected to have an answer. The user in this stage could find many systems that have answers to the problem. His or her selection of a system could be based on many factors, such as the language of the system, accuracy of information, credibility of the source, and cost of the materials. The next step is to build a search strategy that consists of the terms used to get the information required. Searching the system is the next step the user takes to get the information. The user may get suitable results in the first search or may not. If the results are suitable, the user will continue to the following step, and if not, he or she would have to rebuild the search strategy until suitable results are obtained. Then, the user ---in the case of searching a bibliographic database--- will get records, and then look for the materials that contain information relevant to the search. In the case of searching an information bank, the user will get the information itself. In the next step the user has to evaluate and extract the information obtained. The final step is to use the information found to solve the problem. If the information found is adequate, the user will be able to solve the problem, and if not a further search will be needed.

### **Application to academic environment**

The academic environment is defined as “the environment which emphasizes the learning or discovery mode motivated by the individual’s commitment to expand the human knowledge base” (Liull, 1991, P.84).

### **The academic structure**

Figure (3) presents various academic ranks at the academic environment at the American higher education system. It begins with the faculty member and goes up till the board of trustees. The faculty member, whatever rank he/she has, depends on a variety of sources to get information. Some of these sources could be traditional and others could be nontraditional. The nontraditional sources and new technologies have affected the way the

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\* The model does not address haphazard search through which the user may find or recognize useful results during searching electronic sources.



faculty gets information. The faculty ---by using new technologies--- have found solutions to the problems they have traditionally faced.

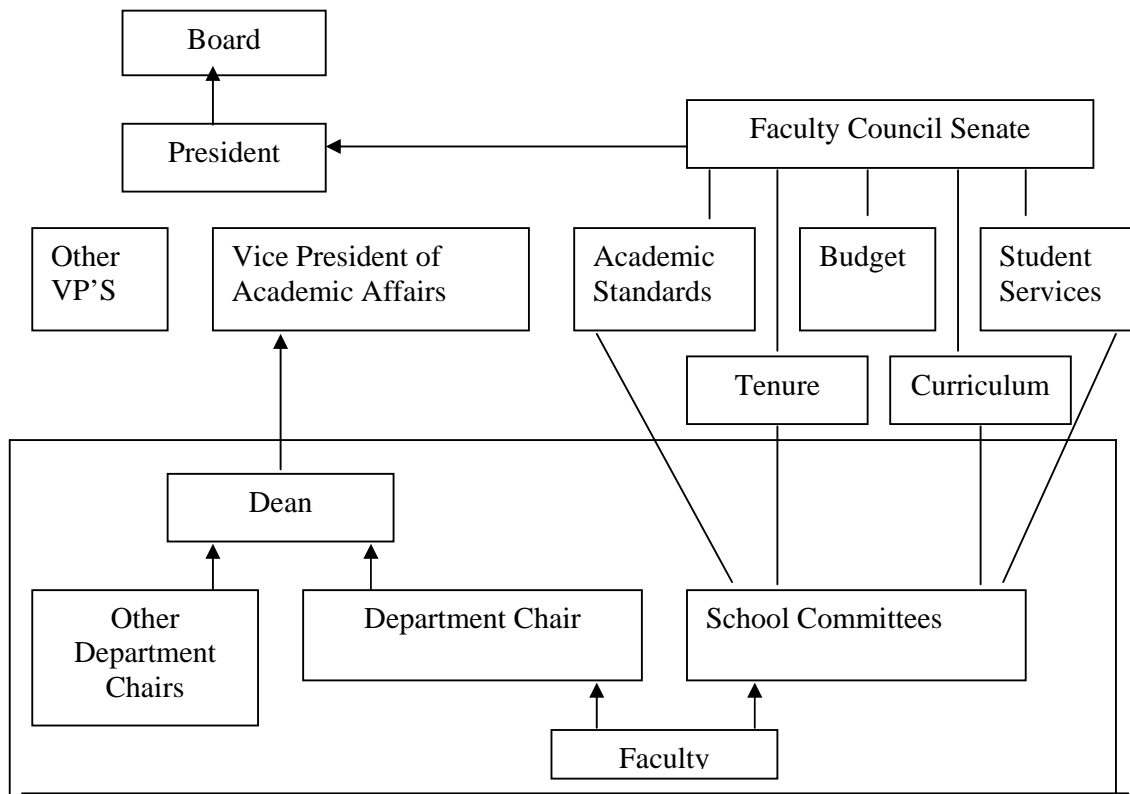


Figure (3) .The academic structure (Blackburn and Lawrence, 1995)

Information technologies including computers and telecommunications technologies, have been applied to all areas of the library and information science field, in that they are used in a great extent in collecting, organizing, and providing services (Lancaster, 1986). With the advent of these technologies, the faculty becomes able to search for library materials via computer workstations without the need to go to the library building. Faculty are able to find what they are looking for, not only in their local library but also in other libraries around the world, because online catalogues are available now in many libraries and information centers of all types and kinds. They allow users at different locations to have the same access to information and retrieve whatever they need without the need to be at the same place where the information exists. Therefore, users no longer need to care about the location of the information or where it exists (Crawford, 1996). Using computers in searching and retrieving information started in the 1960's in a few locations; however, since the 1970's the process has become very popular as the real

democratization has occurred. At the same time the cost of the process, searching and retrieving information, has become much less (Lancaster,1986).

Storing library catalogues in electronic format assists in creating advanced search strategies. It becomes easy to search for materials that are published within a specific time, at a specific location and in a certain language. Moreover, the speed of retrieving and obtaining all types of information in all formats from all over the world is an advantage that the new information technologies provide (Marchionini,1995). The faculty is able to retrieve information in different formats through searching the Web. It is no longer only text that can be retrieved, but also audio and video information as well (Marchionini, 1995). As text, visual and audio-visual formats of information become available, the faculty is able to save time, money and effort in getting information and doing their main tasks of teaching, research and publishing.

**Methodology:**

Information Seeking Behavior is an important area in the library science discipline. Many researchers have studied it from different perspectives using different approaches and methodologies. Organizing the process into steps, which the users follow to obtain information, and generalizing the findings over all the tasks the users performs, are the common aspect of the researchers' findings.

### Theoretical foundation for Information Seeking Process

1 Phases of construction (Kelly)	2 Levels of Need (Taylor)	3 Level of specificity (Belkin)	4 Expression (Taylor, Belkin)	5 Mood (Kelly)
Confusion	Visceral	Anomalous	Questions connections	Invitational
Doubt	Conscious	State of Knowledge		
Threat	Formal	New Problem	Commands Gaps	Indicative
Hypothesis		New situation		
Testing	Compromised	Experiential		
Assessing		Needs		
Re construing		Defined Problem		
		Well Understood		
		Situation		
		Information Needs		
		Coherent State of Knowledge		

Table (1). Theoretical foundation for Information Seeking Process (Kuhlthau, 1991)

This study design embraces the qualitative methodology, in that it focuses on subjective meanings, definitions, metaphors, symbols and descriptions. "Using the survey method to study Information Seeking Behavior often results in descriptive statistical data; such as type of sources used and rating of the sources"(Wang, 1999, P.61).

The case study methodology is used to study behavior of Library and Information Sciences faculty at one of the top 10 American schools, The Graduate School Of Library And Information Science At The University Of Illinois At Urbana-Champaign, ranked #1 in 2000. The **Task or activity/ Sources approach** will be adopted for this study, measuring the extent to which users actually use different kinds of sources, media, system, documents, materials, or channels for different tasks.

The qualitative case study approach used will allow extensive description and analysis. This methodology has many advantages, summarized as follows:

“1-Case studies allow generalizations either about an instance or from an instance to a class. Their peculiar strength lies in their attention to the subtlety and the complexity in

its own right” (Bassey, 1999, P.23). Therefore, results from this study will help in improving other schools that have the same environment whether they are in same state or in other states in USA.

2-“Case studies present research or evaluation data in a more publicly accessible form than other kinds of research report, although this virtue is to some extent bought at the expense of their length” (Bassey, 1999, P.23). Therefore, the case study would be a useful tool for library managers and those who specialize in library and information science, in that they will find such studies more accessible.

### **Methods or tools for collecting data**

#### **Questionnaire**

##### **The technique**

A questionnaire is the major research instrument for this study. According to Drew “a questionnaire must be constructed in such a manner that it will extract accurate information from the subjects. As a minimum, this means that the questions must be written clearly, and in a fashion that minimizes the possibility of misinterpretation by respondents. The questionnaire may be personally distributed by hand or distributed to respondents through the mail” (Drew, 1980, P.122-123). The questionnaire was sent to the academic staff via email. This was intended to save time and effort while sending and receiving information, and to facilitate the reading process.

Since mailed questionnaires are often plagued with a low response rate, in that a small percentage of them are completed and returned, the questionnaire was distributed via mailing lists through the Internet over five times during the spring of 2005. It was sent to faculty at The Graduate School Of Library And Information Science At The University Of Illinois At Urbana-Champaign.

##### **The content**

Researchers in the area of information seeking behavior indicated that “users’ Information Seeking Behavior is influenced (or determined) by some or all the following:

1-Individual characteristics of the user (such as domain knowledge, previous experience, preferred cognitive style, etc.),

2-The user’s task, goal, or information need,

3-Characteristics of the user’s organizational role and typical problems encountered within that environment.

4-The retrieval system” (Hert, 1998, P.305).

Therefore, the questionnaire, in order to explain differences among respondents on these “information behavior” dimensions, covered demographic information (e.g., school, education, gender), sociological information, (e.g., rank, group membership), and task description (e.g., purpose for contracting system). The questionnaire included questions that covered faculty activities, sources used to obtain information for each activity, the degree or the level of dependence on each source, evaluations of each source, and recommendations for improving access to these sources.

### **The Graduate School of Library and Information Science**

“GSLIS began as the first library science program in the Midwest, founded in 1893 by Katharine Sharp. More than a hundred years later, it is consistently ranked as one of the very best in the field. The mission of the School is to provide Graduate education for leaders in research and practice in the fields of library and information science; Groundbreaking research to advance preservation of and access to information in both traditional and digital libraries and in the many settings outside of libraries where large amounts of critical information are collected; Useful service to librarians and other information service providers, as well as to the citizens of Illinois”.<sup>1</sup>

“The Graduate School of Library and Information Science offers programs leading to the Master of Science degree, a Certificate of Advanced Study, and the Doctor of Philosophy degree. In Fall 1999, it began offering an Undergraduate Minor in Information Studies. Master's students can obtain their degree using three different scheduling options: the traditional, on-campus option; the Fridays Only option; and our distance education option, LEEP. In its most recent ranking of LIS programs, U.S. News and World Report ranked GSLIS the top program in the nation”.<sup>2</sup>

“The University of Illinois at Urbana-Champaign Graduate School of Library and Information Science (GSLIS) is recognized as a premier institution, frequently ranked number one and consistently among the top three U.S. LIS schools. The University of Illinois at Urbana-Champaign is considered one of the finest universities in the world. With a wealth of resources and highly ranked departments, Illinois long has been recognized for accomplishments in research and graduate education. Illinois boasts the third largest academic research library in the U.S., which includes a separate Library and Information Science Library.

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<sup>1</sup> John Unsworth, Dean <http://alexia.lis.uiuc.edu/gslis/school/index.html>

<sup>2</sup> <http://alexia.lis.uiuc.edu/gslis/degrees/index.html>

## **National Reputation for Teaching and Research**

In 1993 and 1996, library educators ranked Illinois first overall among schools of library and information science in providing the following:

- The highest quality education for librarianship at the master's level (the master's degree program is accredited by the American Library Association)
- The highest quality education for librarianship at the doctoral level

Faculty members who contribute most significantly to the advancement of the profession through research, publication, and leadership. In its most recent ranking of LIS programs, U.S. News and World Report ranked GSLIS the top program in the nation”.<sup>3</sup>

## **Scope of the study**

The Information Seeking Behavior of Library and Information Science faculty at **The Graduate School of Library and Information Science, GSLIS**, was studied. The school was chosen as the site of this study since it is a major research university whose faculty are involved in high quality research. The sample is also large enough to have a significant representation of the major Library and Information Science fields.

**The focus of the study:** The research covered faculty research behavior in one American school, GSLIS. The faculty had been selected as the target and not graduate or undergraduate students because the faculty is the heart of the university that performs its main tasks: teaching, research and service. The faculty can have the top positions at the university, and the tasks the faculty does will have the greatest impact on the institution.

The subjects were drawn from full time faculty at all ranks whether in the tenure stream or not. A questionnaire was distributed during working hours (8 AM- 5 PM). It was distributed to faculty via email, to insure that faculty at The Graduate School of Library and Information Science received it, and to facilitate the reading process when studying the responses received. The study used three programs: Microsoft Front page, Microsoft Excel and Microsoft Access. Microsoft Front page was used to make the web questionnaire. Microsoft Excel was used to make the calculations and mathematical equations. Microsoft Access was used to make the reports and the extract various tables required for the analysis.

## **Gender**

The question was [*-Gender:                    Male ( )    Female ( )*].

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<sup>3</sup> <http://alexia.lis.uiuc.edu/gslis/school/overview.html>

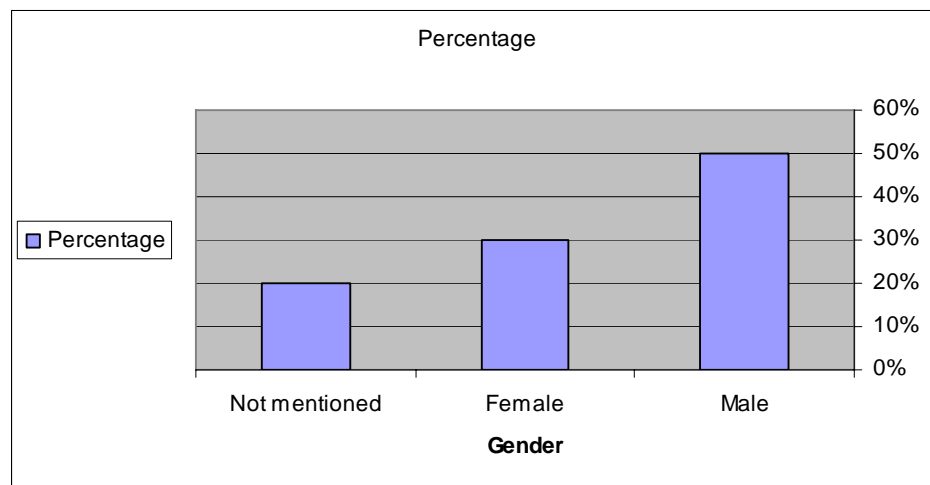
The total number of faculty members who participated in the study was 10; 5 of them were males, 3 were females, and 2 did not mention their gender. Therefore, 50 % were males, and 30% were females. This indicates that percentage of males participated in the study was 20 % higher than that of females. See table (2) for details.

Table (2) Percentage of Library and Information Science faculty responding by gender: The University of Illinois at Urbana-Champaign

Gender	Respondents	Percentage
Male	5	50 %
Female	3	30 %
Not mentioned	2	20 %
<b>Total</b>	10	100 %

Source: Survey of Library and Information Science faculty (n=10)

Figure (4) Percentage of Library and Information Science faculty responding by gender: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Library and Information Science faculty (n=10)

### Academic rank

The question was [-Rank: *Instructor* ( ) *Lecturer* ( ) *Assistant professor* ( ) *Associate professor* ( ) *Professor* ( ) *Other-----* ( )]

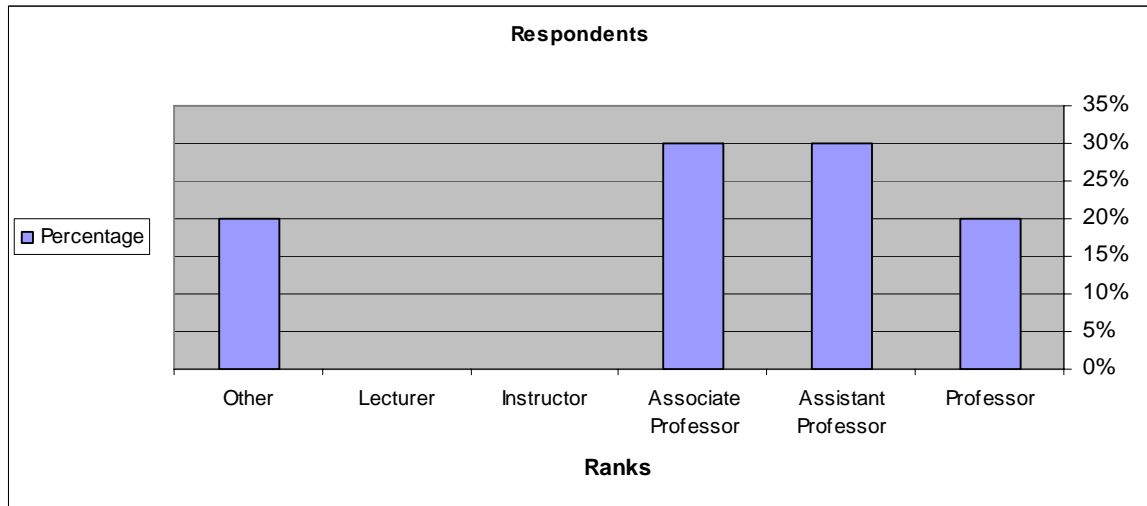
The largest groups of those who answered the questionnaire were associate professors and assistant professors , 30 % for each. 20 % were professors; and 20 % were other ranks. Lectures and instructors did not participate in the study. Since the majority of respondents were professors, associate professors, and assistant professors, it can be assumed that they are involved in performing the main academic research task. See table (3).

Table (3) . Percentage of Information and Library Sciences faculty responding by rank: The University of Illinois at Urbana-Champaign 2005.

Rank	Respondents	Percentage
Professor	2	20 %
Assistant Professor	3	30 %
Associate Professor	3	30 %
Instructor	0	0 %
Lecturer	0	0 %
Other	2	20 %
<b>Total</b>	<b>10</b>	<b>100 %</b>

Source: Survey of Information and Library Sciences faculty (n=10)

Figure (5). Percentage of Information and Library Science faculty responding by rank: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Library and Information Science faculty (n=10)

### Sample Response Rate

In order to obtain a quick return and a high response rate, the questionnaire was designed electronically and was accessible for faculty members through the web. The questionnaire was designed electronically using Microsoft Office Front Page and was built and established on the Egyptian Universities Networks, EUN, web site. The questionnaire was sent via email over five times during the spring of 2005 to all faculty members in The Graduate School of Library and Information Science at The University of Illinois at Urbana-Champaign. The faculty members' email addresses were obtained from the school' web sites. The questionnaire was sent on February and March of 2005. Out of 58 faculty surveyed, 10 responded to the questionnaire. A Microsoft Office Access Database was



created in order to facilitate the process of extracting and analyzing the data. The Microsoft Office Access Database helped in creating the reports and tables required for the analysis. Microsoft Office Excel was used in designing Figures to illustrate data and in performing various calculations.

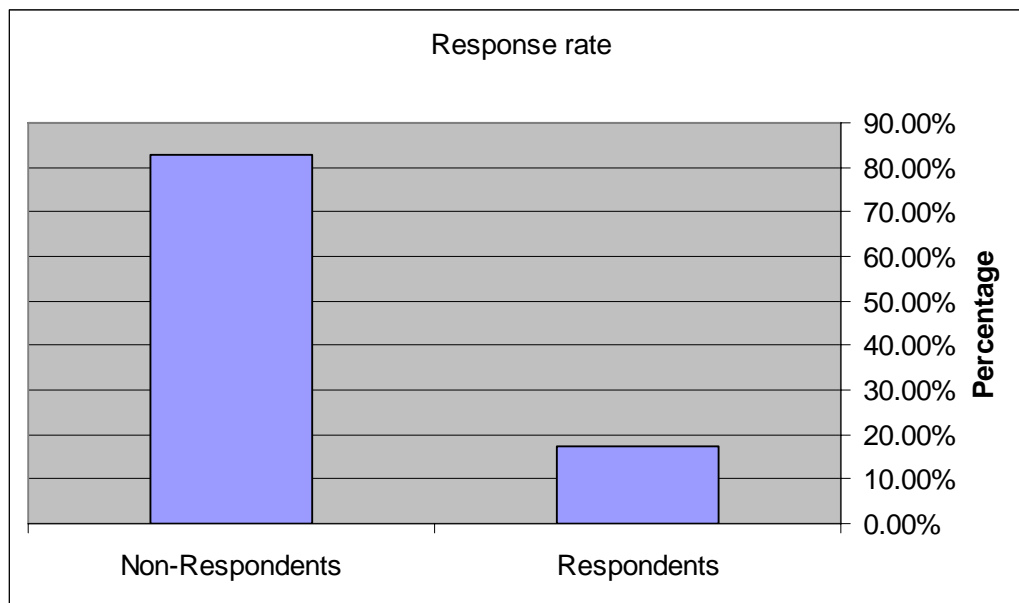
The study was performed at one school, **The Graduate School of Library and Information Science at The University of Illinois at Urbana-Champaign**, ranked # 1 in US world report in 2000. The response rate was about 17.54 % after sending five emails during the spring of 2005. See table (4).

Table (4). Response rate of Library Science faculty: The University of Illinois at Urbana-Champaign 2005.

<b>Population</b>	<b>Number of responses</b>	<b>Response rate</b>
<b>Respondents</b>	10	17.54 %
<b>Non-Respondents</b>	47	82.45 %
<b>Total</b>	57	100 %

Source: Survey of Library and Information Science faculty (n=57)

Figure (6) . Response rate of Library and Information Science faculty: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Library and Information Sciences faculty (n=57)

### Research activities

The question was [*The activities you perform in research are:*

*Writing grant proposals ( ) Conducting research ( ) Writing research results for publication ( ) Other, ----- ]*

The study found conducting research is the main research activity that Information and Library Science faculty perform, followed by writing research results for publication. Few faculty members write grant proposals and very few perform other research activities.

### Activities related to research task

The activities Information and Library Science faculty members perform within the research task were analyzed. The number of hits for each activity was counted and divided by the total sample, 10, to present the percentage. It was found that **conducting research task** is major activity where all faculty members at the school, 100 %, are involved in. A very high percentage of faculty, 90 %, **write research results for publication**. However, **writing grant proposals** was performed by 50 % of faculty, **Other activities** was also performed by a low percentage of faculty members, 20 %.

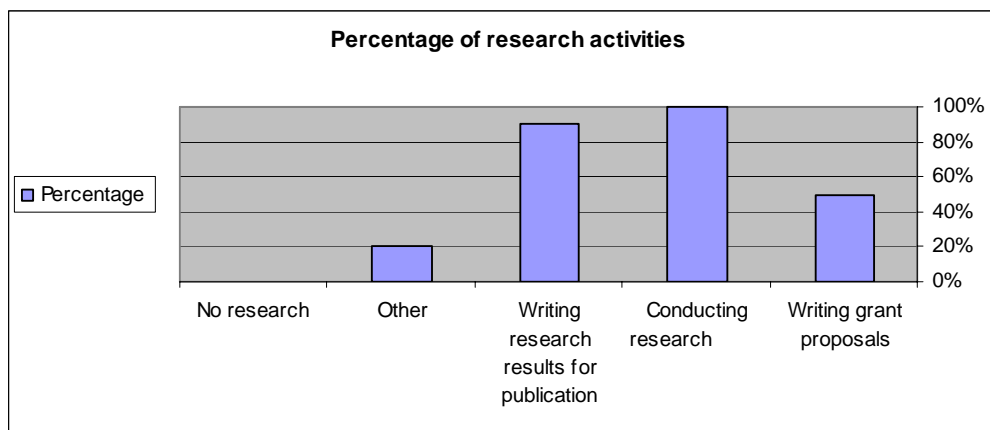
This indicates that **conducting research** is the main teaching activity that all Information and Library Science faculty perform, followed by **writing research results for publication**, followed by **writing grant proposals**, and very few faculty members perform other research activities. See table (5) for details.

Table (5) Percentage of research tasks of Library and Information Science faculty

Research activities	Distribution	Percentage
Writing grant proposals	5	50 %
Conducting research	10	100 %
Writing research results for publication	9	90 %
Other	2	20 %
No research	0	0 %

Source: Survey of Information and Library Sciences faculty (n=10)

Figure (7). Percentage of teaching tasks of Library and Information Science faculty



Source: Survey of Information and Library Sciences faculty (n=10)

### Testing the hypotheses of the study

The two hypotheses were tested using information about the average use by Information and Library Science faculty members of various types of information sources. In order to calculate and test the hypothesis, the average use per Information and Library Science faculty per typical month shown in the table cells was calculated. These numbers are the results of three processes as follow:

1) Calculate the mid range of the main table in the questionnaire (No use, 1-4, 5-14, 15-29, 30-More) to be (0, 2.5, 9.5, 22, 35); 2) Count the number of hits in each cell from the 11 respondents; 3) Calculate the mean by dividing the sum of the results of each row by the number of respondents.

### Hypothesis (1)

The first hypothesis was that there will be a difference in the using Networked Information Sources and Services used to perform the basic research task or activity according to faculty rank, and gender. The following table was in the questionnaire.

*[Over the last typical month how often did you access the following sources in research?]*

Sources / usage	No Use	1-4	5-14	15-29	30-More
Emails					
News group and Listserv s					
Electronic Journals					
Index & Abstracts & Full Text Databases					
Scholarly Electronic Archives (ex. Research Index)					
Directories & Search Engines on the Internet (Yahoo, Aol, Ask jeeves, Google, Excite, etc)					

### Part (1) Faculty Rank

In order to test the hypothesis (1) and show the variance in using various information sources according to rank, a query was made using Microsoft Office Access to calculate the use of various information sources according to various ranks. The result of this query provided a report that presented the use of sources according to the research tasks / activities. Numbers of hits were multiplied by the mid-ranges and were summed and divided by total numbers of individuals of each rank in the sample, in order to calculate the average use of various information sources per faculty member by rank

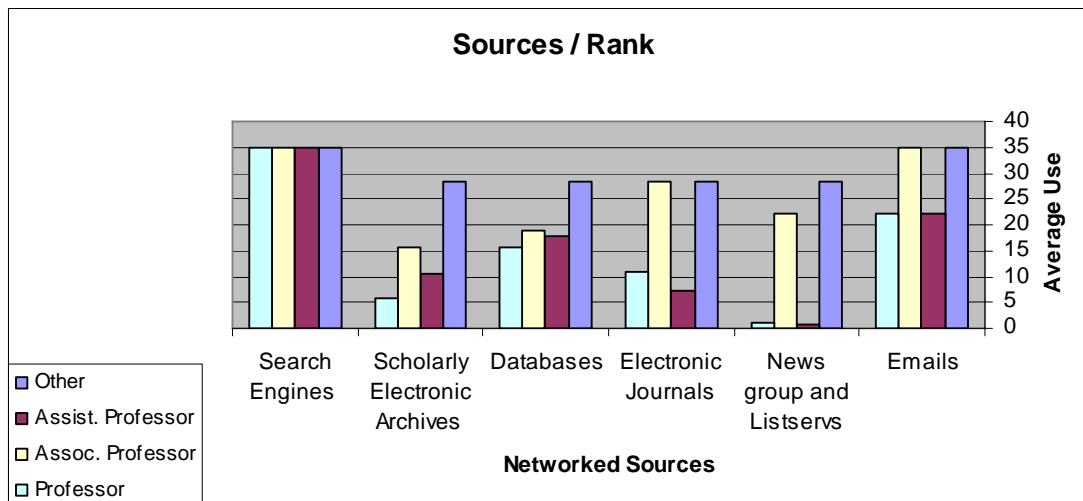
The study found the average number of uses over all types of information sources per faculty member per typical month by rank as follows. See table (6) for details.

Table (6). Average use of networked information sources and services per Library and Information Sciences faculty member per typical month by rank: The University of Illinois at Urbana-Champaign 2005.

Sources	Other	Assist. Professor	Assoc. Professor	Professor
Emails	35	22.16	35	22.25
News group and Listserv s	28.5	0.83	22.25	1.25
Electronic Journals	28.5	7.16	28.5	11
Index & Abstracts & Full Text Databases	28.5	17.83	18.75	15.75
Scholarly Electronic Archives	28.5	10.5	15.75	6
Directories & Search Engines	35	35	35	35
Total	184	93.48	155.25	91.25

Source: Survey of Information and Library Sciences faculty (n=10)

Figure (8) . Average use of faculty member per typical month by rank: The University of Illinois at Urbana-Champaign 2005.

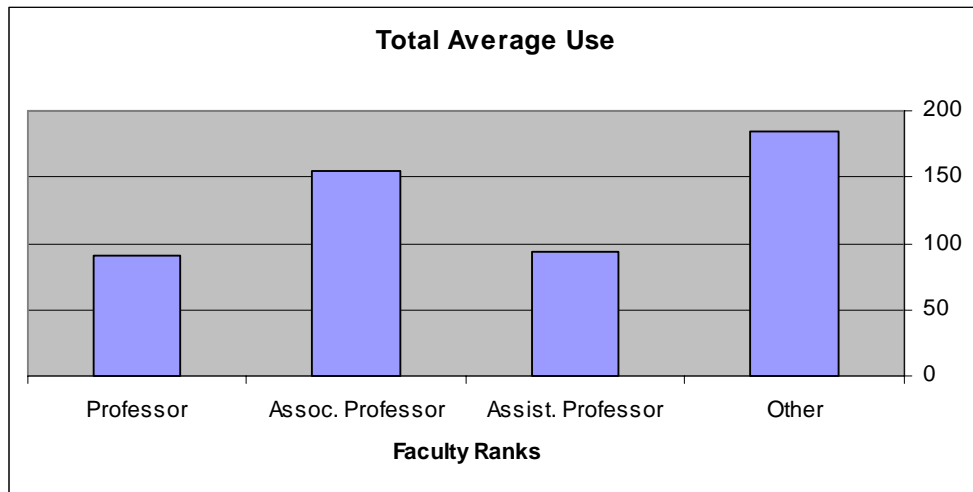


Source: Survey of Information and Library Sciences faculty (n=10)

Directories, search engines and emails and were found to be the type of sources used most by faculty members at all ranks, while news groups and scholarly electronic archives were the least used sources.

The study found the average number of monthly uses per faculty member is higher for other ranks than for any other rank, followed by Associate professors and assistant professor in second and third places, and professors are at the end of the list. See table (7) for details.

Figure (7). Total average use of networked information sources and services per Information and Library Sciences faculty member per typical month by rank: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Information and Library Sciences faculty (n=10)

The following list shows how various faculty ranks use various information sources.

**Professors:** Professors focus on search engines and emails most and databases and electronic journals in the third and fourth places. They use electronic scholarly archives and news groups least.

**Associate professors:** Associate professors focus on search engines and emails most and electronic journals and news groups in the third and fourth places. They use databases and electronic scholarly archives least.

**Assistant professors:** Assistant professors use search engines and emails most and databases and scholarly electronic archives in third and fourth places. They use electronic journals and news groups least.

**Other ranks:** Other ranks use search engines and emails most, and other networked sources almost at the same rate.

## Part (2) Faculty Gender

In order to test the second part of hypothesis (1) and show the variance in using various information sources according to gender, a query was made to calculate the use of various information sources according to gender. The result of this query is a report that presented the use of sources according to the three main tasks. Numbers of hits were multiplied by the mid-ranges and summed and divided by total number of faculty members

respondents of each gender, in order to calculate the average use of various information sources per faculty member by gender.

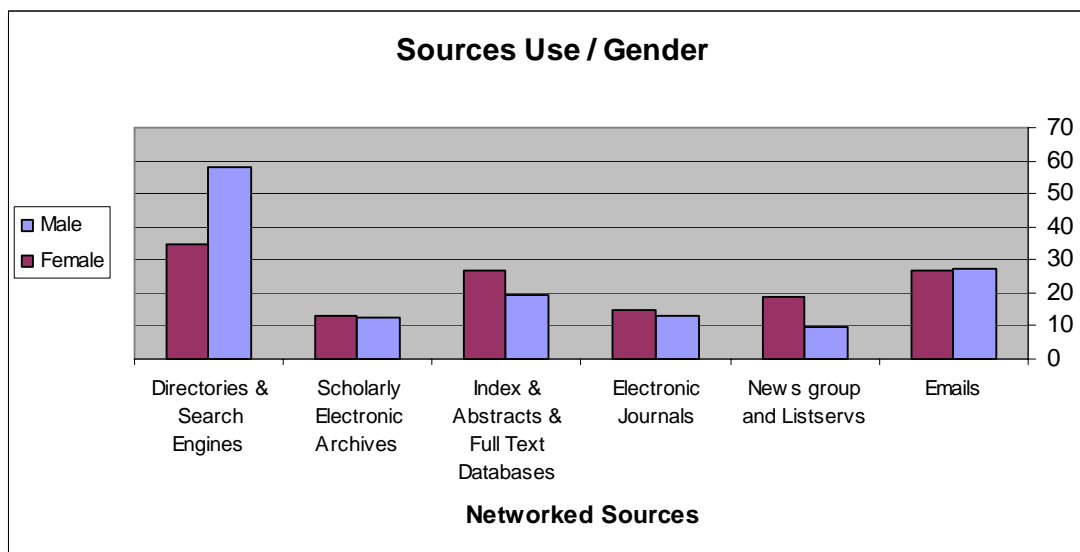
The study found the total use of males is higher than that of females. Directories and search engines and emails were found to be used most by both genders, while scholarly electronic archives were found to be the least used sources. It was also figured out that males use directories and search engines and emails more than females. On the other hand it was figured that females use electronic journals, databases and scholarly electronic archives and news groups more than that of males. See table (8) for details.

Table (8) Average number of uses per faculty member per typical month by gender

Sources	Male	Female
Emails	27.3	26.5
News group and Listserv s	9.9	19
Electronic Journals	13.1	14.8
Index & Abstracts & Full Text Databases	19.5	26.5
Scholarly Electronic Archives (ex. Research Index)	12.6	13.3
Directories & Search Engines on the Internet (Yahoo, Aol, Ask jeeves, Google, etc)	58.3	35
Total	140.7	135.1

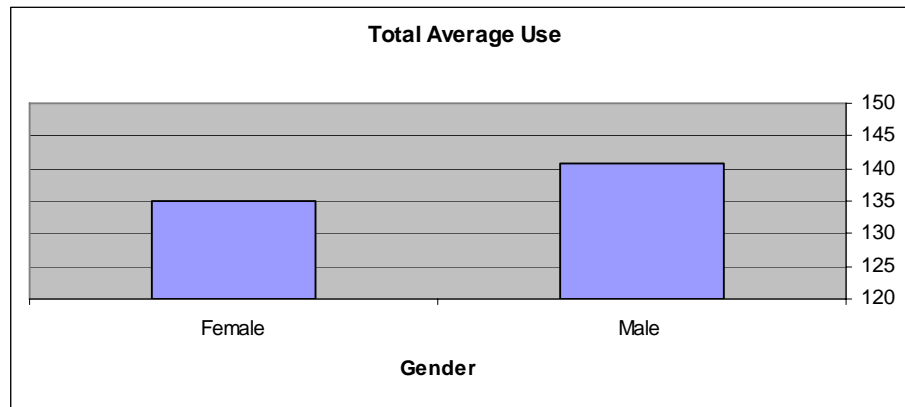
Source: Survey of Information and Library Sciences faculty (n=10)

Figure (10). Average use of information sources per Information and Library Science faculty member per typical month by gender: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Information and Library Science faculty (n=10)

Figure (9). Total average use per faculty member per typical month by gender: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Information and Library Science faculty (n=10)

## Hypothesis (2)

The second hypothesis indicates that the degree to which faculty depend on Networked Information Sources electronic sources will differ across the research tasks/activities, as follows:

- A) They will depend more on electronic mails for research tasks than news groups.
- B) They will depend more on electronic journals for research tasks than electronic archives.
- C) They will depend more on electronic databases for research tasks than Internet directories and search engines.

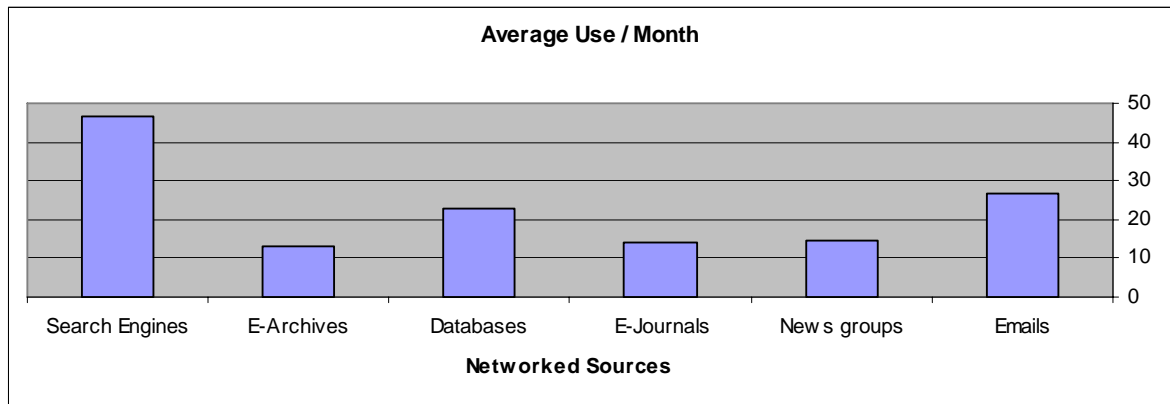
This hypothesis was partially proved, in that it was found faculty member to depend more on electronic mails for teaching tasks than news groups (Part A). Part B was also approved in that it was found faculty member to depend more on electronic journals for research tasks than electronic archives. However part C was disapproved where it was found that faculty members depend less on electronic databases for research tasks than Internet directories and Search Engines. See table (9) for details.

Table (9). The average typical use per typical month of various information sources for the research task per Information and Library Science faculty member: The University of Illinois at Urbana-Champaign 2005.

Research / Sources	Emails	News groups	E-Journals	Databases	E-Archives	Search Engines
<b>Average</b>	26.9	14.45	13.95	23	12.95	46.65

Source: Survey of Information and Library Science faculty (n=10)

Figure (12). Average number of uses of Networked information sources per Information and Library Science faculty member per typical month: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Information and Library Sciences faculty (n=10)

### Evaluation Criteria

In order to measure the level of satisfaction, numbers of hits in each cell were multiplied by 0, 1, and 2 to represent low, med, and high values, and summed, then the result was divided by the total number of respondents. The question was: *[-Please evaluate each of the following sources based on the last time of usage]*

Information Sources	Credibility* Accuracy** Reasonableness*** Support****		
	Low	Med	High
Emails			
News group and Listserv s			
Electronic Journals			
Index & Abstracts & Full Text Databases			
Scholarly Electronic Archives (ex. Research Index)			
Directories & Search Engines on the Internet (Yahoo, Aol, Ask jeeves, Google, Excite, etc)			

The study found faculty members to be satisfied most with electronic journals, index and abstracts and full text databases and, scholarly electronic archives, while they were least satisfied newsgroups and directories and search engines. See table (10) for details.

\* Credibility was defined in the questionnaire to be known or respected authority.

\*\* Accuracy was defined in the questionnaire to be correct, up to date and comprehensive.

\*\*\* Reasonableness was defined in the questionnaire to be fair, balanced, objective and reasoned.

\*\*\*\* Support was defined in the questionnaire to have listed sources and contact information

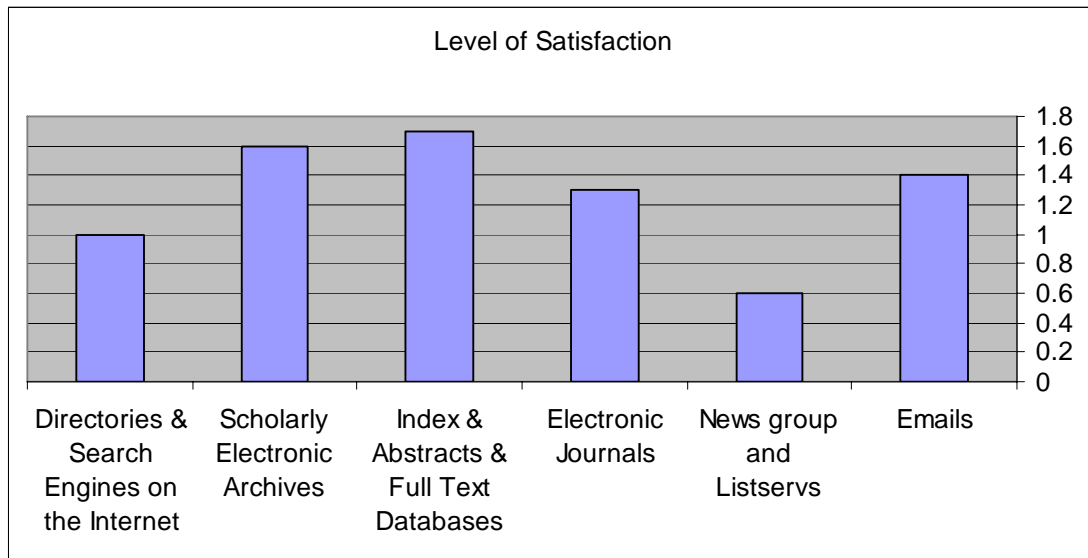


Table (10) Faculty evaluation of various electronic sources by CARS criteria of evaluation: The University of Illinois at Urbana-Champaign 2005.

Information Source	Level of Satisfaction
Emails	1.4
News group and Listservs	0.6
Electronic Journals	1.3
Index & Abstracts & Full Text Databases	1.7
Scholarly Electronic Archives (ex. Research Index)	1.6
Directories & Search Engines on the Internet (Yahoo, Aol, Ask jeeves, Google, Excite, etc)	1.0

Source: Survey of Information and Library Sciences faculty (n=10)

Figure (13). Faculty evaluation of various electronic sources by CARS criteria of evaluation: The University of Illinois at Urbana-Champaign 2005.



Source: Survey of Information and Library Sciences faculty (n=10)

### Analysis of open ended questions

Several of the survey questions were open-ended, offering respondents the opportunity to make longer comments about their use of electronic resources. These comments are summarized below.

#### Other reasons for using electronic sources

The question was *[-In addition to these factors (credibility, accuracy, reasonableness, and support), what other reasons do you have for using electronic sources of information?]*

When offered the opportunity to explain the factors, in addition to those explicitly identified, that contributed to their use of electronic sources, 9 faculty members chose to comment. Examination of their comments suggests that they can be categorized in the following areas: *convenience (4 respondents), speed (3 respondents), accessibility (4 respondents), comprehensiveness, efficiency, saving time (1 respondent for each)*

#### **Other reasons for not using electronic sources**

The question was *[-What characteristics of electronic sources limit your use of them? ]*

When offered the opportunity to explain the factors that limited their use of networked information sources and services, 8 faculty members chose to comment. Examination of their comments suggests that they can be categorized in seven areas:

1- access, 2- coverage, 3- browsing, 4- eye strain, 5- lack of comments, 6- portability and format , 7- difficulty in searching journals

In identifying Access as a factor in using electronic sources, respondents referred to the lack of accessibility of these materials outside the campus. In identifying Coverage as a factor, three respondents identified “lack of completeness, and lack of full text”. In identifying Browsing as a factor in using electronic sources and services, two respondents mentioned that there is a difficulty in browsing several issues of a journal. The difficulty of reading from a screen and problems with portability and format were other reasons behind not using networked information sources and services.

#### **Suggestions, comments, and recommendations**

The question was *[-Please use the space below for suggestions comments, and recommendations for improving use of electronic sources]*

When faculty members were offered the opportunity to present their suggestions comments, and recommendation for improving use of networked information sources and services, 2 faculty members chose to comment. Examination of their comments suggests that they can be categorized in two areas that are creating a unified universal academic database and transforming all materials in XHTML or some other XML markup languages.

#### **Implications and Suggestions**

Based on previous analysis, the study showed a difference in using various information sources, where the study found variability in the sources used according to rank and gender. Thus, in order to provide high quality service, the University Library System should provide the sources that meet each category.

The study also showed a variance satisfaction with electronic sources, where faculty members are most satisfied with Index and abstracts and Full Text Databases and Scholarly Electronic Archives and least with Directories and Search Engines and News group and Listservs.

Faculty members consider Index and abstracts and Full Text Databases and Scholarly Electronic Archives high creditable, most accurate, high reasonable and most supportive. In addition to this, they consider Index and abstracts and Full Text Databases and Scholarly Electronic Archives convenient to meet their needs. Therefore, this part suggests specific action for the University Library System, where a single access point for all types of materials, with the ability to search only for specific types of materials, and linkages to the documents themselves in XHTML.

Faculty members consider Directories and Search Engines and News group and Listservs less creditable, less accurate, less reasonable and less supportive. In addition to this, they do not consider Directories and Search Engines and News group and Listservs convenient to meet their needs. Therefore, this part suggests specific action for companies running directories and search engines over the web, where better indexing web site is essential to improve the retrieval and search processes.

## *Appendixes*

- 1) Formal Email
- 2) Paper- Based Questionnaire
- 3) Web-Based Questionnaire

**Helwan University**  
**Faculty of Arts**  
**Department of Library and Information Sciences**

**Information Seeking Behavior of Library And Information Science Faculty In Research With  
A Special Reference To The Use Of Networked Information Sources And Services: A Case  
Study Performed At The Graduate School Of Library And Information Science At The  
University Of Illinois At Urbana-Champaign**

I am a lecturer at the Department of Library and Information Sciences at Helwan University, Cairo, Egypt. I am performing a study on the Use of Networked Information Sources and Services by Library and Information Sciences Faculty in research. I appreciate your participation, as it will assist in understanding faculty trends in research at the academic environment. This questionnaire will take less than 5 minutes from each participant to complete it.

There are no foreseeable risks associated with this project. This is an entirely anonymous questionnaire, and so your responses will not be identifiable in any way. Data and information gained from this questionnaire will be confidential and will be used only for scientific purposes. Participation is completely voluntary and the subjects may withdraw from the study at any time and for any reason without penalty. In the meantime, if you have any question, please ask me:

Thank you.

H. ABOUSERIE, PhD.  
E Mail: [hossam\\_usa@yahoo.com](mailto:hossam_usa@yahoo.com)  
011-202-29186904



Research - Microsoft Internet Explorer

ملف تحرير عرض المفضلة أدوات تعليمات

الخطى الخلف

http://www.eun.eg/helwan\_poll/research.htm

### The activities you perform in Research are:

Writing grant proposals  Conducting research  Writing research results for publication

Other,  I do not perform Research

Over the last typical month how often did you access the following sources in research?

Sources/Usage	No use	1-4	5-14	15-29	30-up
Emails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
News groups, Mailing lists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Journals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Index & Abstracts & Full Text Databases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scholarly Electronic Archives (ex. Research Index)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet Directories & Search Engines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

إنترنت

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...Research - Microsoft I

M-E-mails

Research - Microsoft Internet Explorer

ملف تحرير عرض المفضلة أدوات تعليمات

انتقال [http://www.eun.eg/helwan\\_poll/research.htm](http://www.eun.eg/helwan_poll/research.htm) عنوان

Please evaluate each of the following sources based on the last time of usage according to

**Credibility:** known or respected authority; **Accuracy:** Correct, up to date, comprehensive;

**Reasonableness:** Fair, balanced, objective, reasoned; **Support:** Listed sources, contact information, claims supported:

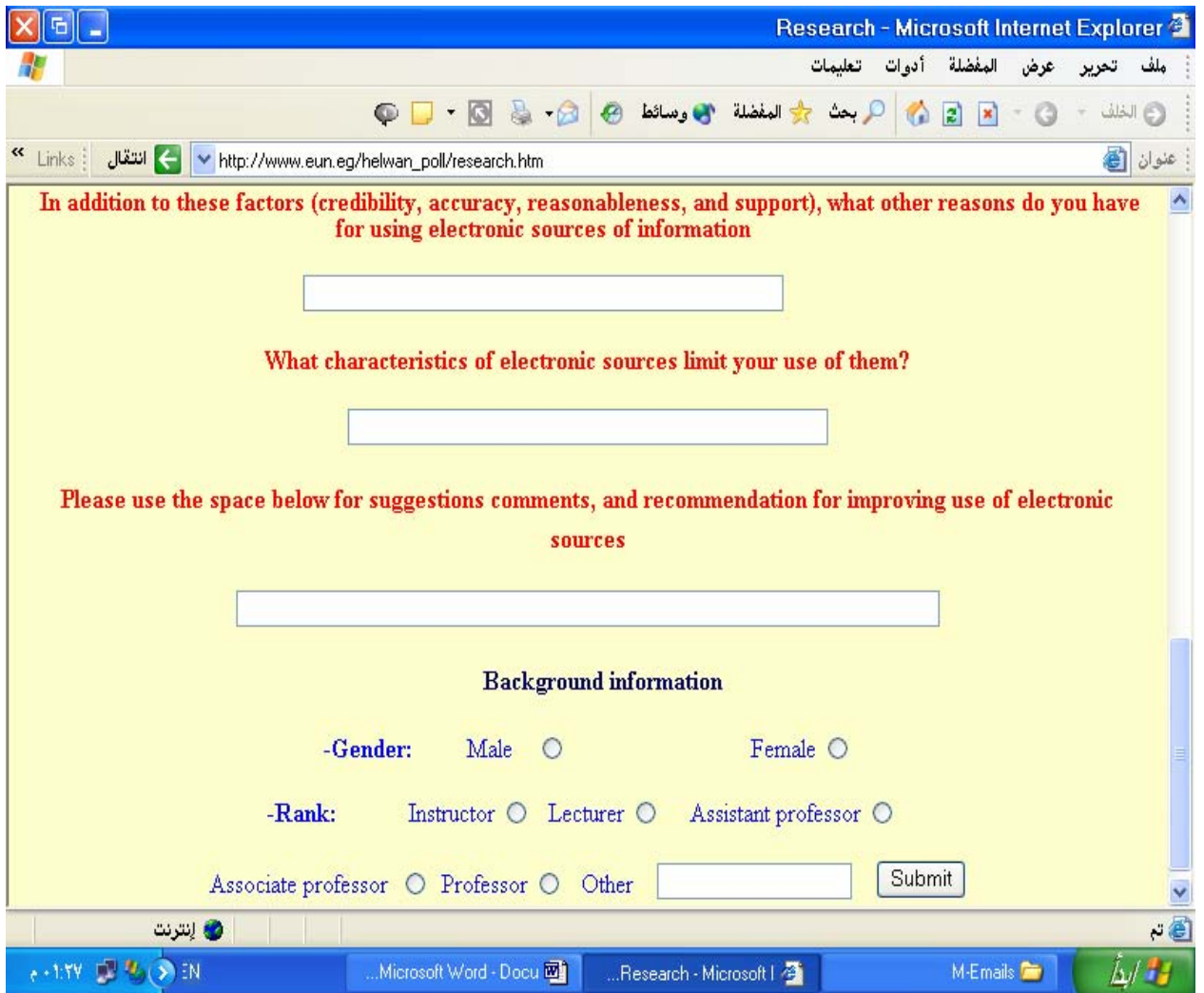
Sources / Evaluation	Low	Med	High
Emails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
News groups, Mailing lists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Journals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Index & Abstracts & Full Text Databases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scholarly Electronic Archives (ex. Research Index)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet Directories & Search Engines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**In addition to these factors (credibility, accuracy, reasonableness, and support), what other reasons do you have for using electronic sources of information**

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