Information Search Guide for Students and Researchers

Jayne A. Abonyo

A Guide to

Information Searching

for Students' and Full Time Researchers

By

JAYNE ABONYO

May, 2006

Publication Date: 2006

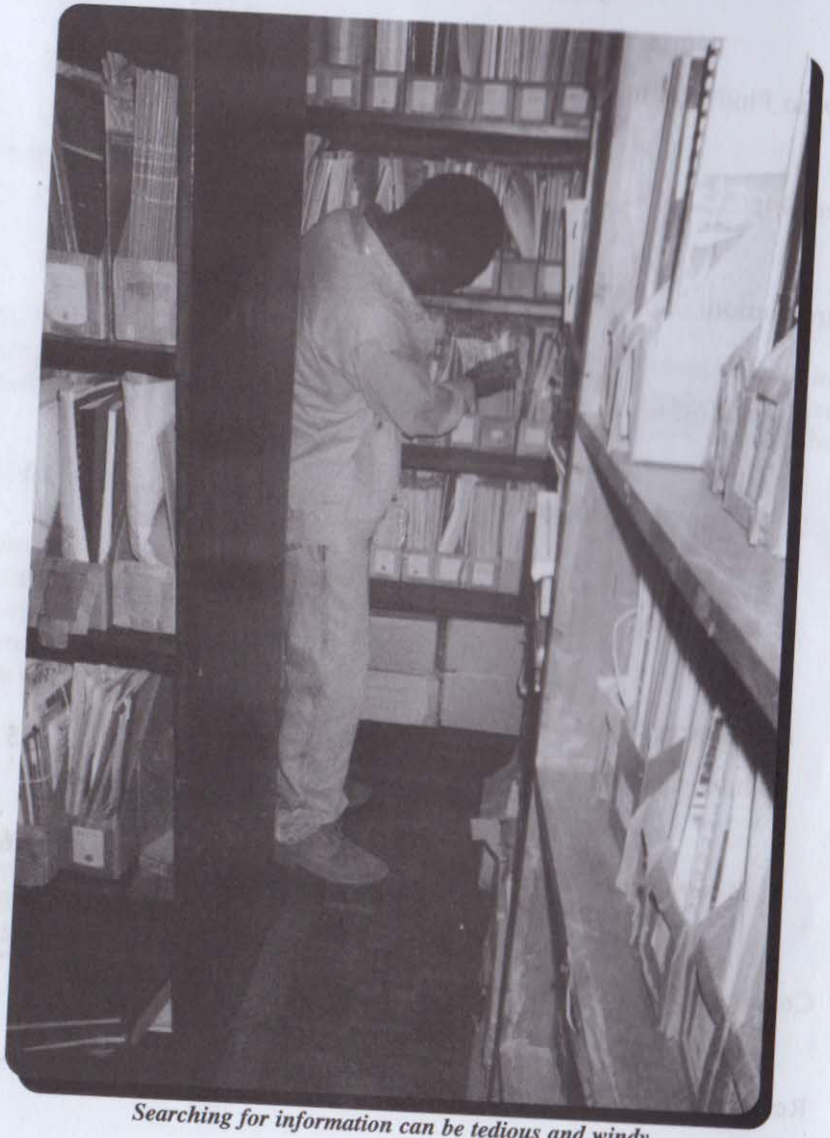
ISBN: 9966 - 776 - 03 - 6

Acknowledgements

Hellen Nzainga - Who read the draft
George Nyalwal - Who read through
Carrey Abonyo - Criticized photographs
Tom Konyimbih - Who gave comments

Printed by:
Downtown Printing Works Ltd.
P.O. Box 1724 - 00100 Nairobi
Tel: 254-020-253342

Table of Content



Searching for information can be tedious and windy

How to find Information

A Guide

Preamble

The purpose of writing this guide is to help students and researchers to efficiently and effectively search relevant and timely information without wasting precious time and energy.

Of cause there are many different ways of looking for information, but the world of information is vast and therefore to reach targeted information and precisely too, one needs to go about it in a more methodical way.

For new researchers, the information world is ambiguous and a guide such as this one would be of great help while seeking general information. For those who are more experienced researchers how to get the most needed and precise information is the problem.

Hitherto, information seeking behavior has become a major study in information science. The characteristic or behavior of those seeking particular information is usually understood in the environment of which the seekers fall and the pattern in which the seekers ask questions. In this guide, the environment depicted is that of academic, and research institutions. Presumably the two institutions are similar since academicians form the bulk of researchers, at least in the environment in Kenya where, you find most researchers also teach in institutions of higher learning. They also play the mentors of those aspiring to be future researchers who are their students.

It is therefore evident that, most information seekers are associated with academic environments. An academic environment is preoccupied with the learning, teaching, and conducting research in various subject areas. Apart from learning and teaching in academic institutions, which is based

on give and take, research institutions stand out to be a little different in that, researchers are involved in the production of new knowledge.

To avoid the complication of information seeking, this guide will explain how to take steps to find the right information using suggested methods. This will not only ease the information seeking task but also save time and energy.

But before that, one should understand what research is all about, its benefit to a country, the African situation in regards to research and lastly the position of Kenya's commitment to research as explained below.

What is research?

Research is a process of investigation into a phenomenon. Mugenda et al (1999) define research as a "processes of inquiring thoroughly and exhaustively in a particular phenomenon and studying carefully this phenomenon to a logical sequence and to a conclusion." This systematic investigation increases the body of knowledge in a particular study area.

In many developed countries there has been great realization of the importance of research. Countries such as Japan, Russia, United States of America (USA) and the newly developing nations like Thailand, Korea, China and India, have come to appreciate science and technological research as key ingredients of development and have put substantial financial support for research. These countries are said to spend about US$ 800 billion annually on research alone (Wakhungu 2004).

The African countries do not seem to fund research adequately. Apart from South Africa whose efforts in pharmaceutical, biotechnological, motor and energy industries are developed and are contributing to the development of Africa, other African countries hardly set aside even 1 percent of their Gross Domestic Product (GDP) for research. Kenya allocates barely 0.3 percent of its GDP for research, an amount shared among all national research institutions (Wakhungu 2004).

Africa faces several challenges through its governments, universities, and research institutions on the need to put scientific findings to practical use if her various countries have to make some impact on their development. It is therefore important that Africa's talented brains and manpower be properly guided in research activities, supported financially, and, equipped with research instruments and information.

However, in order to avoid duplication of the past research done, and to curtail loss of money in so doing, it is important that researchers take useful steps to gather as much information as possible about the subjects and eventual research topics they are going to engage in. They must start by revising a lot of information on their topics in order to avoid obvious errors. This guide is prepared to fulfill the function of guiding the information seekers and tip them on necessary skills.

Introduction

Talking to users

The majority of people who are preoccupied with pursuing knowledge are also usually preoccupied with research activities. They spend most of their time looking or hunting for information that will further their courses of action. In many instances if a researcher is not skilled in information search they spend useful time engaging in incorrect processes especially if they started on the wrong premise. This happens mostly with novice researchers, who have only very hazy notions of what range of methods of searching there are. Moreover, most researchers unconsciously work with a framework of little assumptions about the extent of information that is easily available to them.

In Kenya, most libraries have not been equipped with measures that can guide scholars and other researchers, investigators or inquirers. In most cases all that is available in a library is a guide which offers the information on existing library resources but not overall perspectives on methods or techniques on research of what to do/ not do instructions. Likewise researchers come up with different understanding of how to get information. This is evidenced in:

- Patterns in the type of questions that first time researchers ask and how they ask them;
- Patterns of unconscious assumptions they hold about what can or cannot be done for them;
- Patterns in mistakes of commission or omissions that reduce the efficiency of their research;
- Wrong advice they are at times given by unskilled people who advise them e.g. colleagues and teachers.

A general overview of these patterns collectively suggests that most researchers usually need help.

The fundamental knowledge leads when one wants to embark on research include the following:-

- The subject area and the eventual topic to investigate;
- The people who are knowledgeable in the area of research;
- The information available in the area of research; and
- The method to find the relevant information that will make the tasks easier in the research process and conclusion.

The fundamental principle, therefore, is to understand how information is communicated.

1. How Information is Communicated

In order to take up the challenges of research, it is important that one takes useful steps to gather as much information as possible about the subject and eventual topic they intend to research on.

The first step is to understand how and the way information is communicated in general. Therefore having perceived the topic to explore e.g. "Burnt soil as a building material" the second important step is to identify people who have some knowledge in that area. Consulting experts in the topic is of crucial importance in looking for information. It is therefore always advisable to talk to people who are knowledgeable in that area.

People as Means of Communication

The fastest way of passing information is by word of mouth. People pass on their knowledge by word of mouth through discussion on one to one basis, through seminars, conferences, workshops etc. Picking up information from these channels is usually very fulfilling. It provides opportunities to discuss, as it is also far more convenient and fulfilling to talk to knowledgeable people, than to wait to get information in the print format. The limitation about individual consultation in transferring information is that, information given reaches limited numbers and therefore most people resort to looking for information in printed format.

Print Method/Format

Printed method of communicating information is another useful channel. There are several formats in which printed information is presented and various classifications of the bulk of information in print, as is evidenced in information houses such as; libraries, information centres and documentation centres. The printed mode which can reach large audience include; journals, theses, conference proceedings, reports, patents, standards, books, trade literature, reviews, abstracts, indexes, data bases and other types of references such as encyclopaedias, bibliographies, guides, handbooks, newspapers etc. It is important and useful to understand what is contained in each mode: Some of the print mode categories are listed below:-

Journals

Journals contain new research in the form of articles and conference/ workshop papers. They range in scope from general to subject specialization. Most journals are published by some learned societies and professional institutions. Some known examples are; The Royal Geographical Society, Royal Society of Chemistry, Institute of Mechanical Engineering, The Harvard Institute of Economics and many more.

In Kenya, there are some local professional associations who publish journals. Such are: Chapters of the Architects, the Law Society of Kenya, Kenya Medical Association, Kenya Library Association, etc.

There are also other commercial publishers known world wide who publish journals. These include publishers of quality journals, such as Blackwell, Elservier Science – (good in scientific journals), Academic Press which include academic institutions such as Oxford University Press etc. Journals are widely appreciated by scholars because of the quality of information they contain. Journals are reviewed by experts and are evaluated by peers in the subject areas. The assessors usually look for validity and quality of research papers. Researchers are advised to spend time in reading relevant journals because of the quality of the information in them. Trying to get them is worth the effort.

However, not all journals are limited to publishing research papers. Some journals concentrate on picking out interesting new developments especially in research laboratories and presenting them in a readable manner. While journals by professional societies specialize in areas like, engineering, economics and new science etc. These journals can be useful because new products are widely advertised revealing new inventions.

Thesis

Thesis and dissertations can be good sources of information. They are scholarly work by students who are working on their degrees. They contain *state of the art views* on the subject, backed up by a comprehensive list of references to previous works. They are an opinion judgement made about a specific topic.

Conference Proceedings

These are research reports at conferences and are later published to provide accumulated reading on a subject discussed in the conference. Conference proceedings tend to focus on expanding subjects, field or theme, which are becoming increasingly important and reflecting the future direction of a speciality e.g. check: in HABRI Documentation Centre the following:

1. The WEDC Conference, which discussed infrastructure, environment and water (1991), organised by the University of Loughborough, in Nairobi.
2. Proceedings of the International Symposium on property maintenance & modernization, (1990) which dwelt on building maintenance, (Singapore). Also see HABRI Documentation Centre or any other library, proceedings in other field of knowledge.

Reports

Reports are the first account of information on a subject. Just like the conference proceedings. Report information is externally evaluated or refereed. Reports may later appear in journals in a summarized version. Reports are usually detailed e.g. World Development Report by World Bank, UN Statistical Reports by United Nations.

In Kenya, there exists government reports such as; development plans, the statistic abstracts, the economic surveys, the census reports etc. Since the Government is involved in economic planning of the country, it channels various documents and reports that would be useful to a researcher. Moreover, the reports are backed up by useful statistics.

Patents

Patents are reports that have some commercial values and are usually associated with industrial research development. Patents are documents granted by government to the owner of an invention, allowing them a monopoly of ownership for a period of time. The time allows the inventor to exploit further and improve without a claim or interferences from competitors. In return, the owners of the patent have to disclose or make public the information available about the invention. Patents are difficult to obtain from authorizing bodies such as government patent office. In Kenya, The Kenya Intellectual and Property Institute (KIPI) is the body that issues patents. It is important to note that patent information are restricted and may involve legal issues if the information released is not adequate. However patents are important especially in scientific and technological research. Patent information is sometimes published in Journals or trade literature and their existence should not be ignored as useful information source.

Trade Literature

Another source of information is trade literature. These include advertisement catalogues and company magazines. Trade literature is popular with civil engineers, contractors and architects. They are unique in that, trade literature is not found in conventional literature source like books or other references. They have a unique and distinctive message such as well illustrated and attractive presentation.

Standards

Standards are information that specify acceptable dimensions in a product and acceptable level of quality or codify good existing practice unlike patent and trade literature that reveal new research. Standards differ in that their

information, although may be new, only specify acceptable dimension, quality and facts. There are many orgnizations in the world that produce standards. In the United Kingdom it is the British Standard Institute. In Kenya it is the Kenya Bureau of Standards (KBS).

Books

Books are the most familiar methods of spreading information and most popular of the print modes of information source. Information in books are not particularly always new. But the authors repackage information that has appeared in other types of publications and evaluate the information, which makes the book very useful in any given topic. In addition books are useful for the purpose of checking facts and other publications listed as bibliographies.

Reviews

Reviews are documents of expression in evaluation of subjects, which have taken place in an area of knowledge. Reviews are very highly regarded as information sources. They serve the interests of natural scientists, technologists and even social scientists. They add value to knowledge because they are written by acknowledged experts. They include several references for further readings. Reviews may appear in journals, conference proceedings or collected in several review serials for example, *The Construction Review* (which covers East Africa). In Kenya, book reviews occasionally appear in weekend papers such as (The Sunday Nation).

Abstract, Indexes and Databases

These too are different channels of information communication. They comprise of summarized information and usually act as references or listings in a given subject topic. They are issued frequently and cover many subject fields. Most of these forms (Abstracts, Indexes, and Databases) are produced in electronic format known as data-bases and data banks and are searchable by computers. They play a big role in the network by which scientific information is communicated.

The University of Nairobi Jomo Kenyatta Library is included in the programme "International Network for the Availability of Scientific Publications (INASP). Through this programme there are several databases that from which a user can access the INASP web page. The web page contains inter alia journal articles and news items.

INASP programme was developed and meant to help the developing nations get access to learning materials through national and public Universities. Under INASP there is the programme called PERI – this is the Programme for Enhancement of Research information (PERI). This programme supports capacity building in the research sector. It allows access and dissemination of information & knowledge in scientific and scholarly information in full text journals. This facility is useful at the University of Nairobi and at other University Libraries.

2. Information Houses

Information houses exist in various types while information are from various sources, the channels in which the information is repackaged are numerous included are; print and electronic formats. The advantage of information houses is that the information collected are put together under one roof. There are as many channels through which information is communicated as there are types of institutions where information is housed. In any given country information houses include; bookshops, archives, information centres, documentation centres or research institutions and libraries. All these houses, despite the fact that they all house information, however they operate differently.

Bookshops

Bookshops deal with current information or curriculum books. They also stock entertainment books or recreational literature. Bookshops liaise with publishers/and publishing houses and sell their information for commercial purposes. They avail to the market newly released information for a period of time until a title gets out of print.

Archives/Museums

Archives are warehouses where historical and cultural information are preserved and kept to sustain the historical posterity of a given country. Archives are usually very restrictive information houses where people obtain special permission to use the information stored in them. Archives are expensive to maintain, however they are rich in historic information and are treated as treasure or the wealth of information – houses in particularly for the government or respective institutions that create archives.

Another historic information houses are the museums. Museums house cultural and historic information pertaining to the life and history of a nation. Information displayed in museums are in the form of books, artifacts, sculptures etc., as they are easy to access but not to remove.

Other information houses such as documentation centres, research institutions and the likes are centres associated with their parent organisations. In these centres you may not come across all information you are looking for. But you may get information pertaining to a particular subject area in great details e.g. In Kenya Agricultural Research Institute (KARI) documentation centre will give you information on agricultural research in crop diseases, yields and agricultural output – food security in the country. Housing and Building Research Institute (HABRI) – documentation centre will give you elaborate information on building issues in Kenya. Kenya Medical Research Institute (KEMRI) will provide you with information on research on diseases that affect human and animals lives. Other specialized research institutions are Institute of Policy Analysis and Research (IPAR), Kenya Institute of Public Policy Research and Analysis (KIPPRA), Kenya Forestry Research Institute (KEFRI) etc. These information houses are useful to students and researchers that want to find information to back up in their specific field of studies.

Libraries

Libraries are the greatest houses of information that exist in the world. They accommodate virtually all types of information that human beings can possibly produce. Such examples are the Library of Congress in the USA, the Soviet

State Library in Russia etc. Major libraries are places where any scholars can walk in and get information of just about anything they are looking for. Large libraries in Kenya include; the Jomo Kenyatta Memorial Library at the University of Nairobi, The Kenya National Library Services and other replica libraries. In these libraries, one can get the information in hard copy, through references, CDs and Online or be advised where else the information can be found. This could be local, regional or even international. Libraries are therefore the most cherished information houses. Most researchers start by visiting libraries in search of print mode of information.

Visiting Your Computer Centre:

Computers in learning centres are some of the provisions that most academic and research institutions provide. It does not matter whether you are a computer whiz or an amateur. You must however, face up to the reality and find out where the computer centre in the institution you are in is situated, so that you can find a way of using it.

At the University of Nairobi and Jomo Kenyatta Memorial Library, there are computer laboratories. Where one can learn how to use computers or get work done on a computer. Computers have become a mandatory tool in research. They save on time and are efficient tools for working. A complete avoidance of computer may make life difficult in regards to research work. Computer skills cannot be avoided in this era of 21st century.

3. Beginning a Search

In every new investigation, one would want to find as much information as possible around the topic they are investigating. The importance of vehement search, saves the possibility of duplicating the topic and gives a proper insight of the information available on the chosen topic. The most important thing is to gain the scope and thorough understanding of the topic. To achieve this goal, one must read comprehensively, analyse, evaluate and take extensive notes on a number of different sources. This takes effort and skill. However, the more you know about the topic the easier it will be to understand and digest the information on the topic.

Most researchers, especially inexperienced ones, loose direction of where to look for further information after a shallow attempt. They get discouraged on their cause and at some point want to give up. Before outlining how to find information in a library, there are few points one should remember. One should look for a few references through knowledgeable person in the topic (teacher, expert, and librarian). At least one reference will give a good starting point as previous work known can guide in giving listed references which will take you a step further. A review of articles on the topic should be a good start.

Another point worth noting is that, information investigated haphazardly may make one omit some important references. It is therefore imperative to search diligently using systematic search and not only dwell on paper reviews but for books that will have been written about a topic.

However, not every one is fortunate enough to begin investigation with a handful of relevant references. If you cannot find any relevant paper at the beginning, then you must start reading around the subject. The best reference to start with is an encyclopaedia or a handbook which covers the discipline. For example in the field of technology it would be wise to start with an encyclopaedia of science and technology, engineering reference book etc. In social science, it would be say, encyclopaedia of arts, or a handbook on economics. Encyclopaedias are written by experts and therefore the source contains expert knowledge.

For experienced researchers it is important to orient yourself with published information and the starting point is either the bookshop or the library. Further more; libraries are the richest houses of any given information. They bring together not only information but they also have expertise personnel to give a lead in methods of looking for the needed information.

Library Methods

Every library is different, but most have certain things in common. Becoming familiar with the lay out and services of your library will make your work easier. Large libraries often make people who visit them for the first time

feel uncomfortable and unfriendly. However it is not difficult to learn your way through and a librarian is usually there to help.

Vast information sources such as encyclopaedias, books, journals, databases, bibliographies, abstracts, reviews and indexes, grey literature etc., exist collectively in libraries. One cannot therefore go wrong in visiting a well-stocked library while conducting/doing their research. Another plus factor in using a library is that you will always find a lead by being guided by a librarian.

Librarians are trained personnel to empower users in searching for information. They spend time assessing needs and skills that are required to exploit information within and outside the library. Therefore, they are the instructor and educators of the essentials of finding the right information for users, just like customer care personnel are to a business organization.

There is much information that exists today (information glut). This is due to new technology in information production such as use of computers, advanced printing methods etc. Likewise, accumulated information can also be accessed in various methods such as manual methods in a library or through computer communication in databases that exist online and CD ROM's (Compact Disk Read Only Memory) etc., information therefore can be overwhelming. If precise information is needed, the users should know whom to approach with the inquiry, they should know the skills of search and the area of relevance.

Intensive support of how to carry out major research work is therefore solicited through a librarian. The librarians should lead you on how to use local services e.g. browsing the shelves, using the Internet and in less developed libraries how to browse the card catalogue. A further step should take you to the organization or societies to turn to for the kind of information you are looking for. The librarian should guide you as well on National Information Sources.

In properly organized libraries there exist instructions on how the resources are classified, which schemes are used and the kind of resources available. These are usually contained in a library catalogue/guide.

Library Catalogues

To help you find out what has been published in a given subject when you visit a library, the librarian will show you different types of catalogues. Many people are put off by the catalogue. However, the basic principles underlying the organization of a catalogue are simple and effective. Today, catalogues are in the form of manual cards stored in catalogue drawers (developing countries), computerized cards, thus cards that are stored in computer databases, online catalogues that are acquired from various databases and can be accessed through desktop computers that have been networked, microfiche catalogue that are microfilmed.

Names and titles of Catalogues

1. *Book Catalogue*

Whatever format a catalogue has its basic function, to let you find out if a book or other types of information you are looking for is available in the library you are in or elsewhere. A catalogue is systematically organized to give, attributed information of a particular item such as; the author, the title, the edition, the publisher and year of publication to a specific area of knowledge of the item, and the classification numbers. The arrangement of a catalogue system depends on the prerogative of the librarian. Some give an alphabetical catalogue that embraces all entries from A – Z. Others separate the catalogues and classify them with headings like authors, subject entries and even titles and class number as experienced in large libraries that have/house million of holdings.

These types of libraries embrace the category of national libraries, university libraries and big research institutions. The cards have different classification schemes chosen by the librarian of that particular library. Such common ones are the Library of Congress Classification Scheme (LC). The Dewey Decimal Classification Scheme (DDC), the Universal Decimal Classification Scheme (UDC). The first two are widely used as standardized schemes. Small libraries may come up with their own but somehow base them on standardized ones. The schemes are used for assigning an alphabet and numeric tags that correspond to the class of

knowledge, these are then used to locate books in the library shelves. The scheme may also go to small details as deemed by the cataloguer. The classification – system is meant to guide the user of where the item is located in the library shelves. The described schemes are applied on manual catalogues.

There are also online catalogues which are menu driven, with the menu approach, the system will prompt you key in your request which you log using the keyboard that searches the database. There are also microfiche catalogues although they are becoming less popular. While searching the catalogue the most important fact to remember is the meticullar arrangement of the cards, letter by letter, word by word that is applied in preparing the catalogue cards

An Example of a Book Card:

Library Identity	Habri Doc. center
Class No. (UDC)	332CAD
Authors	**CADMAN,** David and Toping, Rosalyn
Title	Property Development
Edition	4th ed. E and FN Spon,
Publisher	Chapman and Hall, Press,
Place of publication	London
Year	1995
No of pages	309 pg
Accession No.	96/4303

ISBN. International Standard Book No.
0-419-20240-4

In further details the cataloguer records all catalogue indexes, and subjects, bringing together subject headings, keywords and other aspect of how an item may be found.

Example: an index may bring the topic building as follows:
UDC
69 – Building (topic)
6900 – The building Process
6903 – Construction under special circumstances
6905 – Site organization

The building in broader Terms
69 – Building
69.059.2 - Building damage and repair
691 – Building Materials Collectively
692 – Building Elements
696 – Supply Services

In order to search for information using key words, you may combine the key words with phrases as such:
Key Words
Housing – (Key)
Housing Problems
Housing Conditions in Kibera
Housing for the poor
Housing Surveys

The card index brings together all different aspects of a subject discipline.

2. *Subject Catalogue*

For a background research, you need different books to give you sufficient information around the topic. The best way to go around this is to go to the subject catalogue. This is a good way to know the subject(s) housed in a library. It may not tell you whether a book is borrowed or is in any other place however, it will tell you that the library has such a book of the subject you are interested in.

3. *The Journal Catalogue*

For journals, a different approach may be derived to give a listing of journal titles. Most libraries use the card system recording the journal by name, year of publication and a volume number e.g. Title: Habitat International: A Journal for the Study of Human Settlements Volume 18 No. 1 of 1994, (Quarterly).

However, libraries do not always have full volume holdings of all journals from its first issues. While searching for journals it is important, to check the title and date of journals referenced with the year, volume, and frequency. Another point is that journals are very expensive to subscribe for. Most users now revert to looking for journal articles in the website. International Network Access for Availability of Scientific Publications INASP is a programme, which is helping developing countries to get some journals through the website.

Indexes

An index is an alphabetical listing of names, places subject of a given work etc. Indexes help researchers to cut their time of searching by enabling them to get the pages where they can find the searched information. Indexes vary in their nature depending on what type of sources (books, periodicals, and newspapers). They also, vary by type e.g. general indexes, subject indexes or citations indexes. At the University of Nairobi Jomo Kenyatta Memorial Library (JKML) some of these indexes can be found.

The people who heavily use indexes are those familiar with works carried out at particular institutions. In Indexes you can find actual work because the descriptions consist of a reference to a particular publication e.g. indexes to theses. To exploit the use of indexes it is imperative to have some key words, the year they cover, and the subjects a particular index emphasises on.

Other sources where some information for a researcher can be found are in:

Abstracts

Abstracts are condensed version of a longer piece of writing that highlights the major points covered meticulously describing the content and the scope of a piece of writing and reviews the writing content in a summarized form.

The basic limit of abstracts and indexes whatever the subjects field are description of publications. The difference is that in an index, the description consists only of a reference to a publication while in an abstracts the description of a publication also include summaries of the information contained. This gives it an advantage in deciding if a publication is relevant or not.

It is important to remember that, abstracts and indexes cover extensive subjects areas or disciplines such as engineering, chemistry and physics etc. The disciplines cited produce abstracts, as cummulative.

Instead of choosing large indexes, which cover general services, it is important to choose a suitable abstract or index, which deals directly with the subject. Some of the most famous and cover exhaustive list are; Ulrich International, Periodical Directory Index. Abstracts are stocked by most libraries and information centres and chosen to reflect the subject interest of the organization it serves for example, chemical abstracts, biological abstracts, electrical and electronics abstracts etc. While checking abstracts and indexes it is important to check the subject field, and use keywords, the year that it covers and the subject it covers.

Computer Searches *(From hard copy to computer access)*

Computers are learning as well as working tools. Searching for information has entered into a new era of information technology (IT). A lot of information is now therefore being handled through the use of computers. There exist several types of computer databases or electronic version of references which includes books, abstracts and indexes known as online databases. The online databases have different

categories of information. which are generated from books, abstracts, journals and bibliographic citations. Individual libraries may also generate their own catalogues and can put them online so that they can be searched electronically. Some of our local university libraries like United States International University (USIU), University of Nairobi (UoN), Kenyatta University (KU) libraries have their bibliographic databases online (Opac). Online Public Access Catalogue at Jomo Kenyatta Memorial contains over 300,000 records.

The online simply means shared catalogue network and use of computer to generate the needed record, of which one can access from desktop or the host computer. The micro-computer is connected over long distance telecommunications link to the host computer. (e.g. at the UoN.)

The Chiromo Computer Centre is connected to Jambo Net Chiromo disperses the information to the university library in the main campus and other campuses.

The terminal is connected through a modem in Local Area Network (LAN). The information can be downloaded through a terminal with the permission of the administrators of LAN. Using the File Transfer Protocol (FTP), one can bring information even to the smallest library.

Databases contained in CD-ROMs technology is accessed through a personal computer on a CD drive. The advantage of CD technique is that it can be manipulated and displayed on the screen. CDs can contain large capacity of information. They are sometimes referred as book banks or data banks.

Records, which are online, are searched through knowledge of keywords. As might be expected there are both advantages and disadvantages in having a computer search done than using print indexes.

Advantages

- The computer saves time.
- The computer may be slightly more up to date than the print index.
- The computer search on keywords gives several options through standardized or controlled vocabularies.
- In some computer databases, searching may however not be necessary done by keywords but a direct phrase or state of the art using subject terms, making the computer to look for citation that meet the specification.

Disadvantages

- Computers depend on electricity which may not be available at all times.
- Not all people at all times can have access to computers.
- Some people still prefer to read text in print format (paper) than in the computers especially elaborate reading.
- Records may be lost in computer due to mistakes in manipulating the computer (wrong command) or due to power failure. This situation may warrant one to start all over again and may also take a lot of time.

Despite, using computers in combining or crossing capability is particularly useful where each separate idea in itself is expressible in different phrasing We can take an example of instructions in the field of housing, looking through the subject list, one may come across several descriptors to express each of the ideas combined with; the subject of housing as follows:

Subject = *Housing*

- Housing for low income groups
- Housing surveys
- Housing statistics
- Housing studies

Or

Subject = *Building*

- Building standards
- Building materials
- Building maintenance and repair
- Protective building measures

Or

Subject = *Health*

- Health Services
- Health Control
- Health economics

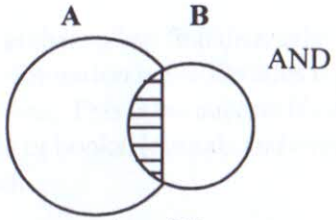
Or

Subject = *Engineering*

- Bio-Engineering
- Engineering-Design
- Engineering geology

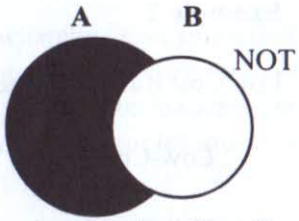
The search system is a process of Boolean Logic, this method as illustrated below represents a set of citations retrieved by terms expressing one subject idea of either controlled vocabulary or descriptors or keywords combined as shown on the next page:

Example of Combined Boolean Logic



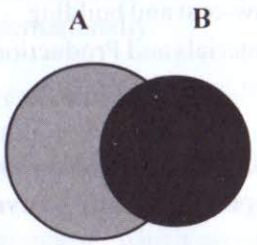
AND

means A and B



NOT

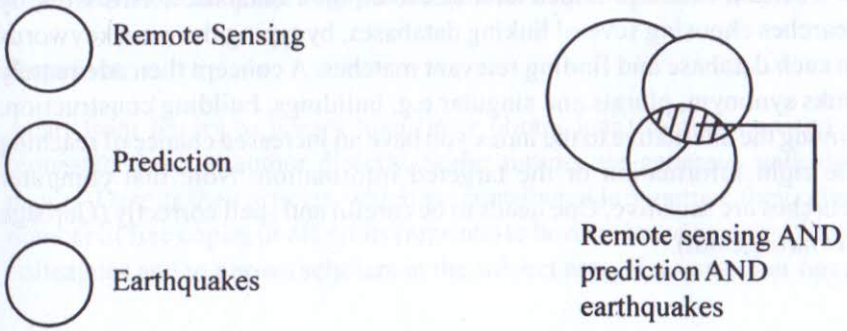
means A and not B



OR

means A or B

The system is such that, the computer follows a search that is broken down into separate parts (concepts), and search on information using phrases etc. it is important that the searcher must give some knowledge of the subject they are searching on e.g. "The use of remote sensing techniques for the prediction of earth quakes", can be broken down into concepts such as remote sensing, prediction, earthquakes.



The result of the search combines all the three expressions.

Example 2

Low Cost Building Material Production

Low-Cost

Building Materials

Low-cost and building Materials and Production

Production

Kenya = **Low-cost building material production in Kenya**

In the search the computer is instructed to find all references in the database about each concept and then to combine them in such a way that the output consists only of the reference which include all the concepts. The Boolean Logic operators or links are AND, OR and NOT. They are used to join the different concepts together as shown in the diagrams.

It is important to note that there are several databases that can combine searches depending on inter-relationships of the subjects. Online hosts have to a certain extent provided an index to all their databases. This work by searches choosing several linking databases, by typing the main keywords in each database and finding relevant matches. A concept then adequately links synonym, plurals and singular e.g. buildings, building construction. Giving the alternative to the index you have an increased chance of reaching the right information or the targeted information. Note that computer searches are sensitive. One needs to be careful and spell correctly (Garbage in Garbage out).

4. Locating Materials in other Libraries/ Inter- Library Loan

Researchers often find themselves in a situation whereby they cannot find the information in the libraries they most frequent and have relied on for a long time. This is because no library can be self sufficient due to escalating prices of books, journals and even maintaining computers for information search.

Librarians therefore must resort to obtaining information from outside their own organisation, and might have to look around the country, the region and even internationally.

Researchers are advised that, failing to get information in one library does not mean the end of the search. Librarians work together to solicit information for their users and avail the information under the *inter library loan service*. Over many years the United Kingdom has developed a British Library Warehouse, which serves many parts of the world. This service has made many scholars, researchers and individual organisations and persons to source literature which otherwise they would not have come across locally. This vital service is offered at a fee, for the purposes of photocopying for requested document. While requesting for information, it is important, however to give correct information that is; the source of reference to facilitate tracking down the requested publication. But while restrictions are necessary so that people do not abuse the service, no library would want to deter users from requesting important information for the important work they are engaged in. So users should ask for help.

Reprints

Apart from library to library loan (inter library loan) information can be requested from an author directly. Some authors are generous with their papers. Despite their articles, which are contributed in a journal, they offer a number of free copies or off prints (reprints) to be distributed amongst friend, colleagues and to known scholars in the subject area. If a researcher has an

interest in a certain work which is newly published they should send a request as soon as possible to the author immediately the publication is announced.

Some authors would only be too happy to distribute their work as this is a way to signal those who would be interested in their piece of work. This process is sometimes slow but when it succeeds, it is most fulfilling.

5. Keeping up to Date

Most researchers have a long-term task to fulfill as research is always not a short time accomplishment. Events change and new literature emerge too. The challenge for researchers are: to keep up to date with the information around their topic(s) in order to make an updated conclusion of their endeavour and to keep up with development.

The method of keeping up to date with literature should take the following trends. The researcher should know the field reasonably well and be selective in what to read. Have good ideas of individuals and journals that are likely to publish relevant information.

The actual process of finding information is to:

- Go to meetings, which can avail new techniques and developments in areas of research;
- Scan relevant journals and lists of new information such as books, thesis, conference papers that you can get hold of in a library or elsewhere;
- Interact with people who will competently discuss with you issues on the area you are exploring;
- Listen to and read the press that can release some leading information;
- Write to publishers and individuals to include you in their mailing list. In this way you are likely to get promotional literature. Publishers would only be too pleased to send you the information regularly about forthcoming publications. Have in mind book-sellers who publish their own catalogues;

- Create time to regularly check for new issues of journals and services that could keep you upto date with the current content, in the area that you are exploring. Many libraries take the trouble to circulate information of newly received items. It is important to liase with the librarian and ask if you could regularly be furnished with the current content list of journals. This will alert you on sub topics in journals that will be of interest;
- Current content can also be searched electronically in databases. The current awareness services are always very informative especially in developed countries.
- Another option is to consider using the selective dissemination of information (SDI) or services which are usually custom built services by libraries which select an area of interest and regularly inform the user by listing information that are newly received. These methods can be done manually or through a database in the computer. Some large libraries may sell the service but if this is worth your while you may opt for this service for the sake of your research. The benefit you get is that, your profile is kept current, and the large percentage of reference you receive will be of direct relevance.

While you pursue literature that will help you formulate your research process, it is important not to forget to ask for help from a librarian or any other centres or individual who can help to give you a list of projects, that are in progress but which little, or nothing has been published. This might prevent duplication of efforts in research area. It might also lead to some assistance and co-operation with specific people on the project you are working on.

About the Internet

What is best known as International Electronic Network of the World Wide Web (WWW) is a global network of information and people through the computers, connected to each other in web pages and e-mail (Electronic Mail).

interest in a certain work which is newly published they should send a request as soon as possible to the author immediately the publication is announced.

Some authors would only be too happy to distribute their work as this is a way to signal those who would be interested in their piece of work. This process is sometimes slow but when it succeeds, it is most fulfilling.

5. Keeping up to Date

Most researchers have a long-term task to fulfill as research is always not a short time accomplishment. Events change and new literature emerge too. The challenge for researchers are: to keep up to date with the information around their topic(s) in order to make an updated conclusion of their endeavour and to keep up with development.

The method of keeping up to date with literature should take the following trends. The researcher should know the field reasonably well and be selective in what to read. Have good ideas of individuals and journals that are likely to publish relevant information.

The actual process of finding information is to:

- Go to meetings, which can avail new techniques and developments in areas of research;
- Scan relevant journals and lists of new information such as books, thesis, conference papers that you can get hold of in a library or elsewhere;
- Interact with people who will competently discuss with you issues on the area you are exploring;
- Listen to and read the press that can release some leading information;
- Write to publishers and individuals to include you in their mailing list. In this way you are likely to get promotional literature. Publishers would only be too pleased to send you the information regularly about forthcoming publications. Have in mind book-sellers who publish their own catalogues;

- Create time to regularly check for new issues of journals and services that could keep you upto date with the current content, in the area that you are exploring. Many libraries take the trouble to circulate information of newly received items. It is important to liase with the librarian and ask if you could regularly be furnished with the current content list of journals. This will alert you on sub topics in journals that will be of interest;
- Current content can also be searched electronically in databases. The current awareness services are always very informative especially in developed countries.
- Another option is to consider using the selective dissemination of information (SDI) or services which are usually custom built services by libraries which select an area of interest and regularly inform the user by listing information that are newly received. These methods can be done manually or through a database in the computer. Some large libraries may sell the service but if this is worth your while you may opt for this service for the sake of your research. The benefit you get is that, your profile is kept current, and the large percentage of reference you receive will be of direct relevance.

While you pursue literature that will help you formulate your research process, it is important not to forget to ask for help from a librarian or any other centres or individual who can help to give you a list of projects, that are in progress but which little, or nothing has been published. This might prevent duplication of efforts in research area. It might also lead to some assistance and co-operation with specific people on the project you are working on.

About the Internet

What is best known as International Electronic Network of the World Wide Web (WWW) is a global network of information and people through the computers, connected to each other in web pages and e-mail (Electronic Mail).

The most used means of connecting internet computers is through a device (gadget) called modem. A modem is a device used for data transmission over a telephone line by converting data from digital to analog signals and from analog to digital. Connecting the modem allows you to get to the rest of the world. The means of connecting computers in the network is through an Internet Service Provider (ISP). ISP's are companies that provide internet access to organizations for a fee. The role of ISP is to connect the networked computers and the users through satellite or fibre optics or other means e.g. radio waves etc. The most used computers are in the United States (USA) (more computers, more users). In Kenya, most of the ISP providers are companies like: Africa Online, Swift Global, Nairobi Net, Net 2000, Insight, African Regional Centers for Computing (ARCC), Jambonet, Wanainchi.com, UUNET etc. There are many others in the market.

The World Wide Web is a formation of computers network, which function like the spider web around the Globe. In order to identify the information one is seeking and from which computer, one needs to use a locator, hence the Uniform Resource Locator, (URL). This is a unique identifier of a location which works as a unique address of documents, searching, what type of document, which computer is it located on, what document name is it etc. (That is seeking information specific). The URL component consists of protocol (set of rules). This identifies how information contained in a document should be handled. It identifies folders or files names of a document on the web page. (File Transfer Protocol (FTP)).

The web page uses hypertext transfer protocol in order to identify the document as hyper text document: = http://

Hypertext document is a sophisticated Net program that moves using a mouse to click on a highlighted term or topic on the web pages - e.g. http://www.finweb.com/ will take you to finance and economic websites and www.Unhabitat.org will take you to UN-Habitat web site.

The second component of the World Wide Web is the Domain Name. Domain names contain extension which helps identify what type of organization the computer belongs to, and where its geographical location is situated.

Some domain names are:

com	=	commercial
edu/ ed	=	education
gov	=	government
org	=	non profit organization
ac	=	academic

The domain names may be accompanied by geographical location e.g. www.uonbi.ac.ke meaning world wide web = www.uonbi as organization or institution of ac – academic located in Kenya (ke).

In a webpage information is linked to other webpages on world wide webs. These are known as hyperlinks. In order to specifically link the pages, the computer should be loaded with platform (an operating system) software known as Browser. Browser allows your computer to browse around the world. Jumping from one site to another is called surfing, so you browse or surf the web. One of the popular brand names of browser software is Netscape Navigator.

The Netscape browser has many components e.g.

(i) Netscape Communicator : This allows you to work with different components of Internet standard applications.

(ii) Netscape Messenger : This is an electronic mail applicator that allows you to send and receive electronic mail - E- Mail.

(iii) Netscape Composer : This is a web document editor which allows you to design your own web pages.

A web page is the page that appears each time you access the web. It is the first page of the company or an individual's website on the web. The web page has other pages linked to it. Web page documents can include text, pictures and video.

Website is a collection of Webpages maintained by an organization e.g. a university, company or government or even an individual.

The University of Nairobi has a website called uon**bi.ac.ke.** The domain name is ac. Website is **Kenya**

The address is University of Nairobi shortened as uonbi. The full website is therefore written as follows: **www.uonbi.ac.ke**

Using Search Engines

A search engine maintains a large index and the information that it contain to websites. It is like a catalog.

In using the site address (URL) and by entering a search term, the search engines display a list of websites containing a lot of information.

Some well known search engines are; Alta Vista, Lycos, Info Seek, Google, Yahoo etc.

Data Base

Most information are contained in databases. Dbases are large collections of information (in millions of records) that can be searched by a computer using search engines. Some well-known databases are ERIC (for education), Chemical Abstract – for Chemistry. Science Abstract for other types of sciences etc. Some databases provide complete text. However most Dbases require you to locate the cited articles elsewhere.

Searching tips – use Boolean operators as mentioned before i.e. AND, OR, NOT.

Sometimes you may use phrases as you perceive them and get the information you want e.g.
Organic building materials.
Construction sites.
Poverty in Third World.
Health.

Malaria.
Preventive Measures.
Tropical diseases.

Electronic Mail

E-mail as it is probably known is a quick, convenient, efficient and cheap way to communicate with individuals and group of people. It is the most popular and most pervasive Internet service. The concept of E-mail is similarly to those of regular mail through post office etc. However, E-mail has advantage over the normal mail such as: speed, very economical and convenient, you send your mail home and your recipients respond at their convenience with less expenses.

You need an e-mail address as with a normal mail. Your address has two sections: the user name and the domain name joined by symbol @ meaning "at" e.g. jo@africaonline.com, marie@uonbi.ac.ke.

How does an e-mail work?

When you send an e-mail message from your computer, it is delivered to a computer called e-mail server. From there it is transferred across net via a chain of mail servers until it arrives at its destination. To send your e-mail is just like buying stamps and posting your letter.

To open an account, one has to fill an electronic form and submit it. It is important to note that to send or receive e-mail using an account, one has to be connected to the Internet. Some website which offer free e-mail accounts are yahoo and hotmail. The University of Nairobi still offers its staff free e-mail accounts.

Remember there is a lot of information in the web (www!) to help you in your search for information!

Conclusion

This guide has dwelt on the sources and methods of how to find information and emphasised how information is communicated to the users in a research project or in any area. It also explains how an individual can search out information needed from published materials, dwelling more keenly, on how to search for information manually through catalogues. Development in new technology is changing the way we source information. More and more information is now being published in electronic version and in particular highly used journals which appear in full text databases. With improved computer softwares, operating a computer is becoming more user friendly. Computer costs are coming down. It is anticipated that in the 21st Century, more and more libraries are going to be computerized.

It is hoped that, this guide will enrich and enlighten you in the process of your information research.

For anyone who would like to read more on information search guide, not much has been written locally however; I would recommend the following:

1) A book by Jill Lambert and Peter Lambert on *Finding Information in science, technology and medicine. (2003).*

This book is a new version of 1991 and not only contain science and technology but also include medicine.

2) One can get more literature on finding information by exploring on the Website.

Good Luck in your research endeavours

References

1. The *Documentation Centre Manual* (2003)unpublished
2. *Habitat International Journal.* A journal for study of human settlement Established at the United Nation Conference, Vancouver, 1996 Vol. 16 No 3 (Quarterly). ISSN-01973975 and subsequent issues.
3. *Water and People*. In Proceedings of WCD Conference on Infrastructure, Environment, Water, & People (July 1991), Nairobi.
4. *Property, Maintenance and Modernization*. In Proceedings of International Symposium on Property, Maintenance & Modernization (March 1990), Singapore.
5. *Eve Magazine*. (Feb. 2004), Oakland Media Nairobi.
6. Lambart, J. and Lambart, A. *How To find information in Science & Technology*, 2nd ed. (1991) Library Association Publishing, London.
7. Mugenda, A. and Mugenda, O. *Research Methods: Quantitative and Qualitative Approach* (1999).
8. Man, T. *Library Research Methods* (1987). Oxford University Press, New York.
9. *World Development Report*, by World Bank (2001) and subsequent issues.
10. United Nations. *Statistical Year Book* (2000).
11. *Construction Review*, Vol. 15 No. 2 (Journal of Construction Management – Kenya) ISSN 1025-886 and subsequent issues.
12. *Republic of Kenya (RoK), Development Plan* 1966-1970, Government Printer Nairobi and subsequent issues.
13. *Republic of Kenya (RoK), Statistical Abstracts*. Central Bureau of Statistics (1995) and subsequent issues.
14. *Republic of Kenya RoK), Economic Surveys*. Central Bureau of Statistics (1996)
15. *Republic of Kenya (RoK), Population Census* (1999). Central Bureau of Statistics.
16. Woodward, Jeannette A. *Writing Research Papers. Investigating Resources in Cyberspace* (1997) Lincolnwood, Ill. Illinois.

Appendix

DDC – Dewey Decimal Classification

HABRI – Housing and Building Research Institute (UoN)

INASP – International Network Access to Scientific Publications

JKML – Jomo Kenyatta Memorial Library (UoN)

LC – Library of Congress

UDC – Universal Decimal Classification

UoN – University of Nairobi

USIU – United States International University – San Diego (Nairobi Campus)

Conferences are one of the best ways to get information