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The Information Seeking Strategies of Digitized Resources in Cebu Technological University, Philippines

VE LESLIE E. ATANOZA
JOHANNES M. CAMASURA
veleslie@yahoo.com
Cebu Technological University
Cebu City, Cebu, Philippines

Abstract - The study investigates the strategies employed by the students of Cebu Technological University in searching information using digitized resources. It identifies students' information needs using the main campus' library and describes the information seeking approaches students employ using the Internet, Online databases and Optical media. The study employs simple purposive sampling. It uses descriptive method of survey and document analysis. A focus group discussion was also conducted and computer log monitoring analysis. The study revealed that students' information needs are varied and course related. Students' purposes in searching information in digitize sources are to get an overview of their research topic; answering class assignments and gathering related literature. Students supply their own keywords rather than the keywords provided in the index of online databases was generally the first approach used in searching information in digitized sources. Boolean operators and truncations as search techniques were the least used approach. Search engines of Google, Yahoo, and You Tube were the top three preferences of students when using the Internet as a Digitized Information Source. Dealing with too many results to choose from and inadequate instructions on how to proceed with the search usually contribute to the delay in finding the needed information.

Keywords - digitized resources, information seeking strategies

INTRODUCTION

Information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand.

The beginning of the 21st century has been called the Information Age because of the explosion of information output and information sources. It has become increasingly clear that students cannot learn everything they need to know in their field of study in a few years of university stay. The ability to find the exact information equips them with the critical skills necessary to become independent lifelong learners.

Too often we assume that as students write research papers and read textbooks, they are gaining sufficient information seeking skills. Information seeking skills may be introduced but what is needed is a parallel curriculum in Information Literacy forming a strong foundation of a college education." (American Library Association 1989)

The rapid advancement of technology makes the environment for digitized information more complex. Its design and means of access to the information needed has changed because of ICT. Its application brought unusual modification on how people do things. This unusual change can be noticed by ordinary students, doctorate students, professionals and researchers as they access, locate and store the information for a particular purpose. Digitized information sources such as the internet, electronic resources, online databases and many others are becoming essential part of information centers. The rapid changes in the way information is provided arouse the interest of the researchers to find out how users access and retrieve information in a computerized environment, digitized information formats, plus the excessive resources on the Internet.

The availability of digital resources allows students to seek information on their own whenever, wherever they need it. With these thought, the researchers are but very much interested to

find out the search strategies employed by students in locating the needed information using the following digital resources: Internet, Online databases and optical media particularly CD's and DVD's and eventually design an information literacy program that will enable information seekers and information providers acquire an integrated set of skills that allow the individual to recognize an information need, locate, evaluate and use information effectively with the use of the various digital resources.

FRAMEWORK

The understanding that the modern day students is so dependent with the digitized information, knowing their information seeking behavior using digitized resources is but an interesting area that can arouse investigations. According to Boholts et.al. (2012), the understanding of information needs and information-seeking behavior of various professional groups is essential as it helps in the planning, implementation, operation of information systems and services in work settings. The need for Information is recognition of uncertainty existence while the behavior of information seeking is defined as any activity of an individual that is undertaken to identify a message that satisfies an apparent need.

Some related literature revealed that in the recent years, considerable amount of studies of information seeking processes and factors that could affect search outcome has been carried out yet the ever changing landscape of the information environment, the user's information needs and the development of current information retrieval systems are the major contributory factors that affect the outcome of the search.

According to Tibbo (2003) that primarily the history project is the first international, comparative study to examine historians' information seeking behaviors since the advent of the World Wide Web, electronic findings, digitized collections and an increasingly pervasive networked scholarly environment.

Allison Head (2007) finds out from her exploratory study about how students majoring in humanities and social sciences use the internet and library resources for research. She said that the results suggest students may not be as reliant on public internet sites as previous

research has reported. Instead, the students in her study used hybrid approach for conducting course related research. A majority of students leveraged online and offline sources to overcome challenges with finding, selecting and evaluating resources and gauging professors' expectations for quality research.

Goldbold (2006) proposed a new model for information behavior that extends the concept beyond simply information seeking to consider other modes of behavior. The models chiefly explored are those of Wilson and Darvin. She argued that a shortcoming of some models of information behavior is that they present a sequence of stages where it is evident that actual behavior is not always sequential. In addition, information behavior models tend to confine themselves to depictions of information seeking. She designed/developed a model of 'multi-directionality' is explored, to overcome the notion of sequential stages. Inspired by authors such as Chatman, Krikelas, and Savolainen, modes of information behavior such as creating, destroying and avoiding information are included. She concluded that new models of information behavior are presented that replace the notion of 'barriers' with the concept of 'gap', as a means of integrating the views of Wilson and Dervin. Her proposed models incorporate the notion of multi-directionality and identify ways in which an individual may navigate 'gap' using modes of information behavior beyond information seeking.

Jarvelin Katevo (2003) states in his study that there are several kinds of conceptual models for information seeking and retrieval (IS&R). He suggested that some models are of a summary type and others more analytic. Such models serve different research purposes. His paper purposely discusses the functions of conceptual models in scientific research, in IS&R research in particular. What kind of models are there and in what ways may they help the investigators? What kinds of models are needed for various purposes? In particular, we are looking for models that provide guidance in setting research questions, and formulation of hypotheses. He adds that the paper discusses [at length] one analytical model of task-based information seeking and its contribution to the development of the research area.

Lokman and Tibbo (2003) in their paper revises David Ellis's information-seeking behavior model of social scientists, which includes

six generic features: starting, chaining, browsing, differentiating, monitoring, and extracting. Although the study confirmed Ellis's model, it found that a fuller description of the information-seeking process of social scientists studying stateless nations should include four additional features besides those identified by Ellis. These new features are: accessing, networking, verifying, and information managing. In view of that, the study develops a new model, which, unlike Ellis's, groups all the features into four interrelated stages: searching, accessing, processing, and ending. Their new model is fully described and its implications on research, practice and how or why scholars studied here are different than other academic social scientists.

Internet diffusion is not homogeneous and depends on many factors Noce and McKeown (2010). Their study used data from the Canadian Internet Use Survey (CIUS) to explore the extent demographic variables affect Internet use by individuals in Canada. A logistic model confirms that certain factors, educational attainment, and geography in particular influence Internet use in Canada, controlling for age and income. They added that Education maintains a strong, significant impact on Internet use such that the odds of using the Internet are about three times greater for someone who has some post-secondary education than someone who has, at most, a high school education. An urban-rural digital divide persists in Canada with the odds of using the Internet being almost one-and-a-half times greater for someone who lives in an urban area. While language also has a large effect on Internet use, the presence of children in households no longer seems to be a significant factor. Their study thus underscores the changing digital environment in Canada and the need for adaptive, flexible policies addressing national connectivity issues and, in particular, broadband Internet availability.

Carol Wright (2004) stated that academic libraries have the opportunity through their Web pages to present to the university community recommended sites and appropriate techniques for searching the Internet. But in the design and organization of home pages, academic libraries often provide inadequate navigational paths to sites that provide search engine selection and evaluation criteria.

Tahir et. al (2008) reveals in their study that consulting with experts in the subject field was the preferred method of getting information

followed by the conversation with colleagues. Reference books were the most important resource for teaching. Consultation with knowledgeable persons or experts in the field was the most important source of information for research. He added that most humanities teachers get information sources from their departmental library; they also maintain personal collections and/or personal libraries for this purpose. Most of the humanists prefer information in print, while they least prefer audiovisual material. Results of the study show that a majority of the humanists do their information-seeking activities at home. Meeting personally was the most-used channel of communication, followed by e-mail. Consulting with the subject experts was the most common method to keep abreast with current developments in their subject fields. Most search for information for their teaching preparation or lecturing, to guide researchers or students, and to support research. Unavailability of required material was the most common problem in information-seeking.

Muhammad Rafiq (2009) said that the use of electronic or digital resources is well-established and respondents urged National Textile University Library in Pakistan to enhance access opportunities to e-resources to meet users' academic and research needs. He added that the Internet and email are highly used electronic services. Moreover, he added that there is a rare use of the library website and OPAC is alarming and needs further exploration. Although NTU Library has a standard and well-maintained automation system, there is a need to increase the use of the OPAC. Furthermore, he said that respondents heavily rely on google, yahoo, and MSN, while hotmail and yahoo are preferred email servers, followed by gmail. NTU webmail is less preferred. On this issue, the NTU Webmaster commented, in an interview with the principal researcher that, "people do not prefer to use official emails because of privacy threats and network problems." He also said that "one of the other reasons is that people change jobs and they feel a threat that their data will not be accessible after quitting the organization."

Case et.al. (2003) in their study stated the diffusion of the internet has radically expanded the readily-available sources for information of all types. Information that was once obtained second-hand from friends and acquaintances—the traditional "two-step flow"—is now

found easily through the internet. They stated that the result of their study raised questions about the apparent tendency of the public to regard the internet as the best source of information on complex topics.

Lastly, Wilson (1994) presents an outline of models of information seeking and other aspects of information behavior, showing the relationship between communication and information behavior in general with information seeking and information searching in information retrieval systems. It is suggested that these models address issues at various levels of information behavior and that they can be related by envisaging a 'nesting' of models. It is also suggested that, within both information seeking research and information searching research, alternative models address similar issues in related ways and that the models are complementary rather than conflicting. Finally, an alternative, problem-solving model is presented, which, it is suggested, provides a basis for relating the models in appropriate research strategies.

Wilson (1999) as cited by Goldbold (2006) also introduced four models of information seeking behaviors which are presented below.

Figure 1 shows Wilson's 1981 model, as modified in 1999. He used Ellis' list as characteristics of information seeking behavior, which he placed within the context of information need arising out of a situation (of the person's environment, social roles and individual characteristics). That same context presents barriers which must be overcome before information seeking takes place.

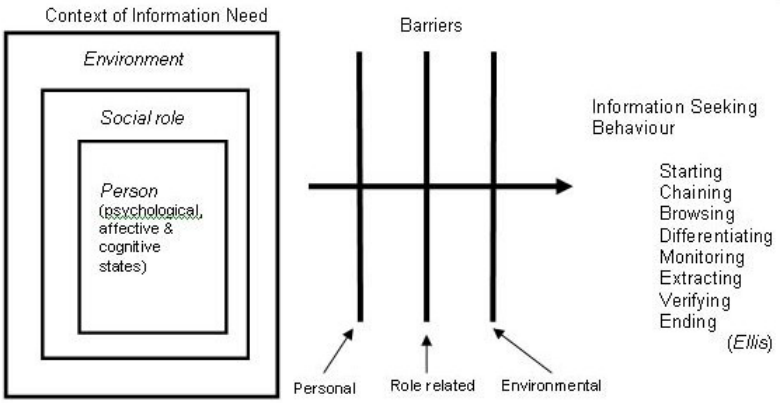

Figure 1: Wilson's 1981 model of information-seeking behavior

Wilson later (1999) described this 1981 model as a 'macro model or a model of the gross information–seeking behavior', suggesting that it implies hypotheses about information context without making them explicit, and that it does not indicate the processes whereby a person is affected by context, nor how context then affects his or her perception of barriers to information seeking.

By 1996 Wilson had expanded this model as shown in Figure 2 (reported in Wilson, 1997). Aspects of the 1981 model have been developed, in particular the possible kinds of barriers which must be surmounted by the information seeker, and the possible forms his or her information seeking may take.

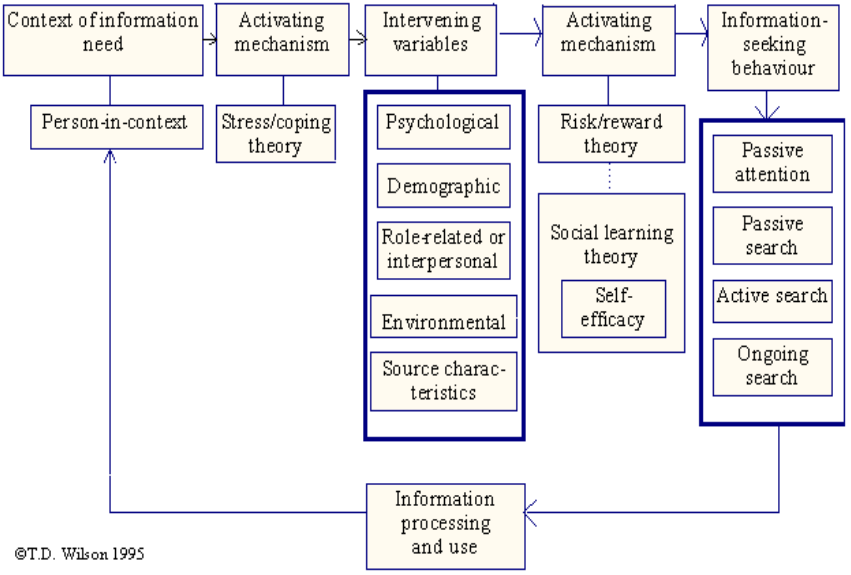

Figure 2: Wilson's 1996 model of information behavior

With the next model (Figure 3) presented in 1999, Wilson pointed out that *information search behavior* is a subset of *information seeking behavior* and that *information seeking behavior* is in turn only a subset of all possible *information behavior*. As such, the existence of modes of information behavior, other than information seeking, is implied.

Figure 3: Wilson's 1999 nested model of information behavior

Also in 1999, Wilson combined the work of Ellis (1989) and Kuhlthau (1991), each of whom had suggested phases or stages which tend to occur within information seeking. In Figure 4, Wilson pointed to similarities between the two while emphasizing that the movement of the seeker between characteristic seeking behavior can occur in varying sequence.

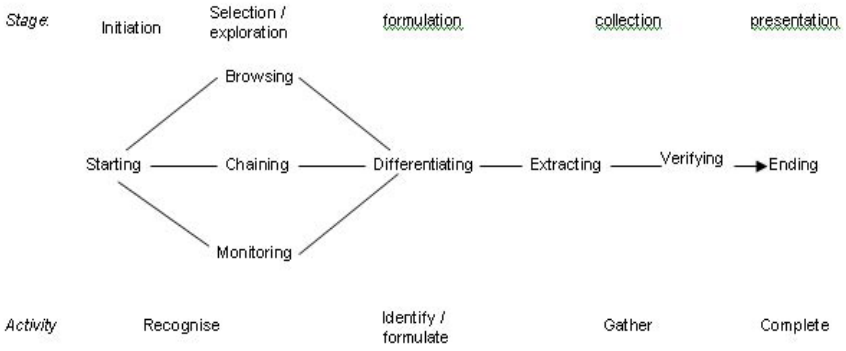

Figure 4: A stage process version of Ellis's behavioural framework and comparison with Kulthau's stage process model - by Wilson 1999

Today's generation belongs to the Information Age. The present era is called the "Information era" Information has become an important element for progress in today's globalized society To thrive in this modern era, one needs a variety of information for any desired field of knowledge, no matter how well versed one is in a field or profession. Psacharopoulous (1982) discusses the necessity of information in the present age. We can reorganize the educational system and redefine scientific research only with the help of information. Information plays a significant role in our professional and personal lives. People need information to work properly in their fields. However people manifested different types of information seeking behaviors.

Krikelas' (1993) definition of information need is the recognition of the existence of uncertainty while information-seeking behavior is defined as any activity of an individual that is undertaken to identify a message that satisfies a perceived need. Information seeking begins when someone perceives the current state of knowledge that is less than that needs to deal with some issues or problems.

The study of information needs and gathering behavior dates back to 1948 when Bernal and others presented a paper on scientific information at the 1948 Royal Society conference (Bernal 1960). During the past 30 years, a considerable body of literature has been produced dealing with information needs and information-seeking behavior of both individuals and groups in a variety of contexts (Anwar, Al-Ansari, and Abdullah 2004). It is estimated that the number of publications on information-seeking behavior was more than ten thousand in the 1990s alone (Case 2002). Many studies have been conducted to investigate the information-seeking behavior of library users based on their subject interest, occupation, information environment, and geographical location. Information needs and information-seeking behavior of academic have also been popular areas of research for the information scientists for decades (Majid and Kassim 2000). Many authors have pointed out that the studies on information-seeking behavior and needs of social scientists are fewer than those involving the natural sciences, and the studies of humanists' information needs are even much fewer. (Line 1969; Hopkins 1989; Blazek 1994, Challener 1999) Knowledge of the information needs and information-seeking behavior of users is vital for developing library collections, upgrading

facilities, and improving services to effectively meet the information needs of users.

Zhang (1998) stresses that a thorough understanding of user needs and information seeking behavior is fundamental to the provision of successful information services. Wilson (1994) points out that the scope of information-seeking behavior research is vast and many new concepts and methods are being developed. It is clear that the study of human information-seeking behavior is now a well-defined area of research. According to Devadason and Lingman (1997), the understanding of information needs and information-seeking behavior of various professional groups is essential as it helps in the planning, implementation, and operation of information system and services in work settings. Carol (1975) states that if academic librarians are to realistically serve academic researchers, they must recognize the changing needs and variations in information gathering and provide services that would be most useful. Ucak & Kurbanoglo (1998) cited Krikelas definition on information need as the recognition of the existence of uncertainty while information-seeking behavior is defined as any activity that an individual undertakes to identify a message that satisfies a perceived need. Information seeking begins when someone perceived that the current state of possessed knowledge is less than that needed to deal with some issue or problem.

Theoretical development or the construction of new conceptual models in any research area often requires conceptual and terminological development. Conceptual development may mean fulfilling, perhaps in a better way than before, the basic requirements for scientific concepts - precision, accuracy, simplicity, generality, and suitability for expressing propositions, which may be shown true or false. Moreover, good concepts represent essential features like objects, relationships, events of the research area. More importantly, the concepts should differentiate and classify the phenomena in ways that lead to interesting hypotheses (or research problems). This means that the concepts must relate to each other in a systematic manner. Concepts also need to support research into the phenomena using known research methods. They need to be compatible with each other and with the research methods. Below are two model conceptual frameworks for information seeking behavior.

Ellis's (1989; Ellis, *et al.*, 1993) and Ingwersen's (1996) Model frameworks are presented here Ellis's elaboration of the different behaviors involved in information seeking consists of six features. Ellis makes no claims to the effect that the different behaviors constitute a single set of stages; indeed, he uses the term 'features' rather than 'stages'.

The strength of Ellis's model is that it is based on empirical research and has been tested in subsequent studies, most recently in the context of an engineering company (Ellis & Haugan, 1997).Of the features, Ellis (1989: 178) notes that, '*...the detailed interrelation or interaction of the features in any individual information seeking pattern will depend on the unique circumstances of the information seeking activities of the person concerned at that particular point in time*'. Wilson (1999) proposes how these features may relate to each other temporally providing a partial order.

One may *describe* any information seeking activities through Ellis's features. Indeed, they are general enough to fit a large number of empirical situations. However, if one is to *explain* information seeking behavior, in terms of the work tasks the subjects are engaged with, or their knowledge on the task, the features fall short because they are not explicitly related to such external possible causative factors.

Ellis's model is still of help in finding explanations for information seeking behavior. It is possible to discern differences in any of the 'features' in different situations involving different kinds of persons through successive research projects. For example, some persons in some roles may be shown to engage more or less in monitoring than other persons. This may then lead to an examination of the factors that cause these differences.

OBJECTIVES OF THE STUDY

Specifically, the study seeks to accomplish the following objectives: to identify the information needs of students who use the information center (library) of Cebu Technological University; to describe the search strategies employed by the respondents in seeking information from Internet, Online databases and Optical media. Based on the findings an Information Literacy Program for the use of digitized resources will be developed.

Significance of the Study

The advancement of technology particularly the use of the internet and other digital sources of information pose an opportunity as well as a challenge to understand it well. In recent times, there are studies showing that most people preferred getting information and services through digitized form rather that from a hardbound document or book. Of course, it is lighter to go around without anything heavy to carry. However, during the last decade, relentless optimization of information retrieval effectiveness has driven web search engines to new quality levels where most people are satisfied most of the time, and web search has become a standard and often preferred source of information finding. For example, the 2004 Pew Internet Survey (Fallows 2004) found that "92% of Internet users say the Internet is a good place to go for getting everyday information." To the surprise of many, the field of information retrieval has moved from being a primarily academic discipline to being the basis underlying most people's preferred means of information access. In these digital age it is but fitting to understand the pattern on how they search information to uncover the strategies they employed using digitized resources to locate the information they need.

The output of this study would benefit the university as a whole, the information providers and information seekers such as students, teachers, researchers and all other users of digitized resources in the following ways: to the information providers such as the librarians, the results of the study could be used as one of the basis in reviewing and improving the existing services related to the use of information sources found in the internet, online journals, OPAC and other digitized resources, knowing how the respondents use these type of resources information providers would have better view how to promote, deliver and market these type of resources to their would be clients. They would be able to develop a comprehensive information literacy program aimed to guide library and information centers' clients to be selective of the websites, articles in online journals and other digitized formats to be used. Students would better be guided with strategies and procedures to search information using the online information resources particularly the internet and other digitized

sources. The faculty members would have more options which of the information found in online databases may be used for instruction purposes, and which of the vast sources may be recommended to their students for assignments and readings. Finally, the result of this study would contribute to the dearth of literature of existing local studies of the information seeking patterns employed by information seekers in seeking information in the internet, electronic journals, optical media and OPAC's. To find information sources that will develop an integrated set of skills and the knowledge of information tools and resources that allow a person to recognize an information need and locate, evaluate, and use information effectively.

MATERIALS AND METHODS

Research Design

The study used the descriptive method using survey and document analysis. Focus group discussion was also used to triangulate the data gathered from survey and log monitoring analysis.

Environment

The study was conducted in Cebu Technological University Main Campus located in R. Palma Street, Cebu City specifically, the university's library where digitized resources of information are available. The library is purposively chosen based on the presence of any of the following variables: Internet connectivity, access to online databases, and collection of optical media.

Subjects and Sampling of the Study

The subjects of the study were the actual users of digitized sources in the participating university. A total of 52 respondents from the graduate and college level were selected through simple purposive sampling.

Table 1 – Subject's demographic profile
N= 52

CTU Respondents		
Level	**n**	**%**
Graduate	5	10
College	47	90
Total	52	100

Majority (90%) of the respondents in this study are undergraduate students. Only 5 (10%) are graduate students.

Research Procedure

The study used the descriptive method using survey and document analysis. Focus group interview was conducted to triangulate the data gathered from the survey and the computer monitoring log.

A preliminary visit to the library was done to find out whether digital resources covered in this study are available for use by the students. The researchers then, wrote a transmittal letter to the heads of the university to inform them about the study and at the same time asking their permission to consider the library and the students to be utilized in the study. After the head granted their approval, the researcher made another visit to explain to the Librarian together with the respective Technical Support Person on how to go about the study.

Instruments

Survey Questionnaire. A fifteen item survey questionnaire was developed. It was tried out to thirty students who were using the digitized sources collection at the Knowledge Navigation Center at the University of San Carlos. After it was tried out, the questionnaire was reviewed, some questions were rephrased and corrections were made. The questionnaire was administered to the respondents; At least five to eight questionnaires were administered every day, in each participating institutions, to be able to get varied response from

the subjects. Enumerator collected the questionnaire right after the respondent answered it.

Computer monitoring log. The computer log which records the searches of the respondents was monitored upon the approval of the heads and the In-charge of the librarian. To be able to monitor the searches, internet browser was set to Google chrome to facilitate a uniform format of the logs. The computer logs were extracted everyday and e-mailed to the researcher to consolidate the logs.

Focus Group Inteview. The focus group interview was conducted after the entire questionnaire was collected and reviewed to clarify and confirm the respondent's answers in the survey questionnaire. A five item prepared questions and the survey questionnaire guide the researchers during the group discussion. Five to ten respondents were gathered for this purpose.

Statistical Treatment

Upon the advice of the Statistician the data gathered were tallied and treated using the simple percentage and ranking count for interpretation.

Limitation of the Study

The databases referred to in this study are limited to those that are accessible in the library of Cebu Technological University.

RESULTS AND DISCUSSION

Information Needs

Table 2- Respondent's information needs
N= 52

Information Sought	Percentage	Rank
To get an overview of my topic	90	1
To answer my class assignment	80	2

Continuation of Table 2

To gather related literature for my topic	76	3
To find information/sources which I did not find using printed sources	70	4
To gather data/statistics needed for my project/feasibility study	66	5.5
To read online articles related to my work	60	5.5
To be informed with current events	46	7
To communicate with my friends online	20	8
To visit entertainment websites	16	9
To shop online	10	10
Other reason/s, please specify: to read novels, to learn how to use computers	2	11

Information needs of the Students

The majority of responses as to what information needs is addressed using digitized resources by CTU students are using it (digitized resources) to get an overview of their topic (90%), to answer their class assignment (80%), to gather their related literature for their topic (76%), to find information/sources which they did not find using printed sources (70%) and to gather data/statistics needed for their project/ feasibility study (66%). They rarely use digitized resources to shop on line (10%), to visit entertainment websites (16%) and to communicate friends online (20%).

The data reflect the environment as a learning institution where library use is controlled and limited to activities that are lesson/class-related only. Although non –lesson related activities is discouraged, it is still possible for somebody to explore other areas because of the all access policy of the university. All access means unlimited supply of websites and other digitized resources the university can provide.

Digitized Database Used by Students

The most frequently used resources (digitized) to get information

by students in CTU is the internet (88%) followed by Online Public Access Catalog (OPAC) (46%) and Worldbook Online Encyclopedia (32%). While, Infotract Database (Electronic Journal) (2%) and H.W. Wilson Omnifile- (Electronic Journal;CDROM) (2%) are the least used digitized resources.

The use of the top three resources coincides with the FGD results and the available e-sources that the library provides. The CTU Main library provides unlimited access to the internet, OPAC, Phil. E- lib, Access Engineering and Science Direct. It is also important to note that limited subscription of some e-resources does not deny the fact that some students are capable of using these e –resources if provided. Library users will also explore all available resources offered just to get the information they need.

Also, as per FGD results, student's eagerness to get the information will not stop them from getting it in the schools library but also to other information centers that will provide them services that are not available in their schools' library. That is why there are some respondents who answered other digitized resources that are not offered in the CTU library.

Search Facilities to Access Digitized Resources used by Students

The strategies/approaches to search information using digitized resources that are being used by the majority of students in CTU are using of the keywords (76%), using the title of the book/article (74%), using of author's name (72%) and the use of search engines (google, yahoo, etc) (68%). While, rarely use the Boolean operators (and,or,not) (4%) and use of truncations (6%).

These data clearly indicate that the students are able to trim down their searches in a practical way possible. Most of them start using the keyword then use the title of the book, use the author's name and end up using the search engines. The FGD results also reflect this trend that they get the information they need after employing these strategies/ approaches.

But, students rarely use strategies/approaches that are too technical in nature (Boolean operators, data indexes and truncations) for them. Obviously, students simply don't know what it is, never heard of it and don't know how it works for their benefit. Furthermore, the FGD results shows that the students rarely use these Boolean operators, data indexing and truncations because they can already get information through their usual way of searching information. They added that they are interested to learn these efficient approaches but they need time to adopt these.

Search Engines in Searching Information

The general response as to what search engines are used by the students in seeking information using the digitized resources is Google (100%) which is followed by Yahoo (90%). While, nobody uses Excite and Ipl2, Lycos and Linkedln has 2%, Business (4%) and Galaxy and Infomine have 6%. This is consistent with the FGD response of the students; they said they are using preferably Google and Yahoo because this would give them a lot of information to choose from and will also lead them to other sites that will give them appropriate information. Video sites such as Youtube are also preferred but the speed of the Library's internet limits them to use it.

Most students preferred to use the popular search engines over the unknown and the least known search engines, that is why Excite, lpl2, Lycos, Business and Galaxy have the least users. The scenario of having these least known search engines to be patronized to happen, it has to establish a superior feature over the existing leader. As of the moment, students use the search engines they perceived to give them the fastest and effective way of searching information.

Search Strategies for Students Using OPAC/Ecat.

The general response of CTU students on what search strategies employed in using OPAC/Ecat if what they are looking for is familiar to them is by entering the known item in the search box (86%) and

starting with a keyword that represents the concept of a topic (60%). While few said they will enter a combination of terms/phrase using the Boolean Operators (and,or,not) (24%) and enter a combination of terms/phrase using the advance search option provided in the OPAC (26%). The implication would be that the students preferred convenience over technical strategies of seeking information (like using the boolean operators, combination of terms). They will take what is being given in the search box initially if it is related to the information they seek for and have their own words entered if the suggested topic offered by OPAC/Ecat fails to convince them that it will give them the information they need.

It should be noted that the huge (30%-60%) difference on choices of convenience over the technical yet more efficient ones really suggest that the students are not familiar on how to use the more advanced search option provided in the OPAC (26%) and entering a combination of terms/phrase using the Boolean Operators (24%).

In cases where the students don't have any familiarity of the specific information they are seeking for, their general (20%) response is entering a keyword that they think would yield relevant results, browse the databases indexes of author, title, keywords, subjects, copyright date and select an option to start the search (20%) and enter a phrase (20%). While rarely said they will enter a combination of terms/phrase using the Boolean Operators (and,or,not) (2%). These would imply that regardless whether the students know of the topic they are searching for or not, they will always have their own word first keyed in the search item space. They will always rely on what they think would yield them best results. Familiarity also plays a big role on why few students use Boolean operators.

Using CD/DVD databases

When students search information using the optical media such as CD and DVD, most of them they said they will search the database using their own words (80%) and search the database using the author or title or subject of the article (74%). While some said they will search the database applying truncations (20%) and search database using a combination of terms combined by Boolean operators (and, or,not)

(20%). This would imply that students always rely keying their own words first rather than taking what can be suggested by the CD/DVD databases. This is also an indication of less familiarity in using these optical media.

Search Approaches

When students search information in Internet/Online and in subscribed databases, the strategy that most of them employ is the use of search engine to search the topic (74%) and determine distinctive word or phrase of the search topic to start the search (68%). While rarely said they use suffixes for words with varied spelling entries (2%), subscribe to RSS feeds to receive alerts to new postings related to their topic (2%) and combine terms using the Boolean operators (6%). The use of common search engines dominates as to what preferred search approaches the students used. This may be because of the fact that they don't have any know how on the more effective way of approaching their search.

Again, the most common search approaches in searching in the internet is through the usual search engines (yahoo, google). This is because students don't really understand how to deal with the more technical but effective way of searching.

If the search technique employed by the students failed to yield them satisfactory results, most of them said they will modify the search by entering another keyword, and repeat the process (88%) while rarely said they will accept the result and cease the search process (4%). These would imply that students will always have their known way applied until they get the results they need. If the students have known the more efficient way of searching information then it is not impossible for them to use such techniques. This would just confirm the FGD result that the students don't have any other way of searching the information but only through their usual practice of searching. They need an awareness regarding the effective way of searching information.

Problems encountered in using digitized resources

The general response of the CTU students on what problems they had encountered in using digitized resources are not going directly to the sources that are being needed (82%) and too many results to choose (72%). While few (18%) say information is scattered in many sources, they lacked skills in using the search facilities provided (26%).

These imply that the students are inclined about digitized resources and know how to operate these facilities but are unable to produce good results. This also implies that the students in CTU really need guidance in using digitized resources. There should be a training as to how these facilities are used especially on the navigation and exploring of the online databases. They may be able to search the data in their own way but inefficiently.

How Students Learn to Use the Digitized Resources

Most of the students learn the use of digital resources by attending library orientation/instruction (66%) and by self exploration (64%) while some read the instruction given (30%). This implies that most students will embrace external intervention (library orientation) and personal drive (self exploration) on how they learn to use the digital resources. Both of these factors have impacted and will impact the students' ability to use digitized resources in the library.

This also will also imply that the students of CTU are more into computer applications. It would not be difficult for them to follow new techniques because they are already immersed into the technology.

CONCLUSION

The process and strategy of finding information in digitized resources are becoming more intricate and complex because of the advancement of technology. These are due to several factors that include: the information system, the user, and the information need. Knowledge on the different types of digitized resources and skills on the use of different search techniques are essential for students to access and retrieve, evaluate and utilize the information searched.

RECOMMENDATIONS

Based on the findings, it is recommended that the University as a whole should take a more active role in creating modules or models that will illustrate the various ways to effectively and efficiently search information in digitized sources. A guide of websites categorized by subject to direct information seekers (students/researchers) to find the most accurate and specific information should be created to avoid or at least minimize irrelevant search results. Students should be taught how to evaluate the websites and the search engines to use for particular information need and lastly, to incorporate all these recommendations by designing and implementing an Information Literacy Training Program for the whole university especially designed for users of digitized sources.

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