

Full Length Research

Challenges of Sourcing Information for Research Work

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Accepted 10 September 2013

The average academic spends a greater part of his career in acquiring, processing and disseminating information in an attempt to extend the frontier of knowledge in his area of discipline. In order to do this adequately, the researcher has to sift through a large quantity of extract that is related to his topic. Attempts to handle the volume of available research literature have also created another set of parameters that the researcher has to contain with. This study examines the impact of the two scenarios above on the ability of the researcher to access information relevant to his topic effectively. The essence of this paper is to outline the importance of developing a strong literature search culture in the beginner researcher as well as to alert experienced scholars on the need to regularly upgrade his retrieval expertise for maximum control of information in his discipline in this age of ICT.

Keywords: Researcher, access information, literature, ICT

Cite This Article As: COLUMBUS, U. (2013). Challenges of Sourcing Information for Research Work. *Inter. J. Acad. Lib. Info. Sci.* 1(2): 39-43

INTRODUCTION

Acquiring and processing information is an essential aspect of a research process. Research ethics makes it compulsory for every researcher, no matter his discipline, to do a thorough survey of existing information on the topic he is about to research. This could ensure the success or otherwise of the entire research project.

The modern researcher, especially in the science disciplines, is faced with a daunting job when sourcing for information during the research. The "Publish or perish" tendency of the academic community has accumulated for scholars in any field, a great mass of information which he has to dig through to find those which are germane to his research topic. These volumes of information come in various formats.

A researcher needs a good knowledge of information sources and resources, a thorough grasp of search skills and strategies as well as abundant good luck to enable him make success of the research experience.

CONCEPTUAL ISSUES

It is now generally accepted that information constitutes

a crucial component in most areas of human endeavours. Fafunwa (1992) described information as a resource, akin to capital. He noted that it is needed for the development of research, production policy formulation and decision making. This view tallies with what has been noted earlier and ever since then. Chandlers (1976) described the catalytic effect of information as a catalyst thus: "library-based information is recognized as a crucial national resource, having a key role to play in national industrial, scientific and technological development."

More recently, the executive secretary of ECA described lack of access to research and information on economic issues as destructive to regional development. He declared: "it is for this reason that we see our challenges as advancing the frontiers of knowledge...And making that knowledge readily available". Anafulu (1992) rightly pointed out the relationship between knowledge and information when he stated that information is shared knowledge.

Foskett (1982) also had defined knowledge and information as follows: knowledge is what I know, while information is what we know.

To the academic community and others in the knowledge industry, information is more than essential

commodity. Being the commodity they 'trade' in and end-product of their research efforts, information can be more precious than gold. Ette (1992) described information as being the center of all scientific activities and needs to be readily accessed if the result of scientific research is to be applied for the development of society. This view of the importance of information particularly in research has been well articulated by Popoola (2000) when he said, "...information is the fifth factor of production".

There is a considerable body of literature on the crucial role of information in teaching, learning and knowledge-generation. Scholars and information professionals alike have always stressed the importance of adequate provision of information for research because of its unique role. Nzota (1985) noted that an adequate provision of information is the soul of research and without such information there could be necessary duplication and waste of scarce resource. Osiobe (1989) sees information as that which reduces uncertainty in a given task. It is alleged that Royal Society (1981) proclaimed that science rests on its published record. This statement appears to sum up the view of all involved in the knowledge industry, past and present. Academic research in any discipline rests on the existing body of information accumulated over the years.

Information Generation and Attendant Information Explosion

Information consciousness in the academic and research institutes, particularly in the developed countries of the world, has invariably led to a high-pressure generation and dissemination in almost every branch of knowledge. The production of information in these countries has produced a great 'flood' of literature which has swapped the consumer market. Information production in the science, basic and applied, is thought today to have reached an epic proportion. The scientific community, described as having conspicuous information generating and consumption capacity, is faced with a massive volume which increases astronomically every year. Abundant evidence on the information processing pattern of scientists indicates that the literature in their field doubles itself every 10 to 15 years. Adedigba (1992), citing Olsen (1989) noted that there are 12,000 journals in agricultural sciences alone and about 100,000 scientific and technical journals published in the world. Scientific literature is doubling in magnitude every ten years.

The sheer bulk of research information appears intimidating, particularly to a novice researcher. A cursory search for information on DNA, for instance recently yielded a whopping 3,170,000 references of journal articles and 22,000 for books and monographs. Another search engine listed more than 26,000,000 references.

Hence Saracevi (1990) observed that information rich crisis stems from a paradox due to information exposure, there is more information, more literature than ever, resulting in an information overload for the individual. He noted that information rich is an aspect of modern information crisis which impedes access. The tempo of research activities and literature generation in the developing countries is expectedly slower than in the developed countries. While the latter was experiencing an upsurge in available research information, the former was faced with what has been described as information deficiency or hunger. Indeed, some Nigerian academics gave the situation a local description of 'kwashiorkor'. The situation created a yawning gap between information needs and availability, particularly in science and technology. The global abundance, and the measures to ensure the free flow of information, put in place to remedy the deficiencies, by international educational organisations and professional associations, more than made up for the shortfall.

Zalaye (1996), however, decried the so-called dichotomy between information-rich and information-deficient countries, particularly Africa. He advises Africans to improve their capacity to generate value and disseminate their own forms of knowledge and thus build up sufficiency in the region.

The global glut has also created an insoluble problem of control, access and retrieval. Traditional library-based mechanisms and tools are proving unequal to the task of locating and selecting relevant information for users quickly, until modern computer-based technologies came to the rescue. The accessibility crises, noted above, in information-rich countries are as acute as in the less endowed developing world. Fortunately, modern technology stepped in to ease the pains of shifting through hundreds of millions of records. The developed countries have harnessed the amazing powers of high technology to fight against the crisis of accessibility. Using carefully constructed mechanisms and automated tools, retrieval of information from global information market place has become faster, if not painless. New technologies and information disseminating systems have emerged to compliment traditional methods of communicating knowledge and research breakthrough. Electronic media is indeed catching up with printed materials, if not in quantity, then in popularity and frequency of application. The new communication age has created new media and avenues of communicating and retrieving research. Mainly computer-driven, these modern devices have eased, somewhat if not totally, the painful duty of searching through millions of potentially-useful records manually.

IMPACT OF NEW TECHNOLOGIES ON SCHOLARLY COMMUNICATIONS

Traditionally, research information has been circulated formally in hard, physical printed formats such as books, technical reports, encyclopedias, conference proceedings and similar texts. Even the unpublished, restricted circulation information carriers such as dissertations, theses and many other fugitive materials such as newspapers and magazines, have been produced in this physical hard copy medium. This form the bulk of the collection in most university libraries.

As new technologies emerged, and new media, capable of accepting and retaining text materials, were discovered, publishers and information professionals have harnessed their great capabilities for holding large volumes of information to disseminate new information. These computer driven resources (e-resources) have come to be accepted as useful information resources and integrated into the collections of most libraries. Floppy disks, CD-ROMs, DVDs and online databases are no longer novelties in many modern academic libraries. They have been fully domesticated, integrated, and exploited in the same way as books and other information resources.

Abioye (2004) commended this 'new-era' information resources. She noted that they have brought new impetus into library holdings and services. She appeared to be in agreement with O'Connor(1998) who declared that technology convergence enables content in any combination of media, spoken word, music, still and moving images, numeric data and printed word to be built into the packages of information and distributed instantly to users round the world via packaged disks. This represents a wholly new era of economic activity and wealth creation.

New technologies have also impacted on informal means of communicating research. Drake (2001) noticed that the younger generation no longer goes to stacks in the libraries to browse for information. For this group of information consumers, anything that is not on the computer does not exist. She averred that they publish products of their researches on their web sites and paste their works on their notice and bulletin boards. They communicate information through e-mails and tele - conferencing. Though website publishing can create enormous authenticity and copyright problems that it can be argued that instant dissemination of new information is promoted and the cause of knowledge transfer served. Personal and institutional website have become purveyors of valuable information.

Accessing Research Information in the Technological Age

Searching for research information can be fraught with

difficulties and even frustration in the midst of global plentiful supply. This fact has been well articulated by various literatures. According to Onatola (2004), she opined that the common limiting factor to a researcher's success is lack of access to relevant information sources. More often than not the materials available in local libraries are obsolete. She did not indicate why information seekers could not 'hook' on to global information supply. However, her views tend to agree with that of Ike (1992) who said that, Nigerian libraries, even with increase book votes were only able to acquire very limited foreign imprints in science and technology. The result is palpable book, information and knowledge famine in the country. Research scholars have little or no access to current information in their subject fields and are thereby severally incapacitated in their efforts to advance the frontiers of knowledge locally and internationally.

It is noted that there is a 12year gap between the two statements above on the situation of access to research materials in Nigerian. Access and retrieval difficulties are not limited to developing countries like Nigeria alone. As earlier indicated, Saracevic (1990) declared that in all this information glut, it is getting harder to get qualitative information of value and utility. Olowu (2004) agrees with this observation. She said that this ingenuity is often christened resource sharing. It is how access can go beyond the scope of each library, and no library can be self-sufficient. This scheme, developed the world over, enables other libraries to access documents in cooperating libraries. As elated as one may be at the thought of this, barriers are equally tremendous though not insurmountable. The scheme is so fraught with errors such as diverse search language, exorbitant cost of surfing, endless cumbersome procedures, proliferation and uncertainty or what is called GIGO-garbage in garbage out.

Information providers and academic research communities, research scholars and other regular user of research information have always regarded access to literature and retrieval matter important. The topic has generated a sizeable body of surveys and studies. Baldwin and rice (1997) noted that user studies were developed in response to growth in science and technology following world war II. Crawford (1978) estimated that over 100 user studies had been carried out. This author found that some 1,690,000 references were on the internet on the topic.

Information Retrieval Strategies

Chu and law (2007) identified two prerequisites for successful search for information namely:

- (1) Knowledge of search types and database.
- (2) Knowledge of search skills.

Chu and law believe that it is possible to execute a successful search using either of the parameters. They did not indicate the channel/ mediator of the search however. Other studies however, indicate that the search could be completely executed using either:

- (a) Library / information provisioning facility.
- (b) Direct end user/ internet approach.

Chu and law also identified 26 kinds of information source types for successful information retrieval. They later regrouped them into 6 categories thus:

Research –Oriented Searches

Referred journals, Review articles, books, free web searches, Bibliographies, conference papers, theses.

Contact with Research Community (Informal): student's supervisor, outside experts, attending conferences, online discussion groups.

Bibliographic Support Sources: Researcher of the study, inter library loan, other local libraries, reference libraries.

Professional Sources: Technical reports, standards, patents, trade journals.

Academic Tool Books: Theses writing guide books, books on studying for PhD, encyclopedias.

Media and Statistics: Newspaper, magazines, government publications, statistical sources. Another source type not identified by chu and law, probably because the population of their study did not include humanities research-scholars was artifacts.

Artifact: This was identified as useful for historical research. Many other studies found that the information searching behaviours of users change and evolve with emerging technologies and information dissemination. Studies have also identified informal means of information transmission from generators to information seekers. These, it is alleged, have also been affected by electronic devices such as mails, tele-conferencing etc. Dalton and Charnigo (2004) gave detailed insight into how historian discovers secondary information. The sources listed include library catalogues, librarians, "by accident", archival finding aids, word of mouth, 'hunches' commercial bookshops, friends.

They concluded that because of the great dispersion of potentially useful materials, historians face a particularly challenging problem they solve with an assortment of approaches. The situations described by chu and law as well as Dalton and Charingo should hold true for all

scholar- researchers, wherever they are based-in developed or developing countries. An abundance of supply of the resources and understanding of the uses of each type should see such users through information retrieval for research purposes successfully.

The Internet and the Free Full- text Myth

To access the internet for information, you need specific search skills ranging from basic to very complex. It has proved that there are billions of potentially useful information out there on the internet to be had. Many a researcher has found to his anger and disillusionment that the most information on the word is not free. Users frequently feel frustrated at not being able to obtain full text articles.

Most of the scholarly information on the internet is adequately protected by copyright. To fulfill international obligations on universal availability of publications and free flow of information, publications are noted and abstract given, but mechanisms are put in place to prevent downloads of full texts without the permission of producers. Producers usually demand subscription or payment for individual requests. Some database such as HINARI, sponsored by scientific organizations or professional associations gives password to institutions only. Users indicate some ways of circumventing high subscription costs. They contact friends and colleagues in overseas institution to obtain needed articles from priced journals.

Academic libraries all over the world have put in place measures to obtain needed documents for users at minimal cost. Middleton (1992) gave useful indication of practices in document delivery. She claimed that the science, technology and industry division of the British library make available over 200,000 monographs, 30,000 periodicals, and more than 26,000,000 patent specifications through its references and information service (RIS).

There are other professional organizations, which would supply documents to users in the developing world free. Such request must be channeled through libraries and similar information provisioning systems. The need for close working relationship of both academic library, professionals and faculty in universities has not been greater than now.

Challenges militating against effective use of web searching are;(i) a low level of computer competency and understanding of search engines, language and strategy; (ii)poor infrastructural facilities/narrow bandwidth, (iii) need for structured design personal information management tools (iv) downloading of current articles and other copyrighted materials, (v) problems with password and controlled sites, (vi) access at institutional libraries, (vii) problems with computing facilities, (viii) internet connections, and(ix) computing facilities.

CONCLUSION AND RECOMMENDATIONS

Information search for researchers is not a once and for all activity. Users continue to seek and collect information throughout the period for many reasons, possibly requiring and using different types of information and information retrieval search strategies. Indeed, Kalthau (1993) has proposed an information search process model consisting of six stages. These stages are recommended for use by novice-researchers. They include: (i) task initiation, (ii) topic selection, (iii) pre-focus exploration, (iv) focus formulation, (v) information collection, and (vi) search evaluation and enclosure.

It is recommended to faculty and potential graduate students to note that, seasoned scholars and researchers are almost as proficient as information professionals in trapping relevant information from the vast quantity of information globally available in his field. In a lifetime devoted to research and information generation, most of them succeed in putting together well tested literature capturing plan. They develop sufficient expertise in the traditional search from printed materials and have mastered the technique of surfing the world wide web for research information. It is suggested that every senior academic supervising postgraduate work do literature search and review plans with their students at the beginning of the research experience. This should be done in cooperation with the subject librarians. Unless literature search is carefully planned and worked through, maximum advantage cannot be taken of the vast collection of information out there in the global world of knowledge.

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