Journal of Science and Technology, Vol. 31, No. 1 (2011), pp 89

INFORMATION SEEKING BEHAVIOUR OF FACULTY: THE CASE OF THE COLLEGE OF SCIENCE, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, GHANA

M. Ahenkorah-Marfo, V. Teye and Y. Senyah
University Library,
Kwame Nkrumah University of Science and Technology, Kumasi. Ghana.

ABSTRACT
The article sought to find the information seeking behaviour of faculty members of the College of Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. The survey method was employed. Questionnaire instrument was used to collect data on method of selecting information, type of information sought, purpose for seeking information, types of tools used and problems involved in seeking information. Seventy out of 110 responded. A little over half of the respondents sought information through reviewing articles; close to the same proportion consulted the Internet; about four out of five of the respondents sought information for doing research work; and over three out of five sought information for preparing lecture notes. Majority of the respondents consulted textbooks for information while half consulted periodicals; and almost all the respondents used Google search engine to access information on the Internet. Sciencedirect and Ebscohost were the most used online journals. The commonest problems faced by respondents were unavailability of information, abstract instead of full-text documents and very old textbooks in the library. Involvement of faculty members in the selection of textbooks and purchase of full-text documents by the library on behalf of faculty members among others were recommended to address these problems.

Keywords: *Information seeking behaviour, sources of information, faculty, College of Science.*

INTRODUCTION

Information resources abound in this era of knowledge explosion in both print and electronic formats. The World Wide Web presents more options to information seekers and even affects the information seeking behaviour of researchers and faculty members. Three main factors are involved in information seeking. Patitungkho and Deshpade (2005) explain that information seeking behaviour involves personal reason for seeking information, the kinds of information sought for and the ways and resources with which the needed information is being sought.

Wilson (2000) defines information seeking behaviour as the purposive seeking for information as a consequence of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems (such as a newspaper or a library), or with computer-based systems (such as the World Wide

Web). Fairer–Wessels (1990) simply sees Information seeking behaviour as the way people search for and utilize information.

Answering the question, "why do we seek information?", Wright and Guy (1997) write that "information seeking is undertaken to identify a message that satisfies a perceived need." Meho and Tibbo (2003) and also Tibbo (2003) remark that information-seeking behaviour of scholars has been the focus of inquiry within the library and information science community for decades. Wilson (2000), however, observes that while research in the information seeking behaviour dates back in time to the 1920s and 1930s, modern studies of the subject could be traced to 1948. He claims it was the post-war era that witnessed the proliferation of literature.

Davis (2004) argues that understanding the information-seeking behaviour of scientists has great significance not only to libraries, which spend considerable funds purchasing and finding tools for literature search, but also to publishers, who invest in technology to make their electronic journals available. Research into information seeking behaviours had been previously undertaken for reasons of improving collection development (Broadus, 1977; Christiansen *et al.*, 1983) and to ascertain individual/group research habits in order to design the appropriate system to facilitate those habits (Kuhlthau, 1993 and Marchionini, 1995).

Tibbo (2003), touching on models of the study of information seeking behaviours, mentions that there is a marked paradigm shift from holistic, conceptualization and research design approaches to concentration on small group studies in categories such as occupations (i.e. scientists, engineers, humanists, care providers, managers, journalists and lawyers etc.) - and social and demographic roles groups - (i.e. voters, consumers, patients, etc.). Kakai *et al.* (2004) draw attention to other models such as Ellis' model, Eisenberg and Berkowitz's model, and Kuhlthau's model. These models, they explain, have been applied in a number of instances either to follow up the patterns used in seeking information or to explain how information could be sought systematically.

Meho and Tibbo (2003) refer to Ellis' (1993, 1997), research carried out using semi-structured interviews for data collection and Glaser and Strauss's grounded theory for data analysis. Ellis' research resulted in a pattern of information-seeking behaviour among scientists that included six generic features namely: *Starting*, which involves initial search for information such as identifying references that could serve as starting points of the research cycle.

These references often include sources that have been used before as well as sources that are expected to provide relevant information.

Asking colleagues or consulting literature reviews, online catalogues, and indexes and abstracts often initiate starting activities. *Chaining* includes chains of citations or other forms of referential connection between materials or sources identified. *Browsing* involves casually looking for information in areas of potential interest by reviewing table of contents, published journals, abstracts, references etc. *Differentiating* constitutes using known differences (e.g., author and journal hierarchies or nature and quality of information) between sources as a way of filtering the amount of information obtained. *Monitoring* involves keeping abreast of developments in an area by regularly following particular sources (e.g., core journals, newspapers, conferences, magazines, books, and catalogs). Finally, *Extracting* includes activities associated with going through a particular source or sources and selectively identifying relevant material from those sources (e.g., sets of journals, series of monographs, collections of indexes, abstracts or bibliographies, and computer databases).

Mueller *et al*. (2009) in their review of information seeking behaviour of scientists and engineers noted five key behaviour patterns of these professionals as follows:

1. Engineers/scientists generally like to help themselves with information. They also use colleagues as a resource, but often they rely on the library as a last resort;
2. Books are critical to this population. They are comfortable with and use electronic resources, but also have a strong preference for accessing what can be considered more traditional library resources such as books;
3. This population often has a cycle for information gathering where the need for information changes drastically depending on the development phase of their projects. Their information needs vary from time to time;
4. Information seeking from this group is generally in response to very specific problems or projects. They often seek answers to immediate problems, and need information quickly; and finally
5. Proximity of services and facilities is important to these professionals. When interviewed, most engineers wanted a physical library or reading room in their specific location. They used services readily available.

Information seekers encounter various challenges. A study by Tahir *et al*. (2008) identified seventeen possible problems teachers face in acquiring information for teaching and research. Respondents were asked to rank these problems using a five-point Likert scale. "Required material is not available" was ranked as the number one problem with a mean of 3.17, followed by "information is scattered in too many sources" and "information sources are very expensive" with mean scores of 3.60 and 3.47 respectively. Other challenges on the list were information sources located far away, lack of time, lack of training in information literacy skills, lack of knowledge in using the library, language barrier and incompetent or not well trained library staff.

Information seeking behaviour of faculty members is paramount to librarians because librarians have a role to play in helping faculty members meet their information needs. This study, therefore, sought to investigate the information seeking behaviour of faculty at the College of Science along the following lines: faculty's method of seeking information**,** types of information sought, purpose for seeking information, types of tools used in seeking information and problems they encounter. In addition, the study sought to make recommendations to improve the information seeking behaviour of the faculty members of the College of Science in particular and the entire Kwame Nkrumah University of Science and Technology in general.

METHODOLOGY

The questionnaire was used as the instrument for collecting data on the information seeking behaviour of faculty members of the College of Science. It was designed by the authors and administered by a post-graduate student of the College of Health Sciences, KNUST in the month of December, 2009. The questions were predominantly close-ended and demanded choosing responses from various options. In all, 110 copies of the questionnaire were distributed to the 110 faculty members available at the time of the survey. The college had 120 faculty comprising mainly of university teachers and research fellows, who are generally referred to as faculty. Ten of them were either on study leave or leave of absence. Therefore the 110 faculty members at post constituted the total population and at the same time the sample size for the study. The data gathered were analysed using the Statistical Package for Social Sciences (SPSS).

The College of Science was chosen for the study out of the six colleges of the KNUST. This is basically because KNUST is a science and technology-based university and, therefore, literature and other electronic resources on the sciences constitute a greater percentage of the library's resources.

RESULTS AND DISCUSSIONS

Seventy (70) out of the 110 copies of questionnaire were answered. Though the respondents gave multiple answers, items in the questionnaire were treated as separate entities. The analysis of each entity was therefore based on the 70 responses. Twelve (12) faculty members each from Chemistry and Physics responded. Nine faculty members also responded from the Department of Biochemistry and Biotechnology. The rest can be found in Table1 below.

Table 1: Responses from faculty members

Department	No. of Respondents	Percentage (%)
Chemistry	12	17.1
Physics	12	17.1
Biochemistry and Biotechnology	9	12.9
Theoretical and Applied Biology	8	11.4
Computer Science	8	11.4
Mathematics/Stats and Actuarial Sc.	7	10.0
Optometry and Visual Science	7	10.0
Food Science and Technology	4	5.7
Environmental Science	3	4.3
Total	**70**	**100**

Source: Field survey, 2009

Method of Seeking Information

In response to the question, "which sources do you consult when seeking information?", 57.1% indicated that they reviewed articles; 52.8% responded that they used internet resources; 48.6% consulted journal abstracts; and 8.6% consulted indexing journals. Table 2 provides additional information about the method or sources of seeking information.

About 57% of the respondents chose to review articles to satisfy their information needs. Discussion with the Librarian or reference staff of the library had a response rate of 21.4%. This is unexpectedly low because as custodians and providers of information, librarians are supposed to be consulted often for information or direction to information sources that are relevant and current. This may be due to negative attitude of some library staff towards faculty members. The reverse may also hold. Again, faculty perception of the librarian may also account for this. Sometimes faculty members know what they want and where to get it so the assistance of the library staff is not important.

Table 2: Method of seeking information

Method	Responses No.	(%)
Review articles	40	57.1
Internet	37	52.8
Abstracting Journals	34	48.6
Discussion with the Librarian or reference staff of the library	15	21.4
Discussion with colleagues	14	20.0
Consult supervisor	13	18.6
Consult a knowledgeable person in the field	13	18.6
Library catalogue	11	15.7
Indexing Journals	6	8.6

Source: Field survey, 2009

Purpose for Seeking Information

Table 3 shows the purpose for which information is sought by faculty members. Fifty-six (56) faculty respondents, representing 80%, indicated they sought information for research work; forty-four (44) faculty members representing 62.8% sought information for preparing lectures; whilst 39 (55.7%) faculty members sought information for updating their knowledge. Only 7.1% (5 respondents) indicated they sought information for writing their PhD dissertations.

The results presented in Table 3 are not surprising because the first three highest response rates emphasise the core business of faculty in the university, which are teaching and learning, research and knowledge dissemination.

Table 3: Purpose for seeking information

Purpose	Frequency	Percentage (%)
For doing research work	56	80.0
For preparing lectures	44	62.8
For updating knowledge	39	55.7
For writing paper and presenting papers	22	31.4
For guiding researchers	10	14.3
For writing PhD dissertation	5	7.1

Source: Field survey, 2009

Information Sources Consulted in the Library

In seeking information most faculty members, 59 (84.3%), consulted textbooks, followed by 35 (50%) who depended on periodicals. Fifteen respondents (21.4%) each consulted newspapers and government publications whilst exhibitions recorded as low as 7.1%.

Table 4: Type of materials consulted in the library

Type of material	Frequency	Percentage (%)
Text Books	59	84.3
Periodicals	35	50.0
Newspapers	15	21.4
Government Publication	15	21.4
Exhibition	5	7.1

Source: Field survey, 2009

These trends reveal to a large extent, the differences in the volumes of library resources available in the library system. A greater percentage of the library's resources are textbooks and periodicals.

Internet Resources

All the respondents indicated that they had access to and used the Internet. The responses to the question "which search engine do you use frequently?" provided varied responses as depicted in Table 5.

Almost all the faculty members used Google (Google and Google scholar). This is followed by Yahoo with 45 (64.3%). Twenty-seven (27) faculty members, representing 38.6%, used MSN while eight (11.4%) used Lycos. The rest of the results are showed in Table 5.

Table 5: Which search engine do you use frequently?

Search Engine	Frequency	Percentage (%)
Google.com	64	91.4
Yahoo.com	45	64.3
MSN.com	27	38.6
scholar.google.com	6	8.6
Excite.com	6	8.6
Lycos.com	8	11.4
metacrawler.com	3	4.3
twocow.com	3	4.3
webcrawler.com	2	2.8
Altavista.com	1	1.4

Source: Field survey, 2009

The results confirm the observation discussed by Patitungkho and Deshpade (2005) that "the Google search engine is mostly used because it is fast in access, regularly updated and links are provided to websites in the world".

Use of Online Resources by Faculty Members

The KNUST Library subscribes and provides access to more than 30 bibliographic databases. With respect to this study, only eleven were selected. These databases are on science and science-related disciplines. Science faculty members, therefore, use these resources often.

From Table 6, it is evident that the level of usage of these resources is fairly distributed, ranging from as low as 1.4% for OUP and ELDIS to as high as 12 (17.1%) each for Sciencedirect and Ebscohost. HINARI (15.7%) and AJOL (10%) also accounted for relatively high access rates.

Table 6: Online resources

Database	Frequency	Percentage (%)
Sciencedirect	12	17.1
Ebscohost	12	17.1
HINARI	11	15.7
AJOL	7	10.0
DOAJ	6	8.6
AGORA	4	5.7
Emerald Insight	4	5.7
ERIC	3	4.3
JSTOR	3	4.3
ELDIS	1	1.4
OUP	1	1.4

Source: Field survey, 2009

The high percentages recorded in the use of Sciencedirect and Ebscohost are not surprising. These two databases contain over 5,000 and 3,000 journals respectively – the highest so far among the list of databases selected. Secondly, the journal listings of each database cut across several science disciplines and as a result they serve as the main source for faculty members who may seek information in their areas for whatever purpose.

Problem with Information Seeking

Faculty members were asked to indicate the problems they encountered whilst seeking information. Table 7 below depicts their responses. The problem of unavailability of information dominated the responses. As many as 46 (65.7%) faculty members indicated information was not available. This supports an earlier revelation made by Tahir *et al.* (2008). Forty-three (43) respondents, representing 61.4% observed that some information materials were too old. Twenty-four (34.3%) respondents considered some information as incomplete. An insignificant percentage of faculty members indicated they had problems using the library and its catalogues. With reference to the latter, this is an indication that the library's user education programmes for faculty members have been effective. Table 7 summarizes the problems encountered by faculty members when seeking for information.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study indicated that majority of faculty members, in most cases, preferred reviewing articles as a means of seeking information. Many faculty members also relied on the Internet when seeking information. Faculty members cannot be faulted because the Internet is efficient, fast and readily available at all times. The Internet also provides access to a wider range of resources. The study further showed

Table 7: Information seeking problems

Problems	Frequency	Percentage (%)
Material is not available	46	65.7
Some of information materials are too old	43	61.4
Incomplete information materials	24	34.3
Information sources are far located	17	24.3
Information scattered in many sources	16	22.8
Information is too vast	14	20.0
Library staff are unwilling to serve	8	11.4
Lack of time	8	11.4
Lack of knowledge in using the library	2	2.8
Do not know how to use the catalogue	1	1.4

Source: Field survey, 2009

that a considerable number of respondents consulted abstracts of journal articles when seeking information. Abstracts provide links to full text documents which are usually available on the databases to which the library subscribes. It was also revealed that most faculty members seek information for the purpose of carrying out their research work and for preparing lecture notes. Faculty members encountered three major problems when seeking information. These were unavailability of information, abstract instead of full-text documents and too old information materials especially those related to textbooks.

Recommendations

The following recommendations have been made to improve upon the information seeking behaviour of science faculty:

1. In spite of the fact that most faculty mem bers use the Internet, they still need the assistance of librarians, who are adept at navigating the Internet for information.

2. It is suggested that the Acquisitions De partment of the Library system should liaise with faculty members when compil ing list of textbooks for ordering. This will involve faculty in the selection of core textbooks needed for the various academic programmes run by the Univer sity.

3. Incomplete information arises in most cases when faculty members in seeking information expect to have the full text of articles but to their disappointment are only furnished with abstracts and in some cases links to purchase the full text. Most of the times the cost of the full text arti cles are expensive. Even when faculty members are prepared to pay, there are cumbersome international financial trans actions to go through. It is suggested that the Library takes up the responsibility of buying on behalf of faculty members who are prepared to pay for full text articles.

4. Many of the old textbooks in the Library have their revised editions on the market. It is, therefore, recommended as a matter of priority that the library acquires newer versions to enrich the existing stock.

5. It is believed that the findings of this re search may not be applicable only to the faculty members of College of Science. It is, therefore, recommended that this re search be replicated in all the other five colleges of the University. This way the Library and its staff will know the pecu liar information seeking behaviour of all faculty members of the University, and the problems they encounter in their search for information so as to help them access information better.

REFERENCES

Ahenkorah-Marfo, M. (2005). Trends in acquisition and their impact on library services at KNUST Library. *Journal of Science and Technology, 25 (2): 110- 119.*

Broadus, R. N. (1977). Evaluation of academic library collections: A survey of recent literature. *Library Acquisitions: Practice and Theory, 1(3): 149–155.*

Christiansen, D. E., Davis, C. R., and Reed scott, J. (1983). Guide to collection evaluation through use and user studies. *Library Resources and Technical Services, 27(4): 432 –440.*

Davis, P. M. (2004). Information-seeking behavior of chemists: a transaction log analysis of referral urls. *Journal of the American Society for Information Science and Technology, 55(4): 26–332.*

Ellis, D., Cox, D. and Hall. K. (1993). In Meho Lokman I. and Tibbo, R. A comparison of the information seeking patterns of re searchers in the physical and social sciences. *Journal of Documentation, 49(4): 356–369.*

Ellis, D., and Haugan, M. (1997). **In** Meho Lokman I. and Tibbo, R Modelling the information seeking patterns of engineers and research scientists in an industrial environment. *Journal of Documentation, 53(4): 384–403*.

Fairer-Wessels, F. A (1990). Basic community needs of urban black women in Mamelodi, Pretoria, South Africa. *South African Journal of Library and information Science. 58 (4): 359-367.*

Kakai, M. R., Ikoja-Odongo, Kigongo-Bukenya, I. M. N. (2004). A study of the information seeking behavior of under graduate students of Makerere University, Uganda, *World Libraries, 14(1*). - http://www.worlib.org/vol14no1/kakai_v14n1.shtml. *(Accessed on 04/05/10).*

Kuhlthau, C. C. (1993). Seeking meaning: A process approach to library and information services. Norwood, New Jersey: Ablex, *1-121.*

Marchionini, G. (1995). Information seeking in electronic environments. New York: Cambridge University Press. *1-79.*

Meho, L. I. and Tibbo, R (2003). Modeling the Information-Seeking Behavior of Social Scientists: Ellis's Study Revisited. *Journal of the American Society for Information Science and Technology, 54(6): 570–587.*

Mueller, B. K., Sorini, G. and Grossman, E. (2009). Information Seeking Behavior of Engineers in the Corporate Environment: Implications for Information Delivery. *https://www.sla.org/Documents/conf/toronto/Mueller.doc (Accessed on 04/05/10)*

Patitungkho, K. and Deshpade, N. J. (2005). Information seeking behaviour of faculty members of Raajabhat University. *Webology*, 2 (4): *1-6. (Accessed on 05/05/10).*

Tahir, M., Mahmood, K. and Shafique, F. (2008). Information needs and information seeking behaviour of arts and humanities teachers: a survey of University of Punjab, Lahore, Pakistan. *Library Philolosophy and Pactice.* December, *1-11*.

Tibbo, H. R. (2003). Primarily history in America: how historians search for primary materials at the dawn of the digital age. *American Activists* 66 (Spring/Summer): *9-50.*

Wilson, T. D. (2000). Human Information Behavior. , *Information science, 3 (2): 50-56.*

Wright, M. and Guy, L. (1997). *"Where do I find it and what do I do with it: Practical problem–solving in the data library,"* at http://dphs.dacc.wisc.edu/types/data_reference.html, *(Accessed on 06/11/09)*