**SHOP 3**

**GST 107: LIBRARY USE, STUDY SKILLS AND INFORMATION AND COMMUNICATION TECHNOLOGY**

**Concept of the Library**

**Introduction**

The Library is not just a place to read or borrow books; it has a lot of features and services to offer. It gives literature support to the teaching, learning, research and community development of any institution. It is the storehouse of information that can meet users’ information needs at any time.

A library is considered to be an organized collection of published books, **periodicals**, audio visual materials, and the services of a staff that is able to provide and interpret materials as required to meet the information, research and educational, recreational and cultural needs of its users. A library is entrusted with acquisition, organization, preservation, storage, retrieval and dissemination of information.

**Definition(s) of library:** Is a collection of books and non-book materials, systematically organized through the use of cataloguing codes (rules) and classification schemes for the provision of services for users or clientele. It can also be seen as a designated building/space where information in print and other formats are collected, organized, carefully prepared according to specific or definite plan, and made accessible for reading and consultation by all ages and interests.

Library contains records of human culture in diverse format and languages, preserved, organized and interpreted to meet broad and varying needs of individuals for information, knowledge, recreations and aesthetic enjoyment. It can be seen from these definitions that four (4) different components make up the library. These components are:-

1. The books and related materials or library resources
2. The personnel who are responsible for organizing the books/resources for use.
3. The place or building where the books and other resources are housed.
4. The clientele (Users) who make use of the library.

**Objectives**

The objectives of this course is to enable students and researcher to know the importance of a library and its functions. Furthermore, to educate library users on how to supplicate and exploit information in the library.

**Functions of the Library in the University**

i. To provide books, periodicals and other materials in support of the learning process; that is, materials for students course work, assignment, reading for essays, term papers and projects.

ii. To provide materials to assist the library user in his own personal self-development.

iii. To provide materials for those involved in research, especially faculty specialists, undergraduate and post-graduate students.

iv. To co-operate with other University Libraries with a view to developing a network of academic library resources which are at the disposal of all students and teaching faculties.

v. To meet the specialized information needs of the community within which the University is situated.

vi. To be a store-house of knowledge, that is, a place where knowledge can be obtained.

vii. To disseminate existing and new information.

**FUNCTION OF LIBRARIES**

1. Conservational role
2. Informational role
3. Economic role
4. Socio-cultural role
5. Political role
6. Educational role
7. Recreational role

**Conservational role**

The libraries acquire recorded knowledge and preserve it for posterity. This is the earliest and most basic function of the library. The library acquires various types of communication records, published and unpublished, written, oral, or in record form, and stores them for later use.

The Library is the society’s memory, standing in the same relationship as the human memory to the individual. The society draws upon it the same way an individual draws upon his/her memory to meet his/her variety of the information needs. The libraries through its various restrictive controls over resources ensure that acquired materials are available for users in the present and future generations.

**Informational role**

This role of the library is best seen in society that value self-improvement and well informed citizenry. Different kinds of libraries provides different types of information geared towards a particular needs; specialized needs as in the case of special libraries and heterogeneous needs as obtain in the public libraries. It is the responsibility of the librarian to identify the information needs of his clientele, and to acquired and organizes the information resources that would meet and satisfy user’s demand and expectations in this digital age.

**Economic role**

Economic development is an activities that raises the real income of the society by offering new hopes and expands opportunity for the people. Libraries play vital role in economic development of the society by expanding their services and activities related to local business and economic activities of the society. Information gathering and research activities are essential for many types of business in the society. Training and retraining of library staff enable the library boast the economic development of library by providing and improving on the services rendered to the users. Library staff that undergo training in general skills such as the use of electronic resources in the library can response to the needs of community effectively.

The rates and levels of business resources in the library especially when they are highly cost relative to their low usage rate can affect the society directly or indirectly and in turn ender better services provision to the business community.

For the library to also play its role in providing effective services to the business community there must be adequate budgetary allocation to purchase materials in order to provide requested services to the business community. The well functional library can also provides interlibrary loans services in order fulfilled the information seeking behaviours of business community.

However, improvement on the contemporary technology including upgrade in computer services and in making resources available to business patron boast the economic role of any library in a given society and library cannot survive without available resources on ground.

**Socio-cultural role**

Libraries play an important role in socio-cultural development of a society. Library as a social institution allows its users to interact among themselves in carrying out an organizational tasks, lectures, films, disseminations of information on current topics, book exhibitions, and some socially useful activities. The library can also provides a right forum for social get-together within its premises and by making it availably equal to all groups members of the community.

Libraries as a cultural roles embodies the physical, equipment (tools), scholarship (accumulated experiences, beliefs, verified knowledge, imaginative creations) and social organization (institutions, agencies, norms and customs) of a given society.

Libraries as a cultural role also enhance the level of intelligence and status of the common man in the society to a great extent. The library tents to increase the reading habits and change the reading tastes of the people by raising their cultural level.

**Political role**

The political condition of Nigeria to large extent have left a great impact on all aspect of the growth of libraries. In order to render efficient services and assist the users to make effective use of available resources, library management has to understand, appreciate and accept the changes and cope with the changes in order to take advantages over the activities of the library politically.

Library of any types are gear toward the political development of a given society. For example Librarian Registration Council of Nigeriain (LRCN) induction on 14 September, 2014 in National University Commission (NUC) in Abuja. A paper was presented on the role of library service in respect to transformation agenda, while because of change of government in Nigeria, on 21st – 25th November, 2016 the same LRCN workshop held at Unibersity of Ibadan and paper was also presented on library service in respect to change agenda.

However, the library of any given society go along with the political development of the day in order to survive well but provide equal level playing ground in providing services to its information seekers.

**Educational role**

Education started from the time one was born and to the time he/she will die through Imparting of knowledge and skils, inculcation of values, and imparting of vocational skills. There is both formal and non-formal education. Formal education is the one that an individual attains by enrolling himself/herself in an educational institutions like a school, college, or university and through constant teacher-student contacts. In non-formal education there is no such institutional base for education, but you can educate yourself through courses offered by distance education mode with the help of either other methods of learning or through self-study.

The educational role of library is inherent in its role as a disseminator of knowledge in a given society in all forms for educations. The quality of any academics programmed in an institutions can only be sustained with the functional library at it centre with well stock materials for effective teaching and learning. This is to say, library feeds the intellect of students, encourage the research role of faculty members as well as at departmental levels.

The education and training of individual is considered as an essential for stimulating the economic and social development of a given society. Without functional libraries, there cannot be effective teaching and learning in a given society.

Library in general, has an important role to play in the fields of political awareness, socio-economic growth, cultural and educational enlightenment for future development of any country.

**Recreational role**

Recreations are those activities done in libraries during leisure time choosen voluntarily for personal and social value. Recreational activities are performed in library in order to derived pleasure from reading for its own sake rather than for examinations, tests or assignments purposes.

However, so many people read magazine, newspapers, short stories, fiction, poetry, drama in order to keep them abreast of their political events or the sporting activities of their interest. The recreational role of the library also serve as a repository for entertainment, reading, viewing and listening materials and by making full use of contemporary technology such as video and audio cassettes, film, slides which may be used in the library or can be loan out of the library.

Recreational activities in school libraries also serve the need of children according to their interest. The children enjoy leisure time in celebrating cultural dance, looking at various pictures, viewing and listening to relevant audio-visual instrument in the library.

**History of libraries**

History is the recollection and study of events or phenomena of the past with their necessary connections and relationships to explain them and possibly gain insight in making informed inferences, projections and conclusions. History enable us not to repeat (or avoid) the mistakes of the past. Every discipline or subject has its history. The History of Libraries is interwoven with the history of the world early civilizations. Because of socio-cultural necessity man started drawing, scribbling, sketching and writing things on a bare floor, tree barks, stones, caves, walls, animals bones/skins and shelves, papyrus, vellum (parchment) and this evolved into the development of writing as well as paper, audio-visual and digital format.

**Forms of writing**

Writing has been defined as “the graphic representation of sound and speech in meaningful and graphic forms on writing materials such as stones, shell, parchment, vellum, paper etc. There are different era or places mas has employed different writings which include pictograms (Hieroglyphic), Cuneiform and the Alphabet as well as writing materials such as stone, bark of trees, clay tablets (Cuneiform), tortoise shells, papyrus, parchment or vellum and paper through the ages i.e Antiquity, medieval and modern

1. **The Hieroglyphic writing (3000 BC):-** This form of writing was invented by the Egyptians, these were simply pictograms comprising of of drawings, paintings and symbols and they were known as pictography. This form of picture writing had its challenges and with the problem of unity was addressed for a common meaning to be attached to each symbols or drawing. For other concepts or words that were abstract in nature like belief, patriotism, faith etc. that could not be easily
2. **Cuneiform (3000-500BC):-** Was developed by Mesopotamians. Particularly by the Sumerians, they employed Wedge-Shaped Stylus (Pen) to make inscription on a wet clay tables. It became popular that the successive states after the Sumerian (Babylonians, Assyrians and Persians) in the Mesopotamian valley use it for administrative records to records to religious, literary, and scientific works, and from around 3000BC-500BC. When the alphabet and Papyrus as form of writing and writing materials submerged the Cuneiform.
3. **Alphabet:** There are several forms of Alphabets, numbering up to 200; however, the Alphabets we currently used emanated from the Egyptians Civilization that saw Phoenicians adopting the Hieroglyphics by 1600BC the Phoenicians (Canaanites or the present day Lebanon) adopted the Hieroglyphics by Alphabet (Demotic version) and reduced them to 22 and later the Greek adopted it around 800BC and infused some vowels into the Alphabet to bring the letters to twenty six (26) and this version has prevail till date.
4. **The Numerals:** Figures as we used them today, we as a result of the contributions of the Arabs and the Romans. Hence we have the Arabic numerals such as 1, 2, 3, 4, 5, 6……, and the Roman numerals such as i, ii, iii, iv, v……, which are credited to the Arabs and the Romans civilization respectively.

**ORGANIZATION OF PROF. ABUBAKAR ADAMU RASHEED LIBRARY**

**Introduction**

The organization of any university library is considered in the light of the structure of the university its serves. The university library complex is made up of the the main library and two branch libraries. The Prof. Abubakar Adamu Rasheed Library, which is made up of the main library, which was inherited from the the **defunct** Taraba State Polytechnic Library. The branch libraries are the Faculty of Law Library located at the Prof. Yemi Osibanjo Law Complex, the Faculty of Agriculture Library located at the Faculty of Agriculture, Life Science Complex.

**Objectives**

At the end of the lecture, students would be able to know the organizational structure of the Prof. Abubakar Adamu Rasheed Library, and what are contained in each and every divisions and unit of the Library.

**The Prof. Abubakar Adamu Rasheed Library is Organized into seven major divisions:**

1. **The University Librarian’s office:** This consists of the University Librarian’s office, which is responsible for the day to day administration and policy matters of the Library, and the office of the Deputy University Librarian.

2. **Technical Services division:** This consist of Acquisition unit which is responsible for the acquisition and processing of all library books. The acquisition is divided into three units; these include:

i. **Searching Unit:** This unit provides all the information necessary for ordering a book. Before a book is ordered, the unit makes sure that the book is not already in the Library as this would result in the ordering of duplicate copies. The unit also checks the correction of information about the Author, place and date of publication, publishers etc.

ii. **Acquisition Unit:** The unit establishes the correctness and accurateness of books before ordering. The unit also ensures that the book received is the same as the one ordered.

iii. **Invoicing Unit:** The Unit prepares and clears invoice for payment.

3. **Technical service Division.**

The division is responsible for the processing of books and monographs which comes through collection and Development Department. The processing includes cataloguing and classification. The division is divided into the following units:

i. **Cataloguing:** The unit does original cataloguing of books.

ii. **The Card Production/Cataloguing Maintenance Unit:** This unit prepares catalogue cards to be filed into the public card catalogue. It also maintains the public card catalogue so that it can be used to the best advantage by library users.

iii. **The Book Finishing/Mending Unit:** The Unit labels all Library books and does minor mending.

iv. **Maintenance of Online Public Access Catalogue (OPAC):**  This unit is responsible for capturing and maintenance of bibliographic information and also giving access and guiding users on the use of the Online Public Access Catalogue.

v. **Binding Division:** This is a technical division, which takes care for binding and rebinding of worn out books, periodical and newspapers. When operational, it will bind staff and students thesis dissertations and projects. The unit also has the responsibility of photocopying.

4. **Reader’s Services Division**

This is the public services area of the Library which concerns itself with facilitating the use of Library materials. There are three units under this division.

i. **Circulation Units:** As the name suggest; the unit is concerned with circulating books to readers. The unit gives out books to readers and receives them back when is overdue. The unit also registers new members and collects over-due fines.

ii. **Reference Unit:** The reference unit is made up of reference materials. The handbooks, year books, directories, dictionaries etc. these collections comprise of such publications as encyclopedia, almanacs, annuals, handbooks, year books, directories etc. the materials are meant to obtain definite information quickly. The unit is also concerned with answering reference questions and rendering personal assistance to readers.

iii. **Short Term Loan Unit:** This unit is responsible for withdrawing from the open access books that are in heavy demand by students (on the recommendations of lecturers to be kept in the unit for specified period of time). The materials are made available on two-hourly basis and can only be used within the premises.

5. **Archives and documentation Services Division**

The division is responsible for the acquisition of research materials and the provision of specialized services to readers. The Division is made up of the special collection which contains materials such as Africana, Nigeriana, Kwararafa collection, all publications from Federal, State Governments and International Organizations such as O.A.U., UNESCO, ECOWAS, etc. conference and seminar papers, theses and dissertations.

6. **Serials Division**

The Division is responsible for the selection of journals, acquisition of newspapers and magazines. The current periodicals are displayed on the racks and readers are free to consult them in the Serials Reading Room. The bound volumes or backsets of periodicals and shelved behind the current display racks.

7. **Education and Information Division**

The division is primarily concerned with educating and informing the public on the activities, services and resources of the library. There are two units within the division.

i. **Education Unit:** The unit is responsible for conducting training programme of junior staff members of the library. It also assists in the teaching of the Use of Library, Study Skills and ICT course under the General Studies Programme of the University. The unit also conducts library orientation and teaches users among exhibitions on various disciplines in the university and other topical issues.

ii. **Information Unit:** The unit assist readers with all directional questions and mounts exhibitions on various disciplines in the University and other topical issues.

8. **Electronic Library service Division**

The Electronic Library division is the centre of information technology in the library and contains information online and offline on computer system, CD-ROM, audio-visual equipment and their related software. There are equipment such as television, overhead projectors, microfilm/fiche reader-printers, film/slide projectors, audio-cassettes and tape recorders.

**UNIVERSITY COUNCIL**

**VICE CHANCELLOR**

**UNIVERSITY LIBRARIAN**

**SECRETARY TO LIBRARIAN**

**ELECTRONIC LIBRARY/ SYSTEM DEVELOPMENT**

**TECHNICAL SERVICES**

**READERS’ SERVICES**

**CIRCULATION**

**ADMINISTRATION**

**CATALOGUING**

**REFERENCE**

**LIBRARY SUPERVISOR**

**ACQUISITION**

**ARCHIVES & DOCUMENTATIONS**

**BINDERY**

**SERIALS**

**LAW LIBRARY**

**AGRIC LIBRARY**

**AUDIO VISUAL/**

**NEWSPAPERS**

**Assessment Questions**

* Describe the organizational of Prof. Abubakar Adamu Rasheed Library.
* Why do we need to organize materials in the library?

**LIBRARY CATALOGUE**

**Introduction**

The library catalogue is an index list of books, maps or other items, arranged in some definite order. A catalogue is a detailed list or record of books, maps, audio-visuals and other information items in the library.

Each entry bears details of class number or call number to enable the item to be found, as well as sufficient details (such as author, title, date of publication, editorship, illustrations, pagination and edition) to identify and describe the book.

The catalogue is not new, almost from the time that man singly or in groups started collecting books from their fore runners; he has felt the need to list the works to show what he has. The primary purpose of the library catalogue is to show that the library has so that a user can know and get information through.

i. The author of a work

ii. The title of a work

iii. The Editor of a work

iv. The subjects of a work. And some other catalogue tracings.

**Objectives**

At the end of the lecture, students would be able to know what is a library catalogue, forms and types of library catalogue, functions, of library catalogue, as well as problems associated with each type of library catalogue.

**The Catalogue as Location Record**

For a reader to learn what the library has, he cannot bypass or completely ignore the catalogue to pick books. Catalogue symbol is a principal guide or key that leads a user directly from catalogue card book or Online Public Access Catalogue. It has also been found that employing a subject classification scheme, one can bring together on the shelves books on the same subject, with books on related subject close by. Hence the symbol on a specific works and it brings together with like materials. The user is led to the specific book or he may browse through the books on the shelves which relate to the subject which he is interested in.

**Functions of the Catalogue**

Library practice has also discovered many reference uses for the care catalogue implicit both in deciding what cards are needed for and in determining what information is to be included on the card.

The catalogue is expected to tell the following information:

i. What does the library have on specific subject?

ii. What does the library have on specific Author?

iii. What does the library have on specific Series?

Answers to the first questions are provided by the use of subject headings (names, words, or phrases). The second can also be answered by showing that the library has by a given author which is done by providing cards under the name or name used in this work; while the third is answered by supplying a card under the name of a series for each title the library has in the series. The information on the catalogue card supplied a description of the individual work, such as who is responsible for its content, who published it and when, what is its size (number of pages or volumes) what it is about and its relation to other works. These are the functions of the library catalogue.

**Physical Types and Forms of Catalogues**

i. **Card Catalogue**

It comprises cards usually 5 x 3 inch (122 x 72). Each entry is on a separate card, the whole, filled in a series of drawers, together forming a catalogue cabinet.

ii. **The Shelve Catalogue**

This comprises set of slips held by specially manufactured loose-leaf binders. Each binder holds some 500-650 slips in the standard size, and they are filled in a series of pigeonholes forming a catalogue cabinet.

iii. **The Guard (Book) Catalogue**

It is a book catalogue having several entries on each page, but made by hand by passing slips to the stout manilla pages of the book.

iv. **The Conventional Printed (Book) Catalogue**

Printed book stock of a library. Some libraries, national libraries and those with unique special stocks have duty to print their catalogues which are clearly major bibliographies e.g. National Union Catalogue.

v. **The Computer (Book) Catalogue**

Recent development in automatic data processing are revolutionizing, the production of library computer in form of punched cards of paper tape, etc. and from this basic information lists are organized in a variety of order (author, title, subject etc.) dandle printed out.

**OTHER FORMS OF CATALOGUE**

i. **Visible Indexes**:

a. Those holding cards with only a certain depth of edge visible.

b. Those made up of narrow strips about ¼ inch wide, which are counted one below the other in a frame, the finished appearance being like number of lines on a printed page.

ii. Punched cards, computer, etc. the computer may be used in a catalogue, that is, the information may be stored within the computer and labeled as required by author, title, subject etc.

**TYPES OF CATALOGUE**

The heading is the element by which the entry is filled in the catalogue. Therefore the various types of heading entries are made as follows:

i. **Author Catalogue**

A catalogue, which is composed of author entries only (including added entries for editors, translators etc.)

ii. **Subject Catalogue**

A record which contains heading on subject, filed alphabetically by subject.

**Why do we need to Classify Books in the Library**

At an early state, the library collection did not exceed 10 or 20, therefore the librarian knew his collection by heart, but with the invention of printing using a movable tape by a German called D. Gutenberg in 1492, the production of reading materials multiplied manifold. At the stage the following terms emerged.

i. Information explosion

ii. Publication explosion

iii. Paper storm.

Libraries were therefore stormed with myriads or publications and the librarian had to device a scheme with which he could arrange these reading materials for the purpose of the easy retrieval. The classification scheme therefore has the following purpose.

i. To bring together all materials dealing with a particular subject.

ii. To bring together all materials written by a particular author.

iii. To help the library users to locate his information needs without difficulty and without wasting much time.

iv. To help the librarian to know the strength and weakness of his collection.

**Features of Classification**

There are three features of a classification scheme. They are

i. Schedule

ii. Index

iii. Table

**Schedule:** A statement of the sub-division of a classification set out on a paper so as to show hierarchical relationship.

**Index:** A alphabetical list of all the subjects and their sub-divisions treated in the schedule with their corresponding pages in the schedule.

**Table:** Numbers designated to areas, ethnic groups, etc. for the purpose of expanding the notations.

**ELEMENTS OF CLASSIFICATION**

Classification has some elements and they are as follows:

i. Notation

ii. Class number

iii. Author number

iv. Call mark

i. **Notation:** Is the symbol that stands for subject or discipline in a classification scheme. A notation may be pure or mixed. A pure notation uses either Arabic numerals only or letter of the alphabet.

ii. **Class Number:** The notation that is assigned to book in the course of classification.

iii. **Author Number:** The number that is added to a class number in order to distinguished between two books written by different authors but on the same subject or discipline.

iv. **Call Mark:** The final number assigned to a book after classification. It is usually found on the left hand corner of the catalogue card. It serves as a linkage between the catalogue and storage position of the book on the shelf.

**LIBRARY OF CONGRESS CLASSIFICATION SCHEME (LC)**

The Dewey Decimal Classification System is an individual effort, while library of congress classification scheme is an institutional effort. As the name implies, the scheme was devised by the American Library of Congress for the purpose of arranging the documents housed in the American House of Congress in 1997 the collection of the library of congress had reached one and thou half million volumes, and its annual accession had reached approximately one hundred thousand. There was therefore a need for a scheme which would act as a map for guiding the congress librarians through the maze of publications housed in their library thus the L.C. Scheme was devised, D. Heobert Putnan, the Librarian of Congress, in his report of the year 1901, explained that the L.C. scheme was devised from a comparison of existing schemes including the D.D.C and Cutter Expansive Scheme. The outline of the L.C. was not published until 1904. Before then the scheme was developed in states. The L.C. uses the letters of the alphabet and the Arabic numbers. In the L.C. Scheme the whole spectrum of knowledge is divided into 26 in numbers major classes. Therefore, it is a broad base. The scheme is popular in academic libraries the world over. It has a mixed notation because as was mentioned before, it uses both the letters of the alphabets and the Arabic numbers.

The outline of the scheme is as follows:

a - General works

b - Religion, philosophy and related disciplines

c - History- Auxiliary Sciences

d - History (General)

e – f - History (USA)

g - Geography, Anthropology and Sports

h - Social Science

i

j - Political Science

k - Law

l - Education

m - Music

n - The Arts Fine

o -

p - Language and Literature

q - Science

r - Medicine

s - Agriculture

t - Technology

u - Military Science

v - Naval Science

w

x

y

z - Bibliography and Library Science

**DEWEY DECIMAL CLASSIFICATION (DDC)**

Dewey Decimal Classification is an individual effort, devised by one person single handedly. It was devised by Melvil Dewey, an American librarian in 1876 and ever since, it has undergone many editions.

Dewey Decimal Classification Scheme is very popular all over the world. It is adopted in libraries. In this classification scheme, Dewey divided the whole spectrum of knowledge into ten major classes and appended a generalia class for political/tropical materials. The outline of DDC scheme is as follows:-

000 - General

100 - Philosophy and Psychology

200 - Religion

300 - Social Science

400 - Languages

500 - Natural Science

600 - Applied Science

700 - The Arts

800 - Literature

900 - Geography, History and Travels

The DDC scheme has a pure notation because it uses Arabic numbers only. It has a narrow base because knowledge is divided between 10 major classes only.

**UNIVERSAL DECIMAL CLASSIFICATION**

The scheme was initiated by an organization known as International Federation of Documentation. The institution hoped to collect bibliographies published throughout the world and to build up a vast classified catalogue covering all literatures. The project was given financial support by the Belgium Government. Two Belgians, Paul Outlet and Henri La-Fontaine were commissioned to produce a classification scheme which would be used in classifying the vast number of materials collected by the International Federation of Documentation thus the universal decimal classification was born. The first edition of the scheme appeared in 1905 and it was based on the fifth edition of the Dewey decimal classification scheme. The scheme, Outlet and La-Fontaine divided knowledge into ten broad terms and a generalia class provided for reference materials. The scheme has a pure notation because it used Arabic numbers only. The outline of the scheme is as follows:

0 - Generalia

1 - Philosophy

2 - Religion

3 - Social science

4 - Philosophy

5 - Maths and Natural Science

6 - Applied Science and Medical Technology.

7 - Arts/Recreation

8 - Literature

9 - Geography, Biography, History.

**COLON CLASSIFICATION**

The colon classification was devised by an Indian by the name of Shirijali Rammarit Ranganathan. After graduation, Ranganathan lectured Mathematics in the Government College Madras University Library but because he never had experience in the librarianship he was sent to England to study library method at the British Museum.

As a great mathematician, Ranganathan used his vast experience to device his colon classification and the first appeared in 1933. Just like the L.C. the C.C. uses the letters of the alphabet and Arabic numbers. According to this scheme, knowledge is divided into twenty five broad classes. The scheme is popular in academic libraries of it broad based. The outline of the scheme is as follows:

A - Generals

B - Mathematics

C - Physics

D - Engineering

E - Chemistry

F - Technology

G - Biology

H - Geology

I - Botany

J - Agriculture

K - Zoology

L - Medicine

M - Useful Arts

N - Fine Arts

P - Linguistics

Q - Religion

R - Philosophy

S - Psychology

T - Education

U - Geography

V - History

W - Political Science

X - Economic

Y - Sociology

Z - Law

**BLISS BIBLIOGRAPHY CLASSIFICATION**

This bibliographic classification is also an individual effort. It was devised by Henri E. Bliss, born in New York in 1870. Bliss completed his education in the college of the city of New York in which he was appointed as a librarian in 1881.

He devoted a large part of his life to the study of classification. His first book known as *The Organisation of Knowledge and the System of Sciences,* published in 1929, examines the work of philosophers and other scholars in arranging subject fields and explores the underlying structure of the universe of knowledge. *The organization of knowledge in libraries,* published in 1933 relates more to bibliographic organisation. It also criticize the existing book classification. The first outline of the Bliss classification scheme appeared in the book “*A system of bibliography classification*”, published in 1935. Its full edition appeared in four volumes over the period 1940-53. Bliss classification is reminiscent of the “LC” and the Colon Classification, because knowledge is divided into twenty six classes according to the letters of the alphabet, just like the two already mentioned. The BC is popular in large libraries such as academic libraries. The outline of the BC is as follows:

1-9 - Generalia

A - Philosophy and General Sciences

B - Physics

C - Chemistry

D - Astronomy, Geology, Geography

E - Biology

F - Botany

G - Zoology

H - Anthropology

I - Psychology

J - Education

K - Social Sciences

L - O - Social, Political, History

P - Religion, Theology and Ethics

Q - Applied Social Sciences and Ethnics, Social Welfare

R - Political Science

S - Law

T - Economics

U - Arts in General

V - creative Arts

W - Y - Philology Literature

Z - Bibliography

**ASSESSMENT QUESTIONS**

i. Why do libraries classify their materials

ii. Describe the types of classification scheme used in Prof. Abubakar Adamu Rasheed Library

**DOCUMENTATION AND PLAGIARISM**

**Introduction**

Documentation could be defined as things admissible to achiever being manuscripts made of any suitable materials, scripts produced by writing or by means of type blocks engraved plates. They include alphabetical signs which form part of or been annexed to manuscripts preserved in custody of persons responsible for that transaction.

**OBJECTIVES**

At the end, both students and researcher will know what constitute a plagiarism the implication and what copy right laws are.

**DOCUMENT**

A document is a record usually inscribed or written which conveys information and which is relied on to established facts. It is now taken to include any form of graphic, acoustic or haptic record (book, cutting, map, manuscript, drawing, periodicals etc).

i. Any form of recorded information, whether indicated, alphanumeric, pictorial or auditory. The tendency has developed in the last few years when referring to the contents of a library or documentation centre to consider all the individual items as documents on the ground that various kinds of records are included in the collections.

ii. By documents is often meant any kind of record whatever its data or form, and whether it is on paper, parchment or film or any other materials. The result is that document is being used when book or any other form of record is meant.

Documentation therefore is the act of collecting, classifying and marking readily accessible the records of all kinds of intellectual activity. It is a technique necessary for an orderly presentation, organization and communication or recorded specialized knowledge, in order to give maximum accessibility and utility to the information contained. Writing a paper whether class assignment, newspaper or journal articles, final year projects, masters thesis, doctoral dissertation, research report, conference or seminar papers etc. therefore, requires strict adherence to the ethics of documentation. Writing research papers always involves stating clearly the title page, introduction, statement of the problem, assumptions, scope and limitations, methodology, in form of either foot notes, or bibliographic references.

**PLAGIARISM**

In writing papers, non-adherence to proper or correct documentation procedures leads to plagiarism. The Website’s dictionary describes a plagiarist as copier or counterfeit and a lifter.

In the academia, plagiarism is described as any form of adaptation of another author’s ideas, even if they were paragraphed and no matter how brief, so long as the origin is not mentioned. In other words, if a phrase not to talk of a paragraph, it proved to have been originated from an earlier author, it amount to plagiarism. Many professors and members of the academic community have over time suffered disgrace for this simple omission. For example, in 1988, a former minister of information, Tony Momoh issued through the media a document titled “letter to my countrymen: whose cause”, which delved into the origins of Nigeria’s economic problems and the reasons for which the Structural Adjustment programme had to be carried out. About the same time a man Niyi Oniororo, Chairman of National Council for National Awareness, issued a pamphlet titled “Whose cause”? Letter to the Nigerian.

The differences between the two documents were in the sequence of the words in the title “My country man” used by the Minister as against the Nigerian used by Oniororo. The other differences were that Tony Momoh’s letter ran for 35 paragraphs and bore the Ministers signature. Oniororo wrote 36 paragraphs and ends with “your compatriots”. All other in the publications are the same. Each man swore it was his magical work. Tradition was faced with the dilemma: who is the copier? Who is the plagiarist? The above is just to illustrate how plagiarism can caused embarrassment among intellectuals.

In another case, the Supreme Court decided in favour of one Chief Chucks Adonphy in an original suit filed against the Jos based Plateau Publishing Company Limited. In that case the Plaintiff (Chief Adonphy) has sent an article titled “After Tarka what Next: Special tribute to the Standard Newspapers for publication. The articled was not published until several months, later, in May 1980, when it appeared with one Yima Sen as the author and with the heading lessons from Tarkaism, A Tribute Features”. Apart From these changes the contents were published in.

Adonphy filed a suit at the Federal High Court, Sokoto, demanding N200,000.00 as damages for the infringement of his copyright. The court at the end of the trial awarded N25,000.00 as damages and N10,000.00 additional damages to the plaintiff having established that he was the original author of the articles.

The newspaper appealed, while it succeed in having the N10,000.00 additional damages quashed the 25,000.00 was upheld.

Dissatisfied, the newspaper (Standard) again appealed to the Supreme Court. In a lead judgments read by Justice Kayode Esho, the court upheld the N25,000.00 awarded. The Court held “*Innocence is no defence to an action for infringement of copyright or for the conversion or retention of an infringing copy or plate*”. It is observed, it is settled law that the right of an author to his literary publication in respect of which he claims is incorporated”.

**BIBLIOGRAPHIC REFERENCES**

**Introduction**

A bibliography or reference is the annex of any genuine report. Frequently both the terms are taken as synonymous. However, “reference” is the list of those report while “bibliography” consists of all the referred materials as well as those consulted by the researcher but not referred to in the report. In case of textbooks. References are usually listed at the end of each chapter, while bibliography at the end of the whole text. Also while references are listed in a numerical order, bibliographies are compiled in alphabetical order of the author surnames.

**RECOMMENDED STYLES OF ENTERING DOCUMENTS SOURCES**

**a. Book References:** Numeric or Harvard System

i. If one author

Danjuma, W.K.D. Economic of Nuclear Defence System Zaira, Ahmadu Bellow University Press, 1960, pp 306-390

ii. If two authors

Danjuma, W.K.D. and Yusuf M. Abdu Economics of Nuclear Defence Systems Zaira: Ahmadu Bello University Press, 1960, pp. 360-390.

iii. Danjuma, W.K.D. Yusuf M. Abba and Bukar Ali Economic of Nuclear Defence System Zaria, Ahmadu Bello University Press, 1960, pp. 360-390.

iv. Danjuma, W.K.D. et. al Economic of Nuclear Defence System Zaria, Ahmadu Bello University Press, 1960, pp. 360-390.

v. Danjuma, W.K.D. et. al (eds) Economics of Nuclear Defence System Zaria, Ahmadu Bello University Press, 1960, pp. 360-390.

vi. Danjuma, W.K.D. et. al Economic of Nuclear Defence System Zaria, Ahmadu Bellow University Press, 1960, pp. 360-390.

**b. Journal References**

i. Oguseye, F.A. “Education and training for information work” Nigerian Libraries 12 (2) 1976.

**c. Conference Paper References**

i. These are either papers presented at a learned conference or papers presented and collected as proceedings of such conferences, edited and published in the form of a book.

a. Daniel, C. “Characteristics of Rural Population in Nigeria” *(paper presented at the Annual Conference of Nigerian Library Association Kaduna State Division. December, 1986).*

b. Yusuf, Adams “Weed problems and control practices in the semi-arid regions of Africa”. In: Muhammed, I.O. (ed.) *Weeds and their control in the humid and sub-humid tropic,* 127-133. Proceedings of a conferences held at the International Institute of Tropical Agriculture. Ibadan, Nigeria, July, 1978. Proceedings Series No. 3, IITA Ibadan.

**d. Unpublished Materials References** (e.g. These and Dissertations)

i. Muhammad B.O. Studies on weed Control in irrigated onion (Allium Cepa I) in Northern Nigeria.

Unpublished M.Sc./M. Phil. Thesis, 1981, Ahmadu Bello University, Zaira.

**e. Newspaper Article References**

i. Bello, S. Devaluating the Kenyan Shilling, New Nigerian, February, 3 1985, p. 7.

**f. Anonymous Editorial**.  *New Nigerian,* January 2, 1980-p 1.

**g. Other Materials References**

i. Jones, E. (ed.) *The Atlas of Word Geography. (London Evans* (nd) p. 84.

ii. *Encyclopedia Americana* (International Edition) Vol. 9 (1978) p. 184.

iii. *United Nationals Educational Scientific and Cultural Organization* (UNESCO), International Literacy Day, 1990.

**COPYRIGHT LAW**

Copyright is a right conferred by law upon an author to control the reproduction, translation on sale of his works. It is intended to stimulate creativity and increase the flow of information and ideas in the society and internationally. It attempts to project the author’s moral and pecuniary interests resulting from his literary, scientific or artistic production. However, author, personal or corporate, may cede the right to exploitation of his work to his publisher.

Copyright law in Nigeria is an off-shoot of the Bern Convention founded in 1986, today known as the *World Intellectual Property Organization (WIPO)* and the Universal Copyright Convention (UCC), adopted by UNESCO in 1962, providing translational reciprocal protection of works of authors from member countries.

When Nigeria got independence in 1960, it was the common law that governed copyright in Nigeria. The Nigerian copyright Decree 1988 makes copyright violation a criminal rather than a civil offence as was the case with Nigerian Copyright Act 1970 which it has superceded.

The copyright decree attempts to protect the following works:

i. Literacy work

ii. Musical work

iii. Artistic work

iv. Cinematography films

**COPYRIGHT LAW AND VIOLATIONS**

Four major forms of copyright violations may be identified:

i. Unauthorized printing and selling of copyrighted works.

ii. Unauthorized translation of publication into another language.

iii. Intellectual piracy or plagiarism, involving unreasonable copying of another’s work, wholly or without his authorization, or without due acknowledgment.

iv. Indiscriminate photocopying, cyclostyling of copyrighted works for study and research outside the realms of “*Fair Use*” or “*Fair Deal*” concept, without compensation on the original publisher.

However the Copyright Decree 1988 exempts from copyright control the following:

a. Fair use in reproducing part of a publication for the purpose of research, private use, criticism, review or report of current events provided, if its use is made public, due acknowledgment is given as to the title of the works and editorship.

b. Reproduction of not more than three copies of a publication by or under the direction of a person in charge of a public library for the library if such a publication is not available for sale in Nigeria.

c. Reproduction of unpublished literacy or musical work kept in the library, museum, or other institutions for the purpose of research or private study.

d. Reproduction of published Braille works for the blind and other disabled persons.

**ASSESSMENT QUESTIONS**

i. Define documentations and plagiarism

ii. What violates copyright law?

**SERIAL/PERIODICALS**

**Introduction**

A serial is any publication issued in successive parts, appearing at intervals, usually regular once and as a rule intended to be continued indefinitely. The term includes periodicals, newspapers, annuals, numbered monographic series and proceedings, transactions and memoirs of societies. While a periodical is a publication with a distinct title which appears at regular intervals, generally oftener than once a year without prior discussion as to when the last issue shall appear. Excluded from this definition are newspaper, memoirs, proceedings, journals etc.

**Objectives**

This is to educate library users, apart from books, serials/periodicals also contain current information than books and other publications. The scope of serials/periodicals includes journals, magazines, law reports, dailies, handbills, bulletins etc.

**Series Publications**

In a society such as Nigeria, with fast developing economy, the need for scholars to carry out research activities for the economic, political and social development of the nation cannot be over-emphasized. Since post-independence, there have been many such specialized institutions all over the country. These specialized institutions required access to current and specific information in order to justify their existence, and perform their activities efficiently.

In the modern world, no productivity can be carried out successfully unless adequate information can be made quickly available to specialist and researchers. Without support of such information, which must surmount language barriers and ignore political frontiers, no serious work for economic and social development can be accomplished. To this end, most university libraries give special attention to the acquisition and proceeding of serial materials.

**Serials-**comes from the word series. Things come one after the other. One definition of serials is any publication issued in successive parts and intended to last for an indefinite period of time, they are divided into two major parts. These are regular and irregular ones. The regular one comes out regularly either daily, weekly, monthly, quarterly, biannually or annually while the irregular has no definite period of its publication.

**SCOPE OF SERIALS PUBLICATIONS**

The scope of serials publications includes: Newspaper, annuals, bulletins, monographs, law reports, conference repot, magazines, journals, handbooks, transactions, memoirs etc. Serials therefore are indispensable tools for any library collection especially in academic and research libraries.

In Prof. Abubabkar Adamu Rasheed Library, the Serial Division provides services to its users. The collection of serials publications in the Division is categorized into two major parts. These are the current issues which are normally displaced for the users to consult without any assistance from the library staff. That means they are placed in open access. Means, every user has a direct access to the materials. Furthermore, most if not all the materials in the open access have not been superceded by any edition while the back access or closed access means user have no direct contact to the materials, they have been superceded by new editions. To this end, users could only use the collection with the assistance by the library staff.

In an academic library like the Prof. Abubakar Adamu Rasheed library, serials are as important as ordinary books if not more. This statement is deduced from the fact that serials give latest information on a subject; micro level topics are provided. Some serials like animal reviews and year books present an overview of the subject matter development. Furthermore, it also gives information that may not be available in the form of a complete book because, serials often represent an enormous portion of the library’s collection and also receives a significant share of the library budget.

**STRIPPDEX AND KARDEX**

This provides the summary of the publication. It functions like the catalogue whose functions are to identify, locate materials in the library. Similarly, stippdex equally provides the following information in the collection division. These are, the title of the publication, the volume, year of publications as well as the class mark number while Kardex contains the details of the publication. This includes the author, title, edition, volume, year, publisher, frequency, International Standard Series Number (ISSN) etc. unlike the Strippdex, Kardex is mainly used by the librarian.

**HANDBOOKS**

A handbooks is a compilation of miscellaneous information in a compact and handy form. It may contain data, procedures, principles etc. handbooks also contain tables, graphs, diagrams, and illustrations.

**Manual**

A manual is an instruction book which provides instructions such as how to perform a job or to do something by means of specific and clear directions. Sometimes handbooks and manuals are used without distinction.

**Annual**

An annual is a serial publication e.g. Report yearbook or once a year.

**Journal**

A journal is a newspaper or periodical issued by a society or institution and containing news, proceedings, transactions and reports of work carried out in a particular field.

**Magazine**

A magazine is a periodical publication as distinct from newspapers, separate issues bring independently paginated and identified by date rather than by serial number.

**Law Reports**

A report is a publication giving a formal or official record as of the activities of a committee or corporate, or of some special investigation or the proceedings of a governmental body Law reports therefore, give reports of the judgment of the courts in a particular country e.g. High Court, Court of Appeal and supreme Court.

**Difference between Serials and Other Publications**

1. Serials can be published within a short period of time while books take longer period of time.

2. Serials are mostly published by professional bodies i.e. journals, journal of medical science. Student association while books are mostly written by individuals.

3. Serials are written mostly by man authors while books are mostly written by single authors.

4. Serials could be differentiated by ISSN while other publications by ISBN

**ASSESSMENT QUESTIONS**

* What are the difference between serials/periodicals and other publications.
* Write short notes on the following:

\* Magazine

* Define government publications and its scope
* How do you differentiate between government and other publications?

**CARE OF BOOKS AND OTHER LIBRARY MATERIALS**

**Objectives**

This is to ensure that materials and other related information in the library are handled with care. This is not only to guarantee their safety but also their life span.

**Introduction**

In order to ensure proper utilization of all library materials, there is the need to maintain the available resources and to protect them from damage, theft and deterioration. There are several causes why library materials get damaged or deteriorated:

i. Pollutants e.g. flood, dust etc.

ii. Temperature e.g. humidity

iii. Radiant Energy e.g. Sun rays

iv. Biological factors e.g. fungi, bookworms

v. Natural factors e.g. riots, demonstrations, fire, war etc.

vi. People e.g. theft, mutilation, careless handing.

vii. Acidity content of paper

viii. Excessive heat.

**Steps to take in order to Reduce Damage and deterioration of Library Materials**

1. Proper handling

2. Provision of Air conditioners

3. Provision of a stand-by generator

4. Regular cleaning and dusting

5. De-acidification

6. Application of insecticides

7. Fumigation i.e. the use of fumes to kill bookworms and other insects that damage library materials.

8. Prohibition of eating in the library

9. Binding and rebinding of books and journals

10. Provision of fire extinguishers in the library

11. Good security supervision in the library.

**Assessment Questions**

1. Name ten physical parts of a book and discuss them

2. What are the differences between abstract and summary of a book?

**REFERENCE SOURCE**

**Introduction**

Reference books are books referred to or consulted for particular information as opposed to books read from cover to cover such as novels and textbooks.

Examples of reference books are:

Encyclopedias

Dictionaries

Directories

Year books, handbooks, annuals, calendars etc.

Gazettes and atlases

Bibliographies, indexes and abstract etc.

**OBJECTIVES**

Apart from books, serials/periodicals which are sources of information, reference materials also provided additional sources of information to library users.

**Qualities which determine a good preference book**

i. **Up-to-datedness:** This is determined largely by the date of publication. One is unlikely to find information on Nigeria’s 30 state structures in Nigeria Year Book 1980. Current information is found in a current reference book not in an out-dated one.

ii. **Authority file:** the information given must be reliable, an incorrect information is worse than no information at all because incorrect information is misleading. The qualifications of contributors as well as those of the editor or compiler lend authority to a reference book. In most reference books, the list of contributors, together with her qualification, is seen either at the beginning or at the end.

iii. **Arrangement:** The information must be so arranged as to be easily retrievable. In most reference books articles are arranged alphabetically, and where articles are classified, an alphabetical approach is usually provided by the index.

iv. **Scope:** The period treated must conform, especially in history. The subject field treated must be adequate.

v. **Treatment:** The treatment of the material should be appropriate to the purpose for which it is intended. For example, a children’s encyclopedia would be expected to treat highly technical subjects in a popular manner to facilitate appreciation by the audience (i.e. children) at whom the information is aimed. Similarly a reference book intended for the scholar would exclude the trivial and the common place.

vi. **Illustration and special features:** As in books, the emphasis to be placed on illustrations as a yardstick to reliability will depend on the nature of the subject.

vii. **Bibliographies:** Each, article, should be followed by a list of reference, which apart from indicating the sources consulted by the author, would serve as a guide to further reading for the reader who wishes to study the subject in depth.

viii. **Frequency and Cumulating:** For periodicals indexes in addition to the above, the following qualities should be looked for.

ix. **Frequency:** This may be weekly, monthly, quarterly etc. An index issued monthly is more-up-to-date than one issued quarterly.

x. **Cumulations:** A frequently cumulated index saves much time compared with one, which seldom, or never cumulate.

**TYPES OF REFERENCE BOOKS**

**Encyclopedia:** They are the backbone of any reference collection. They provide comprehensive information on a topic or subject e.g. the Nobel prize, the Olympic Games etc.

**Examples**

i. Encyclopedia Britannica with the Britannica Book of the Year.

ii. Encyclopedia American with the American Annual

iii. Chamber’s Encyclopedia

iv. Funk and Wagnall’s Standard.

v. Columbia Encyclopedia: 1 volume Encyclopedia with over 75,000.00 articles

vi. Der Grosse Brockhaus (German)

vii. Grand Larousse Encyclopedia

viii. Various subject encyclopedia (e.g. Ency. Of forms and precedents, Enscy of social science, McGraw hill ency. Of Science and Technology).

**Dictionaries:**

Are the major sources of information about words, their spellings, pronunciation, meaning etc. Strictly a dictionary is a list of words or terms of a language indicating spelling, meaning pronunciation, derivation etc.

Examples

1. Oxford English Dictionary and shorter Oxford English Dictionary
2. Websters New Twentieth Century Dictionary
3. Oxford Advanced Learner’s Dictionary of Current English
4. Chambers Twentieth Century Dictionaries e.g dic or organized compound, dict of the Hausa Language, shrouds, judicial dictionary.

**Year Books, Handbooks, Annuals, Calendars, Almanacs etc.**

These are useful for historical research as they usually cover the events of the previous year including progress made in particular subject fields. Year books published by institutions are usually called calendars.

**Examples:**

1. Statement year book
2. International year book and stateman who’s who
3. United National Year book
4. Annual Register of World Events
5. Whitecaker’s Almanac
6. Africa contemporary record Annual survey and documents
7. Nigeria Year book
8. Nigeria hand book
9. Africa Annual
10. Nigeria Banking Almanac

**Gazettes and Atlases**

The gazette is a dictionary of place. It is used to find the location of a given place, its correct pronunciation and in many cases a brief history.

**Examples**

1. Chambers World Gazette
2. Columbia Lippincot Gazette of the world
3. Websers geographical dictionary

The atlas is a collection of maps and it is used in locating a given place or the geographical area a place covers. Unlike gazette they do not provide the history of a place.

**Bibliographical Dictionaries**

Give account of the lives of famous people. They may be universal, national, subject or current in scope.

**Examples**

1. Dictionary of National Biography (dead famous people in the British Commonwealth)
2. Dictionary of American Biography
3. Who’s who and who was who (British)
4. International who’s who
5. Current Biography
6. Who’s who in Nigeria
7. Biographia Nigeriana

**Directories:**

A directory is a list of persons or organizations, systematically arranged, usually in alphabetical or classified order, giving addresses, affiliations etc. for individuals and address, officers, functions and data for organizations.

**Examples.**

1. The world of Learning. A dictionary of Universities, Collages, Libraries, Learned Societies, Museums, Art galleries and Research Institutes in more than 150 countries, preceded by a section on International

International, Scientific, educational and Cultural organizations.

1. Directory of British Scientists
2. Telephone Directories
3. Hotel Directories and commercial and Industrial directories

**Handbooks**

Are reference books of miscellaneous facts and figure on one or many subjects assembled for ready use. They provide handy information.

Example.

1. Famous First Facts
2. Handbook of flags
3. Guinness Book of World Records
4. Quotation Books
5. Subject Handbook – Mining Engineers Handbook
6. Statistical Handbooks

**Manual**

These are sources that contain instructions for doing, making or achieving something. They answer questions on “how to do, how to make, how to become” etc. Questions they answer revolve around food and cooking, home maintenance and repair, first aid, etiquette, correspondence etc.

**Examples**

1. Mathematics Manual
2. Writer’s Manual
3. Manual of Public International Law.

**Bibliographic**

They are lists of publications on a topic. They could be universal (LCNUC) national (BNB, NBN) or special (trade or subject).

**Examples**

1. Nigerian Civil War, 1967-70 an annotated bibliography
2. Bibliography of Tropical Agriculture

**Indexes and Abstracts**

They provide information on articles published on given topics. An index is just a list, whereas an abstract gives more information or just a summary of the published article. Abstracts and Indexes to books and to journal exist. But both give full citations of the articles.

**Examples**

1. Biological Agricultural Index
2. Engineering Index
3. Chemical Abstracts
4. Biological Abstract
5. Abstracts to a thesis, a project or an article

**SOURCE OF INFORMATION**

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**Introduction**

Every subject has its literature. The rate of information explosion in the world today has tremendous effects on the literature of subjects. In sciences, it is almost doubling itself between five to ten years. In social sciences, it is almost doubling at the rate of every eight to twelve years. Students depend on the literature in their fields for the satisfaction of their information. Therefore the literature in different subject fields forms what we call sources of information.

**Types of Sources of Information**

Sources of information refer to information resources that students can consult to obtain information relevant to the research interests. We may recognize the following sources of information.

* Documentary sources
* Institutional sources
* Non-formal sources
* Elementary sources

**Documentary Sources**

There are documents that students can consult to obtain needed information. These documents often known as documentary sources of information are divided into three: primary, secondary and tertiary sources. The primary sources are the first to appear. Secondary sources come out next. The tertiary sources are the last to appear. These sources are discussed below:

1. **Primary Sources**

These are published records or original research or new discoveries or developments in field of knowledge. Such records carry original ideas that have not been organized. Primary sources are important sources of information. A subject becomes a discipline or an area of study when independent primary sources begin to be produced in that area. What determines the rate of growth of a discipline is the amount of literature produced in the form of primary sources reporting development in that area. Primary sources help researcher to be well informed (of new developments in their subject areas), up to date, avoid duplication in research; and generate more information by means of further work on the researches carried out in their areas. Examples of primary sources are: journals, newspapers, magazines, research monographs, research reports, patents, standard, trade literature, dissertations/theses, unpublished sources, (e.g. lecture notes, monographs, etc.). The table below shows the commonly used primary sources of information by scholars.

**Table 1: Commonly Used Primary Sources of Information**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Types** | **Information** | **Use** | **Example** |
| 1. | Journal | A journal is a collection of articles usually written by scholars in an academic or professional field. Articles in journals can cover every specific topic or narrow fields or research | * When doing scholarly research * To find out what has been studied on your topic * To find bibliographies that point to other relevant studies | * Journal of communication * Journal of Nigerian Library Association. * The historian * International Journal of library and information science etc |
| 2. | Magazine | A magazine is a collection of articles and images about diverse topics of popular interest and current events. Usually these articles are written by journalists or scholars. Magazines may cover every “serious materials”, but to find consistent scholarly information you should use journal | * To find information or opinion about popular culture * To find up-to-date information about current events * To find articles on different subjects. | * News watch * Tell magazine * News Nigeria |
| 3. | Newspaper | A newspaper is collection of articles about current events usually published daily. Since there is at least one in every city, it is a great source for local information | * To find current information about international, national and local events * To find editorials, commentaries, expert or popular opinions | * Vanguard * Daily Times * Punch * New York Times * Guardians * Sun * This Day * New Nigeria * Daily trust * Chronicles * Sports etc |

**2. Secondary Sources:**

Secondary sources of information are those which are either compiled from or refer to primary sources. This original information have been usually selected or reorganized so as to serve a definite purpose or group of users. It is difficult to find information from primary sources directly because of their numbers/volumes. Therefore, the secondary sources in the first instance lead one to specific primary sources. Examples of secondary sources are: textbooks, indexes, bibliography, abstract, reviews, treatises, reference books, translation and concordance. The table below shows the commonly used secondary sources of information by scholars.

**Table 2: Commonly Used Secondary Sources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Types** | **Information** | **Use** | **Example** |
| 1. | Books | Books cover virtually any topic, fact or fiction. For research purposes, you will probably be looking for books that synthesize all the information on one to support a particular arguments or thesis. Librarians organized and share their books collection on shelves called “snacks” | * When looking for lots of information on a topic * To put your topic in context with other important issues * To find historical information * To find summaries of research to support an argument. | * Ugwu, C.I. (2015) introduction to the use of library 2nd ed., Nsukka: University Press. |
| 2. | Library catalogue | A library catalogue is an organized and searchable collection of records of every items in a library and can be found on the library homepage. The catalogue will point you to the location of a particular source or group of sources that the library owns on your topic. | * To find out what items the library owns on your topic * To find where a specific item is located in the library | * Prof. Abubakar Adamu Rasheed Library OPAC * Library of Congress Online Catalogue |
| 3. | Encyclopedia | Encyclopedias are collections of short, factual entries, often written by different contributors who are knowledgeable about the topic. There are two types of encyclopedias general and subject. General encyclopedias provide concise overviews on a wide variety of topics. Subject encyclopedias contain in depth entries focusing on one field of study. | * When looking for background information on a topic * When trying to find key ideas, important dates or concepts | * Encyclopedia Britainical (General) * Encyclopedia Americana (General) * World Book (General) * Encyclopedia of Social Sciences (Subject) |

**3. Tertiary Sources**

Tertiary sources of information contain information collected from primary and secondary sources. The primary function of tertiary sources of information is to aid the search of information in the sue of primary and secondary sources of information. Due to the increase in literature, tertiary sources are becoming very important. Out of the various kinds of sources, tertiary sources are the last to appear. Examples of tertiary sources of information are: bibliography of bibliographies, directories and guides to literature.

**Institutional Sources**

There are institutions that can provide current information to students for either their academic work or research. These institutions include: Research organization, libraries/information centres and data archives.

a. **Research Organizations**

There are many research organizations that are primarily concerned with promoting and strengthening research activities as well as disseminating information about the current research programmes in many academic disciplines. These research organizations, which provide current information to scholars and researchers exist in many countries of the world. In Nigeria, for instance, we have the Social Science Research Council (SSRC).

b. **Libraries/Information Centre**

Libraries and information centres are great institutions that makes information available to users in different formats. Different types of libraries exist to provide information resources to users. Libraries and information centres have been handled in chapter one of this book.

c. **Data Archives**

Data collected by the government or its agencies as well as researchers through surveys and opinion polls, etc. are important resources of information for teaching, learning and research. Such data can be converted to machine readable format to preserve them for future use. Though they may be said to be always available in government departments as well as its agencies, many libraries especially university libraries also house archives and government documents or publications as well as reports.

**Non-Formal Sources**

Non-formal sources of information form a substantial part of the communication especially in science and technology. They include conversations with colleagues, and attendance at professional meetings such as workshops, seminars and conferences. Non formal sources are live sources, which are very important in the process of communication. A scientist working on an experimental would easily turn to his colleague working on the same field rather than consult a printed page. Very often the conversational or discussion would point out relevant primary or secondary sources (documentary sources). Libraries are also non-formal sources of information. They provide assistance to library users.

**Electronic Sources of Information**

These sources include the web sites, e-books, online database, e-journals subject gateway, websites, search engines etc. The Table below shows the

**Table 3: Commonly Used Technology Sources of Information**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Types** | **Information** | **Use** | **Example** |
| 1. | Database | A database contains citations of articles in magazines, journals and newspapers. They may also contain citations to podcasts, blogs, videos and other media types. Some databases contain abstracts or brief summaries of the articles, while other databases contain complete, full-text articles | * When you want to find articles on your topic in magazines, journals or newspapers | * Academic search complete * Jstor * OARE * EBSCOHOST * HINARI |
| 2. | Website | The web allows you to access most types of information on the internet through a browser. One of the main features of the web is the ability to quickly link to other related information. The web contains information beyond plain text, including sound, images, and video. | * To find current information * To find information from all levels of government * To find both expert and popular opinions * To find information about lobbies and personal * To find information about universities, organization etc. | * [www.fuwukari.edu.ng](http://www.fuwukari.edu.ng) * Wikipedia.org * [www.vt.edu](http://www.vt.edu). * [www.Unn.edu.ng](http://www.Unn.edu.ng) |

**How to Find Information**

To find information, a researcher must start with secondary sources and tertiary sources and end with primary sources. Secondary and tertiary sources contain information in organized form, and they also serve as guides or indicators to detailed content of primary literature. With increasing amount of literature being produced, it is becoming almost impossible to use primary sources directly for searching of information.

To illustrate the point raised above, a student, who is writing an article on an area which he does not have enough knowledge, should first consult an encyclopedia which is a secondary source for background information. If the student wants journals articles to up-date his report, he should consult indexing journals or abstracting journals in his area of study. More materials in his area of study could be obtained using tertiary sources such as bibliography of bibliographies or directories or guides to the literature of his subject area,

To locate these secondary and tertiary sources in libraries, the student should consult the library catalogue.

**Conclusion**

This chapter tried to identify different sources of introduction that are available for use by students for their research endeavours. An in-depth and scholarly research should include all the sources of information identified in this chapter. Researcher and students involved in serious research activities such as term paper writing and project writing are now encouraged to maintain a balance between these sources for quality, up-to-date, comprehensive and reliable research output.

**Bibliography**

Harrison, K. C. (1990) *International Librarianship*, New Jersey: Searecorw.

Harrods, L. M. (1987) *Harrod's Librarian 's Glossary to Terms Used in Librarianship and the Book Craft Reference*. 6th ed. England Gover.

Ikegbune, Emenike (1997). *The use of the library and university students*, Nigeria: FIJAC Academic Press.

Jean, Key (1978). *Introduction to Librarianship*, New York McGraw-Hill.

Ode, E.O. (2004). "Library as an agent of socio-economic development". *Journal of muilti disciplinary studies*, 1(1) PP 15-20.

Olanlokun, S.O. & Salisn, Taofig, M. (1983). *Understanding the library: a handbook on library use Lagos:* Concept Publications Ltd.

Penna, C.V. & Fosket, D.J. (1997). *National Library and Information Services:* A handbook for Planners, London. Butterworths.

Pirid, J.N. (1989). *Books for junior colleges, United States of) America*: Free Press Ltd.

Uwedie, C.C. (1993). *Mimeographs and lecture notes*. University of Nigeria, Nsukka.

Weimer, F.L. & Gill, K.D. (eds) (1994). *The librarian’s manual.* USA: Bethany Fellowship.

Ode, E.O. & Omokaro, D.A. (2007). *Basic principles and practice librarianship* Nigeria: PSG-Franc Publications.

Edoka, B.E. (2000). *Introduction to librarianship*. Nigeria: FAP Publishers.

Kumar, Krishan, (1980) *Reference Service New Delhi*: Vikas Publishing Houses.

**MODERN TECHNOLOGIES IN LIBRARIES**

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**1.0 Introduction**

The rate of scientific and technological advancement has greatly increased over the last half century. Nowhere has this been evident than in the area of information and Communication Technologies (ICT). Therefore, information gathering processing, storage and retrieval have undergone many procedure changes. Library being the domain of information gathering storage and retrieval has been affected greatly by the application of modern technologies in its procedures. Libraries are traditionally known to acquire information, process and store them in their catalogues. Users visit these catalogues to search for information in their various disciplines. As shall be seen as this chapter draws to a close, this procedure has largely been affected as technologies evolved in library operations.

It has been severally argued that the fourth revolution information revolution has changed the way things are done Economies are now driven by information. Hence, the world is now bifurcated into the information rich and information poor. This increase in information phenomenon has subsequently led to the proliferation of technologies designed for its gathering processing, storage and retrieval. Since libraries are at the centre of the information business, it will not remain unchanged when these technologies are changing Hence this chapter is designed to discuss modern technologies in libraries. It will be discussed under the following headings:

* General definitions of important terms
* Computers: their types and categories
* Computer Networks
* Information Systems
* Data Communication/telecommunication and the technologies that drive them
* Information storage
* Information retrieval
* Recent developments in library as a result of information technology advances.
* Conclusions

**1.1. Definitions**

**1.1.1 Data**

Data (singular datum) mean facts used in describing or discussing an item or a set of items.

**1.1.2** **Information**

Imo & Igbo (2008) argued that until recently there has not been any widely acceptable definition of information noting that if the question, What is information is put to a group of mixed professionals, you might get as many definitions as there are people in the group. They went further to note that most definitions conform to the following three forms:

* any physical form of representation of a particular thought used for communication,
* based on the mental state of the recipient, i.e. the ultimate effect the communicated information has on the mental state of the recipient,
* Some holistic "system concept involving people, their attitudes and needs.

Based on the above, the word is adopting the definition given by Meadow (1992).

Information is processed data that changes the state of a system that perceives it, whether a computer or a brain, hence a stream of data that does not change the state of its receiver is information

**1.1.3 Communication**

Communication is the activity of conveying information between two or more communicating entities. It can also be described as the process of conveying information from a sender to a receiver with the use of a medium in which the communicated information is understood the same way by both the sender and the receiver (Wikipedia)

**1.1.4 Technology**

Phtlik, Lauda and Johnson (1985) defined technology “as study of the technical means undertaken in all cultures universal) which involves the systematic application of organized knowledge (synthesis) and tangibles (tools) for the extension of human facilities that are restricted as a result of the evolutionary process. Implicit in this definition is that technology is a process which results when man tries to fashion out tools and materials solve his problems.

**1.1.5 Computers**

On your first exposure to computers, it is easy to overwhelmed by the technology details. The technology) fascinating, but although it may likely interest you, it is no necessary for this discussion and can obscure other important concepts. For this reason, we will adopt a simplified view of a computer. AS your use of computer increase, they will seem less formidable, and the picture will become clearer.

A computer is an electronic device that accepts input from a user, processes the input, stores ne result desired and/or produces out. A computer consists of a collection of hardware and software. Hardware is the physical parts of a computer that can be seen and touched. Software is the intangible part of the computer that cannot be seen but like the wind can be felt.

**1.1.6 Information Technology**

Griffiths (1991) defined information technology as "a tem which encompasses the notion of the application of technologies to information handling”. This will serve as our working definition of information technology in this work.

**1.1.7 Data Communications**

McGraw-Hill Dictionary of Scientific and Technical Terms (1989) defined data communications as "The conveying from one location to another by electrical means of information that originates or is recorded in alphabetic, numeric, or pictorial form, or as a signal that represents a measurement" (p488).

**1.2 Computers their Types and Categories**

**1.2.1** **Types of Computers**

Computers are classified based on their operational principles and size. Based on the operational principles, that is, the type of data they are designed to process, they are categorized into Analogue, Digital and Hybrid.

**1.2.1.1 Analogue Computers**

Analogue computers solve problems by operating on continuous and variables, such as lengths, voltages, or current. The represent the values of variables or numbers by physical quantities. They translate various physical conditions such as flow, temperature, pressure, mechanical motion and angular position into mechanical or electrical analogues.

An automobile speed meter can be regarded as a type of analogue computer measuring the voltage output of a generator connected to the drive shaft. The petrol station analogue processors that convert the flow of pumped flow of pumped fuel into two measurements: the price of the delivered gas to the and the quantity of fuel to the nearest, tenth or hundredth nearest kobo and the quantity of fuel to the nearest, tenth or hundredth liters. Analogue computers are used frequently to control the such as those found in refineries where flow and temperature measurement are important.

**1.2.1.2 Digital Computers**

These are computer devices that operate on discrete data. They operate directly by counting numbers or digits that represents numeral data or other symbols. Electronic digital computers are sometimes referred to as stored-programme computers because they have the capacity of storing sets of instructions or commands in their memories. Such instructions stored in the computer's memory unit enable the system to generate solutions for a myriad of scientific, business, and research problems. Because digital computers have the ability to compare, it can make decisions employing prescribed criteria, it can select from programme alternatives.

**1.2.1.3 Hybrid Computers**

A hybrid computer system consists of a combination analogue and digital computers. The basic components computers include a digital processor and a main memory for the internal storage of a master digital programme and data. Analogue unit are equally incompetent to provide continuous parallel computational capability. They operate directly under the control of the digital programme. For proper interfacing, hybrid computers are equipped with special converters that translate data from the analogue processors into the digits of the binary code and vice versa. Hybrid computers offer greater precision than do analogue computers and more control capability than provided by digital machines. Since the mid 1960’s they have been widely utilized in simulation studies of nuclear power plant facilities, guided missiles, fighter aircraft and space craft. Computers, depending on their size, can be categorized into supercomputers, Mainframes, Minicomputers, Microcomputers, and Laptops.

**1.2.1.4 Supercomputers**

These are also known as monster computers or maxi-computers. They cost several million, up to $20 million depending on the size and configuration. Its installation requires specially prepared sub flooring to carry its weight and special plumbing to carry the fluorocarbon fluid needed to cool it. Super computers are used in such applications as nuclear physics, meteorology, and petroleum engineering as well as in military applications. One super computer can be used to predict weather forecasts for the entire globe. The best known examples of supercomputers are the Cray X-MP and the CYBER computers.

**1.2.1.5 Mainframe Computers**

Mainframes are big, powerful, last and expensive computers. The cost of mainframes ranges between $400,000 and $ 1 million and more. A main-frame may be as small as one or cabinets or large enough to fill an entire room. Because they have special power and environmental control requirements, mainframes are housed in special rooms to keep them cool and as dust free as possible. They are usually used by large organizations. They often serve more than one user at a time because they are able to support large networks of individual terminals and remote job-entry locations.

**1.2.1.6 Microcomputers**

These are also known as desktop or personal computers. It got its name from the fact that its main computing component, the microprocessors, is located on one integrated circuit or chip. Microcomputers vary in sizes from those that can fit into a briefcase (lap top computers) to those that can fit nicely on desk top. Of all the sizes of computers, microcomputers are the slowest, but they make up for this disadvantage with use and their low expense. Microcomputers can store as much information as needed in any small organization. Its storing ability can be enhanced by the use of auxiliary storage technologies.

**1.2.1.7 Laptops**

Laptops computers are miniaturized and optimize for mobile use. Laptops run on a single battery or an external adapter that charges the computer batteries. They are enabled with an inbuilt keyboard, touch pad acting as a mouse and a liquid crystal display. Its portability and capacity to operate on battery power have served as a boom for mobile users.

**1.3 Computer Networks**

Networks are simply defined as a number of groups or systems whose members are connected in some way. Computer networks link a number of computers for the purpose communication and for the sharing of common files and peripherals. There are two types of computer networking technology in use. These are the Local Area Network (LAN) and the Wide Area Network (WAN). A computer LAN is a set of data communication systems allowing a number of independent devices to communicate directly with each other within moderately sized geographical area (about one square kilometer). Within any LAN, each computer can "hear" everything another computer on the LAN transmits. LAN connects computers, or entire Local Area Networks (LAN) through telecommunication links and switches. In networks one computer known as the host or slave serves as a controller, providing access to mass storage and powerful processing resources to each of the other computers in the system.

Most University campuses today are wired together with a numbers of interconnected Local Area Network. The devices that tie these numbers of LANS together are called bridges or routers and act very much like switches in WANs. The totality of LANs making an institutions network is in turn linked by another switch, called a gateway or router, into one or more WANs of regional or national system.

**1.4 Information Systems**

There is no doubt that as a result of globalization trend in world affairs, students and researchers are faced with information overload or what one may refer to as information glut. No library no matter how richly endowed will be able to stock the required information for its patrons. Libraries are now faced with new challenges of the ability to share resources with similar institutions worldwide. Most libraries now try to provide their patrons with access to one or more electronic information systems through the help of the introduction of information networks.

These networks are made possible because individual libraries create computer accessible catalogues which are usually referred to as On-line Public Access Catalogue (OPAC). These OPACs which are electronic versions of the physical catalogue (see chapter 3)), provide access to library's holdings through computers in various electronic formats. Through Wide Area Networking other libraries OPACs are co-operatively combined into common databases to produce a single system. This trend has to the provision of new forms of services by libraries to their patrons. These new forms of services rely more on bibliographic control and resource sharing among/between libraries. The most palpable development in network technology that has affected the library is the INTERNET technology. This has the capacity to connect many libraries and databases in a network. Yoke-Lan Vladimir (2005) explained thus:

*the explosive growth in communication network after 1990 particularly in the scholarly world has accelerated the establishment of the virtual library...Residing in thousands of databases distributed worldwide, a growing portion of vast resources is now accessible almost instantaneously via the internet, he web of computer networks linking global communities of researchers and increasingly non-academic organizations (p6 20).*

As a result of information network technology libraries now try to specialize in acquiring and storing information resources in areas that will give them comparative advantage and will help them collaborate with other libraries in resource sharing. This is the origin online or electronic information databases. Also information centers specialize in creating information databases for targeted users. These databases are abounding all over the world. Notable examples are discussed in this section.

a. **On-line Computer Library Center (OCLC)**. This is based in the United States (Columbus, Ohio). It is designed primarily to aid U.S. Libraries in the process of cataloguing and classification of materials by providing on-line access to centralized cataloguing data. While the centre functions as an on-line Union Catalogue that allows researchers to locate hard-to-find books in libraries, it also supports terminals in more than 14,500 institutions in about 46 countries. The data file contains more than million records, storing information about books periodicals and other library materials (Barbara Ford, 2000).

b. **DIALOG Information Services** **lnc**. This is an Online information service owned by ProQuest, who acquired from Thomson Reuters in mid 2008. DIALOG was one of the predecessors of the World Wide Web (WWW) as provider of information. It preserves rich, vast and varied information-whether historical, archives and management for academic, corporate, government, school and public libraries as well as professional researchers www.proquest.com., 12th April, 2022.

c. COSNE (Co-operation for Open Studies Inter-connection Networking in Europe).

d. JANET (Joint Academic Network) based in the United Kingdom has facilities for about 2,000 registered computers at about 150 sites in U.K.

There are legions of similar academic networks connection libraries with each other as well as with scholars. The objective is to provide access to information within record time anywhere using computers and appropriate software of their choice (see further treatment of databases in chapter 7).

Developments in information systems have had tremendous effects on the library and its operations;

a. It has transformed libraries from being location specific, to being indifferent to the form and location of information. This means that libraries now acquire materials in any format such as audio/video tapes, compact discs, machine readable databases, On-line texts etc. which it can make available to the patrons through the use of the appropriate technologies. Libraries can equally source and retrieve information for the use of the patrons, within record time, on request irrespective of the location of the information in other libraries and information systems in the world.

b. Information systems have led to much publishing in electronic forms. For example there are electronic Journals, CD-ROM or Laser technology publications, electronic databases etc. The implication of these to libraries is that libraries are thinking more of how to create access to these electronic publishing forms around the world. To this effect, computer technologies have reduced the functions of libraries regards to information provision, to that of in intermediaries and database managers. Libraries in this era will be assessed more on their ability to link their users to electronic databases scattered worldwide and not necessarily on their ability to buy or subscribe information materials on paper formats.

**1.5 Data Communication**

Data communication, often called telecommunication means transmitting data and/or information electronically from one point to another using the telephone, radio and microwave transmission devices, laser beams, optical cables and direct wiring. Data communication allows one to work at home, office or anywhere telephone or other telecommunication lines exist Increasingly data communication technology is combining with computer technology to allow for electronic data/information exchange. A data communication system consists of four parts.

* **Information source:** This is usually a database of some kind although it may be a person, a computer etc.
* **Channel**: This is logical connection between sender/source and receiver. It is not necessarily a physical device, the path over which data and information travel. The channel may use telephone wires, satellites, micro towards towers, or other devices.
* **Receiver**: This is usually similar to the transmitter.
* **Destination**: This is usually similar to the source.

Data communication and its effective use in computer technology for electronic information transfer (Data communication) is made possible through the use of other technologies some of which are described below.

1.5.1 **Modems**

Because computers represent data in digital form and the telephone system transmits data in analog wave form, their combination in the processing and transmission of information must include equipment that converts signals from analog to digital or vice-versa. The technology that does this is called a modem, the short form for Modulator/Demodulator. Modulator converts digital information from the computer system into an analog signal which is transportable through a telephone line in a network system. When the signal reaches the other end of the computer communication network the Demodulator reconverts the analog signal from the telephone line into digital information which can then be displayed on the computer monitor.

1.5.2 **Multiplexer**:

Multiplexer was invented in 1874 by Jean Emile Baudot to increase the message capacity of telegraph lines. It was introduced to affect more efficient use of communication lines (channels). Multiplexing (multiplex) combines/ (collates) traffic from several low speed data signals source into one high-speed signal line. These signals are again split back to the various frequencies low speed signals at their destination by a de-multiplexor (de-multiplexing). Multiplexing is normally required both ends of "shared telephone lines.

1.5.3 **Concentrator**:

This is essentially a buffer technology that helps in the maximization of computer use. A concentrator accepts signals slow device and holds them until enough have been sent to e CPU of a computer busy. Concentrators also do some checking, data compression and other front-end processor tasks.

1.5.4 **Front-End Processor (Terminal Controllers)**:

These are required in a computer network system. This is computer that connects to the “host” computer in a network system. It is used to handle the details of connecting the host computer to the other devices in a network system. It also establishes priorities for various system users, checks inputs and disconnects a line when it is no longer needed. It also deals computer security, allowing access only to people with proper user numbers and password.

1.5.5 **Electronic Mail (e-mail)**

Electronic mail also known as a computer-based message system (CBMS) is a facility that allows users at computer terminals to compose send and receive messages. Though e-mail system started more than a century ago when Samuel Morse invented the telegraph, computer base e-mail was develop the 1960s the concept of e-mail covers a broad spectrum systems and services whose main feature is that messages converted to electronic signals for the purposes of transmission. E-mail systems include: telex, facsimile, communicating texts messages switched networks and computer-based message system.

Transmission of e-mail messages requires a telecommunication network and is transmitted as computer compatible data capable which are capable of traveling along data networks. Input to, output from, an mall system can be via a video processor with a printer, a facsimile machine or any data-capable of conducting electronic data communication.

1.5.6 **Telex**:

Telex based services, (short form for teleprinter exchange). is an e-mail service similar to the public telephone service, except that it carries teleprinter signals instead signals. Teleprinters, which are a combination of a key board and a printer, generates a paper record of both received and sent messages.

1.5.7 **Fascimile Services**

An image creating data communication technology involves the creation, storage and distribution of graphics and pictorial information. Facsimile services can utilize either the telephone or the telex network for transmission of a faithful copy of an original document. The process is Similar to using a copying machine except that the original is inserted on a facsimile machine, which looks like a small photocopier. The document to be faxed is placed on the fax machine and the signal for transmission is generated by automatically scanning the page to be sent, the lax number of the recipient keyed in the document is converted into a digital signal by the facsimile machine. The signals are then transmitted first to a computer (at the sending end) and from their via a telecommunication link to another computer located at the destination. The faithful copy of the original document is printed via another fax machine at the destination. Other mode of data communication which time and space will not allow to be discussed in this work includes: teleconferencing, videotext, teletex.

1.6 **Information Storage**

Information storage is the idea of placing information into a storage device and retaining it for future use. Information is stored in a computer in binary devices. These devices exist only in two states, the presence of energy (electric pulse) or the absence of energy (no electric pulse). These two states are represented by binary digits, (called bits) ZERO (0) and ONE (1). In this manner, alphabetic symbols of natural language writing systems can be represented digitally as combinations of ZEROs (no pulse), and ONES (pulse). The digital, representation of a character by eight bits is called a byte.

Information is stored for computer use in both internal and external stores. The internal store, which is part of the Central Processing Unit (CPU) holds the information and programme that are currently in use. The internal store also known as main memory, retains information that will be referred soon. External storage is not directly accessible to the Central Processing Unit or the input/output devices, all information to and from auxiliary storage must go through main storage. Some popular external storage media in use now include, magnetic tape, magnetic disk and optical or laser disc systems. For treatment of types of auxiliary storage see chapter 2.

1.7 **Information Retrieval**

The process of finding a particular record in a computerized database is called searching and is made possible through the use of computer software. The searching procedure is essentially a communication process in which the nature of the question and the features inherent in the system affect Search parameters. The objective of searching is to identify those documents in the collection which may satisfy a request for information.

There are many ways of searching a computerized database. You can search for a single word or string of words or you find all the records that contain such word or words anywhere in the database. The most important thing is to remember that when carrying out a Search that computer software will only carry out what it is told to do in order words search instructions must be logical, precise of unambiguous so that the computer software will retrieve the information which are most needed by the searcher.

Information Searching is carried out using search operators. These vary depending on the search software one is using. The the most common search operators are based on Boolean logic or the operators AND, OR, NOT. This is the most common used in both manual and computerized search procedures. Boolean logic derives from the application of Boolean algebra and this makes extensive use of the set theory. The usefulness of the application is based on the idea of a universal set and its sub-sets. The information contained in an information system is the universal set. Any extractions from this system are a sub-set. The objective of searching is to select out of the universal set (all documents in the system) the particular sub set of documents that is specified by the query. For instance, if we consider an information system that deals with chemotherapy, (the use of chemical substance to treat and control diseases). Within this system you wish to search for a document written by Professor M. lwu on the therapeutic effects of chloroquin in 1986.

Search Operations:

(a) The universal set is information on chemotherapy

(b) The different subsets could be written as follows:

Sub-set A: = Documents on chloroquin

Sub-set B: = Documents on Allergy

Sub-set C: = Documents on M. Iwu

Sub-set D: = Documents on Therapeutic effects of Drugs.

Out of these sub-sets new sub-sets could be created to satisfy the query, “what document with the therapeutic effect of chloroquin written in 1986 and by Prof. M. Iwu”. This query calls for documents that have the indexing term *chloroquin, therapeutic effects, Allergy, 1986- etc.*

Boolean logic makes use of link descriptors in three different ways:

a. **Intersection**: which uses which operator AND; two descriptors must be present in the indexing of the document for it to be regarded as relevant

b. **Inclusion**: which uses the operator OR: this or the OR both of two descriptors must be present in the indexing of the document for it to be regarded as relevant.

c. **Exclusion** which uses the operator NOT of descriptors, the first must be present and the second abs for the document to be regarded as relevant.

1.8  **Recent Developments in Library and Information Technology**

Developments in library and in information technologies continued to evolve to meet the world challenges. These trend have broken the limitations and cost which the patrons of library and the library management faces daily. The trend are ever-ending. A few of the trends innovations are as follows:

a. **Digital' Electronic Libraries**

A digital library is a library in which collections are stored a digital formats and accessible by computers. The digital contents may be stored locally, or accessed remotely via computer network. Dillon (1994) see electronic libraries systems in which the core processes of a library become basically electronic in nature. Major features of these libraries include:

1. Widespread computerization of library resources

2. Deliberate adoption of electronic systems for information retrieval and information service relevant a digital library systems of the future.

3. Predominant use of computer system for network relationships, inter library cooperation, online access and searches etc.

4. Use of interactive software that embeds rule sets that enables it to emulate human expertise within particular area (Omekwu, 2002).

b. **Virtual Libraries:** These are libraries without walls that depends on virtual reality technology for the creation of highly realistic simulations and surrogating in which the users can become totally immersed. Using highly sophisticated computer and telecommunication equipment, it is possible to enter a virtual library, browse around s rooms and shelves, use an index or catalogue, select a book (by pointing to it and touching it), open and read it. Of course the only place where the book exists is in the computer and within the mind of the reader. These recent trends in library and information technology have definite advantages over the conventional libraries:

1. It provides around-the-clock access to users.

2. The information resources content is global.

3. The information resource diversity is both print and multi-media

4. The navigational tools are simple but sophisticated.

5. The serendipity rate is high with many hyperlinks to other resources

6. It has the potential to store much more information simply because digital information requires very little physical space and more affordable than ever before.

1.9 **Conclusion**

Modem libraries exist to support instructional programmes to ensure that users/ patrons become effective users of ideas and information that come in various formats and media (Print and non-print). The foremost objective of a University Library is to improve the quality of research sources for her patrons. This involves providing opportunities for the patrons to learn to appreciate literature and other forms that give them access to information.

Developments in information technologies have had tremendous effects on the library and its operations;

a. It has transformed libraries from being location specific, to being indifferent to the form and location of information. This means that libraries now acquire materials in any format such as audio/video tapes, compact discs, machine readable databases, on-line text etc. These are made available to the patrons through the use of appropriate technologies. Libraries can equally source a retrieve information for the use of the patrons, within record time, on request irrespective of the location of the information in other libraries and information systems in the world.

b. Information technologies have led to much publishing in electronic journals, CD-ROM or laser technology publications, electronic databases etc. The implication of these to libraries is that libraries are thinking more of how to create access to these effects, computer and information world. To this effect, computer and information technologies have reduced the function of libraries in this era will be assessed more on their ability to satisfy their current users to electronic databases scattered worldwide and not necessarily on their ability to buy or subscribe to information materials on paper formats.

c. Modern technologies in library have introduced new forms of services to the library which rely on bibliographic control and resource sharing.

e. Regardless of what any library or library user does now with regard to library work or use, acquisition of reasonable skills in formation and communication technologies is now a *sine qua non* to effective use of the library.

**Reference**:

Communication, *wikipedia en.wikipedia.org/wiki/communication*.

Dillon, A (1994, *Design suable electronic text: Ergonomic aspects of human information usage.* London: Taylor & Francis.

Ford, Barbara J. (2000), Academic Libraries in the United States. *In The* *Encyclopedia Americana* *(international Edition) vol. 17.* Danbury, CT: Grolier Incorporate. Pp329-333.

Imo, Nwabuisi T & lgbo, Uche H. (2008), Knowledge delivery: Is the Librarian still relevant? *In Eya, P.E, Nwangwu IG.O; & Asogwa G.E (eds) constructing knowledge societies for sustainable development.* Enugu: Prince Digital Press. PP 92-107.

Jean-Paul, Tremblan (1979), *Introduction to computer science: an algorithmic approach*. Tokyo: McGraw-Hill

McGraw-Hill Dictionary of Scientific and Technical Terms. New York: McGraw-Hill Books, 1989.

Meadow, C.T. (1992), *Text Information Retrieved System.* New York: Academic Press.

Phtlik, Lauda & Johnson (1985), Technology Change and Society. New York: Delmar Pub. Inc.

Omekwu, Charles O. (2002), Tbe challenges of information systems in moder libraries. *In* *Madu E.C. & Darisu M.B. (eds) Information Science and Technology for School Africa Ibadan*: Eri-Coleman Publications. pp 104-118

Yoke-Lan, Wicks & Vladimir Slamecka (2005), Information processing and Information systems. *Encyclopedia* *Britannica.* New York: Encyclopedia Britannica lnc. pp 615-630.

**ONLINE RESOURCES AND WEB RESEARCH**

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**1.0 Introduction**

Teaching, learning and research are the goals of any institution ofleaning. The goal can be achieved through theconsultation of already existing resources which may be in printelectronic format. In libraries, resources comprise documents,databases, e-books, e-journals and multimedia materials. Whenthese resources are stored, transmitted and accessed over a LocalArea Network (LAN), Wide Area Network (WAN), Intranet orinternet, they are referred to as online resources or e-resources.The use of online resources for research and educationalpurposes by students (undergraduate and postgraduate) means thathey benefit from the works of experts in the different fields ofstudy. Though libraries acquire and house significant number ofprint materials, such limited acquisitions may not meet the needsof researchers with the proliferation of information in variousacademic disciplines. Researchers (students inclusive) oftenextend their searches to online resources, so as to benefit from thenumerous works of experts in the different fields of study. Theyuse online resources for a wide variety of reasons which include acquisition of knowledge, monitoring publications in the different fields of study journal/database, e-mail alerts), looking tor information to fuel some academic or scientific debate, retrieving resources to carry out some assignment.

Using resources online requires some knowledge of web search. Students must understand this concept and all t en in order to effectively and efficiently extract information from the internet. This is as a result of web technologies have advanced in numerous ways, one of which is to provide full text search capabilities. Though print journals provide search aids such as indexing, this facilitate searching the text of articles using Boolean Logic (Genesh, 2003). For students to make a good search for information on the Internet, they need to understand the various online resources and how to carry out a web research.

2.0 **E-Resources**

The term ‘resource’ means different things to different people depending on the area application. For instance, different arrangement terminology, resources are required to carry out the project tasks. In this concept, a resource can be people equipment, facilities for funding or any other aid required for the completion of a project. In manufacturing, a resource is anything that helps in manufacturing goods and services such materials or personnel. In wikipedia, a resource is defined as physical or virtual entity of limited availability or anything used to help one earn a living. In libraries, resources are integrated contents consisting of documents, databases, e-books, e-journal links to other resources and multimedia materials.

An e-resource (electronic resource) is any resource which is accessed via the Intranet or Internet. The library provides access to a wide variety of C-resources including electronic books (books), electronic journals (e-journals), indexes and collections of journal articles, reference works, digital collections, databases, and websites. All library e-resources can be accessed on campus and most can be accessed off campus. E-resources are useful because of the volume of information they contain and because of the convenience of being able to access them both on and off Campus at any time. It should be noted however, that e-resource are online resources.

2.1 **Examples of E-resources**

There are different types of e-resources, namely, e-books, e-journals, directories, newspapers, etc. examples of e-resources are tabulated in Table 1.

|  |  |  |
| --- | --- | --- |
| **Information Resources** | **Examples** | **Web Location** |
| Books | Free Medical Books Online Directory of free online books and free-e-books | <http://freemedicalbooks.com>  <http://20200k.com> |
| Science and Medicine Journals | Nature Science Direct | <http://www.nature.com>  http://www.sciencedirect.com science/journal |
| Newspaper and Magazines/articles | New York  Times, The Punch,  Vogue, Cosmopolitan | http:onlinenewspapers.com |
| References | Wikipedia Encarta Online Dictionary.com  Cambridge  Dictionaries  Online | [www.wikipedia.com](http://www.wikipedia.com)  http:/encarta.msn.com  [www.dictionary.reference.com](http://www.dictionary.reference.com)  [www.dictionary.comcambridge.org](http://www.dictionary.comcambridge.org) |
| Directories | Librarians’  Internet  Index, Google  Directory | <http://lii.org>.  [www.google.com](http://www.google.com) |
| Audio & Visual Materials | Communication cameras,  Control system | <http://www.avmltd.co.uk> |

2.1.1 **E-Journals** (electronic journal): These are of journals and articles that are accessed via the internet. E-journals are essential because they contain current information and the publications are always timely.

2.1.2 **E-Books** (electronic Books). These are electronic versions of printed books which are often purchased by the library to supplement printed copies of books which are in heavy demand. In addition to the e-books purchased by the library are many e-book collections freely available online (see 2.2.2.).

2.1.3 **Online Databases:** These are organized collection computerized information or data such as articles, books, I and multimedia that are in general or Subject-based in form of abstracts and or full text and can be accessed online or over the Internet This is different from a local database in that the late (local database) is usually held in an individual computer attached storage, such as a CD or external hard drive and accessed via the Intranet rather than internet. A typical example of a local database is the *TEEAL* *database* which has been recently acquired by the University of Nigeria and is available in the MTN Connect Library.

Some of the online databases provide access to the full text Examples of such online databases include: Ebscohost, Agora Hinari, Jstor, NENUS, Keesings, Sabinet Online, Researchpro, MEDLINE, Academic Source Complete, Business Source Complete, Legal Collection, etc.

2.2 **Open Access Resource:** ‘Open Access’ simply connotes free access to any collection of materials which otherwise could have been assigned restrictions but for the need to bridge the *digital* *divide.* Digital divide means not having equal access to information by people, some would be the *information-haves* and others *information have-nots.* What this simply means is and that some people who do not have the financial resources to subscribe or purchase materials online cannot have access to such needed information as opposed to the rich ones who can afford such. With open access resources, books and journals can be accessed any time, without restraint and made use of at one's convenience. Example of open access databases include Directory Open Access Journals (DOAJ) and Directory of Open Access Books (DOAB).

2.2.2 **Directory of Open Access Books (DOAB)**

The primary aim of DOAB is to increase discoverability of peer-reviewed Open Access that have been published under an Open Access License. The address for DOAB is [www.doabooks.org](http://www.doabooks.org).

3.0 **Introduction to Web Research**

Web research is simply the art of making searches on the web. The Web or Websites is composed of one or more linked Web pages. The ‘World Wide Web’ (WWW) means that part of the internet that is accessible via web browser software. The WWW was developed to make the Internet much easier to use for accessing texts, images and audio-visual materials, regardless of significant repository of information for researching essays and other projects. Something is ‘on the internet’ if it is located somewhere on another network of computers, and a software must be used to access it. A web browser (e.g. Internet Explorer, Firefox) is just a kind of software that accesses the internet. There are others such as email client software or FTP (File Transfer Protocol) for transferring files.

3.1 **Web Research Process**

Have you ever imagined the amount of irrelevant information you would gather when you search for a certain term on the web? For instance, if you search for ‘buying a book’ on the Internet, you will be amazed, the result your search would return. In this section, you will learn how to construct and refine your search on the web in order not to be overloaded with irrelevant results.

3.2 **Steps in Web Research**

The following steps may serve as a guide in conducting research on the web:

1. Create a list of keyboards from your topic

2. Choose the right database, search engine or online journals

3. Construct a search query

4. Refine your search

3.2.1 **Create a list of keyboards from your topic**

Whenever a topic is given for an assignment, one thing comes to mind and that is: ‘how do I go about getting relevant materials on this topic without much ado? Of course this happens to everybody who embarks on one research or the other but the difference between a good research and a better one is the possession of basic information literacy skills required in carrying out a research on the web.

A good researcher first creates a list of keywords and phrases that will produce the longest list of relevant pages from the web. Keyboards have to be chosen carefully because a search with just the word ‘Buhari’ might produce a list of thousands of pages that would include blogs and facebook pages of people that bear that name Assuming a student has been given a topic on Chibok Girls and the Boko Haram Insurgency in Nigeria, the first step to take is to write down the search terms (keywords)- Chibok Girls, Boko Haram, Insurgency, Nigeria. The next step is to choose the platform to search for these terms.

3.2.2 **Chose the right database, search engines or online journals**. So many databases exist for research both those thatcomprise secured resources, and the ones that have open access (OA) resources. OA, according to Bothma, et. al (2014), means that if the authors of a research article would like to make the content freely available, they can do this in two ways:

a. On the Internet before it is published in the journal (pre-print)

b. After it has been published (post-print)

Choosing the right database for research is often a daunting task many people as a result of the vast number of available databases. However, the good news is that you can learn about now to access and search databases, online journals and other full-text publications indexed in databases. First, you need to understand what a database is. Bothma, et. al (2014) defined a database as an organized collection of data or information that is stored in records in electronic format. The content of databases includes conference papers, research reports, patents, book reviews, journal articles, books. An understanding of what the topic is all about will greatly help any researcher in choosing the correct database. You have to first identify the keyword in the topic and also the discipline. For example, if your topic is about ‘Pest Control’, you already know that discipline is Agriculture. The database to look up becomes TEEAL or AGRICOLA, etc. lt should be noted that some topics could fall under more than one discipline and so, more than one database already know that the discipline is could be used in locating information on such topics (see Table 2).

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Discipline** | **Database** | **Access Cost** |
| Pest control | Agriculture | TEEAL OARE HINARI AGORA | Subscription (Available in UNN) |
| Infectious diseases | Medicine | MEDLINE |  |
| Yam cultivation | Agriculture | AGRICOLA | Subscription |
| Purification of H20 | Chemistry | PubChem | Free |
| Tax policies | Social sciences | SSRN | Free |
| Any topic | Multidisciplinary | Academic Search Complete | Subscription |

When choosing a database, you should note the coverage, i.e. a brief description of the topics covered by the database which always comes up at the home page of the database. For instance, if you visit TEEAL (The Essential Electronic Agricultural Library), the home page describes the coverage of the database (see Fig. 1).

Some databases offer access to full text while others do not. No doubt, many users have experienced difficulties in accessing journal articles from ScienceDirect. This is because unlike many other databases, ScienceDirect only offers full-text access to selected journals. JSTOR (www.jstor.org) is an IP driven database that offers full-text access to most of the journals, only that you may have to install some pdf add-ins on your PC to be able to access he articles which appear in pdf format. It is important to note that users can have controlled access or free access to databases on the Internet. In controlled access, the resources are made accessible via the library of an academic institution. When accessing the secured resources, it is advised that users should avoid unnecessary download of articles from databases and NEVER give out the passwords to people indiscriminately.

The use of *advanced search* forms is very apt in accessing resources from databases, just that t 1s only experienced researchers that may be familiar with the interlace. As opposed to Basic Search boxes, the Advanced Search form is very necessary in retrieving relevant information. Here, the use of Boolean operators (AND, OR and NOT) becomes useful in construction a search query (see 3.2. for more highlights).

3.2.2.1 **Search Engines**

A search engine is the most common tool used to locate information on the Web. In Wikipedia, it is seen as a tool designed to search for information on the World Wide Web and the search results are usually presented in a list and are commonly called hits. In Webopedia, a search engine is defined as a *program* that searches documents tor specified keywords and returns a list of the documents Where the keywords were found. Although search engine is really a general class o programs, the term is often used to specifically describe systems like Google, Alta Vista and Excite that enable users to search for documents on the Web. A search engine searches tor web documents with the keyword (s) specified. Yahoo! and Google are the two most popular examples of search engines that have been created to meet the demand for quickly finding information.

When conducting a research, a student can choose from a long list of search engines in order to get a wide range of results under-listed are some examples of search engines:

Alta Vista

AOLAnywhere

BigBook

Cyber411

EiNet Galaxy

Eureka

EuroPages

Excite

Google

Yahoo

For more lists of search engines, visit

http://lorien.ncl.ac.uk/ming/resources/searcheng/search.htm

1.2.3 **Construct a Search Query:** When information needed is matched with available information, precise information is retrieved. After you must have identified the search terms/keywords, you have to attempt choosing the same words that the information provider used in order to make a meaningful match. You can only retrieve a document you need if the words in the document are represented in the query you have made. This definitely not an easy task, but with the help of information retrieval systems such as Boolean operators, you can obtain the information you need to a reasonable degree. It is common knowledge that formal logic Boolean operators are named after George Boole, a mathematician who lived in the 19" century. The three Boolean operators are: AND, OR and NOT.

3.2.3.1 **The AND operator:** This is used when you want to retrieve all of the search terms in a query. For example, if you are seeking information on "Ladies that are pretty and plump, the query will be: Pretty AND Plump. The Venn Diagram (diag. illustrates this:

A

C

C

Pretty

Plump

[Venn diag. 1 – AND]

From the Venn diagram above, interception (C -shaded area) represents ladies that are both pretty and plump. All the records containing both terms will be retrieved in the search.

3.2.3.2 **The** **OR Operator:** This is used to combine terms in such at any of the terms it is combined with can be present in the to be retrieved. In other words, **OR** is used to broaden a search by linking together a number of synonyms. The **OR** operator links to terms and finds matching documents if either or both of the terms exist in the database (Nwachukwu and Ogwo, 2014). For instance, if a searcher is looking for pretty or beautiful, the search retrieves resources on either pretty or beautiful, or that compares both terms.

C

Pretty

Beautiful

Venn diag. 2 - **OR**

3.2.3.3 The **NOT** Operator: This is also called the ‘exclusion operator’ used to exclude unwanted search terms from a query. If you want to obtain information on all kinds of pets excluding dogs, then your query would be: *pets* NOT *dogs*.

NOT

Venn diag. 3-

*Dogs*

*Pets*

NOT]

3.2.3.4 **Search Queries:** In a bid to satisfy one's information needs, a user enters a query into the web search engine box. Search engines allow users to enter search terms such as keywords, which can either be words or phrases. The act of inducting a keyword search Is called a search query. For instance, imagine you are looking for information on "Chinua Achebe'; you can type his name into the search field of one of the search engines. The search engine will scan the database for the keywords *Chinua Achebe* and locate all Web pages that contain these words. Then the Search engine will compile the relevant pages and generate a list of their URLs (Uniform Resource Locators) which is likened to the web addresses.

3.2.3.5 **Search Results:** A search engine results page, orSERP is the listing of web pages returned by a search engine in response to a keyword query. The results normally include a list of web pages with titles, a link to the page, and a short description showing where the keywords have matched content within the page.

It is important to note, that not all search engines deliver the same results.

* First of all, different engines search different databases for the information you specify in your search query. Some databases are more sophisticated and more detailed than others.
* Secondly, the organization of search results vanes, depending on the search engine you are using. Generally, the results at the top of the page a want the search engine interprets as the most what the search engine interprets as the most relevant to your search. However, not all search engines measure relevancy in the same way. For example, with many search engines, a Web page will have a higher ranking in the list of results if your keywords appear many times throughout the

Web page in the title, near the beginning, or close together on the page.

For these reasons, you should NEVER rely on just one search engine when you are conducting research on the Web. Try using more than one search engine; doing so will likely yield better, richer results!

3.2.4 **Refine your search:** The Boolean Operators are mostly utilized during Advanced searches wherein searches are refined in order to retrieve precise/relevant resources needed (see fig 5)

In refining your search, you are bound to specify

a. The type of materials you want (e.g. Journals, books, conference proceedings, reports, etc.)

b. The date range

c. The limitation (e.g. Full text, peer reviewed, scholarly journals)

d. The document type (e.g. Blog, book, business case. book chapter, commentary, etc.)

e. The Language (English, Ibo, Hausa, Yoruba, French. etc).

f. The number of items per page (cg 50, 100).

**Conclusion**

E-Resources have contributed a lot to research and development in the society. Students and academics should not be left behind. Maximum use should be made, of these resources especially this period when most of the materials we need are not readily available in the physical format. As researchers and students in the third world countries where less importance is attached to the procurement of educational facilities, we should always explore the web and harness the information resources that are available.

**References**

Bothma, T.J., Cosijn, E., Fourie, I. and Penzhom, C. (2014). *Navigating IL: your information society Survival toolkit* (4th ed.) Pearson: Cape Town.

Nwachukwu, V. and Ogwo, U. (2014). *Basic principles of information retrieval tools in library and information Science.* Enugu: Locco211.

Garnesh, T. G. (2003). E- journals in Education:

Harris, R. (2008). World Wide Web Research

http:www.Wikipedia.org

**HOW TO CITE SOURCES CONSULTED IN THE**

**RESEARCH PROCESS**

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1.0 **Introduction**

Every research process ideally begins with the spirit of enquiry. The researcher thinks that there is a phenomenon to investigate, a problem to solve or a contribution to make to the universe of existing knowledge. After convincing himself that there is a knowledge lacuna that his/her research will fill, the researcher then explores the existing universe of knowledge in order to determine what others working in his/her area of interest have already accomplished. The reason for this is to prevent what is called the process of re-inventing the wheel. A re-invention of the wheel occurs when a researcher, a writer or an author repeats what someone else has already investigated. In other worlds, the present research is not significantly different from the previous one. A preventable repetition of an already accomplished research leads to a waste of:

a. Time;

b. Money;

c. Energy;

d. Resources;

Additional contribution to the knowledge community. One way to explore the existing researches is called literature review. According to McMillan and Schumacher (2006) review of literature serves the following purposes in the research process:

a. Define and limit problem;

b. Place study research in perspective;

c. Avoid replication;

d. Select promising methods; and

e. Develop research hypothesis.

They further note that careful conduct and articulate presentation of literature review add much to an understanding of the research problems and help place the result of a study in a historical perspective. Please note that you cannot really develop a body of scientific knowledge about most research phenomena without undertaking literature reviews.

A conceptualization of the whole gamut and components of literature review is presented as a model in Figure 1 below:

What can be inferred from the concept of literature review is that every researcher cannot but consult other people's works in the research process. These works are referred to as sources of information. The practice of acknowledging the sources-ideas, writings or works of other people is called referencing. The various methods of citing and compiling these citations are known as referencing styles.

2.0 **Purpose of Referencing**

There are at least five reasons for referencing a cited work.

a. It is essential (moral/legal) to acknowledge peoples works and ideas

b. When a work is properly referenced, it gives adequate credit for works done by others; it also assists to prevent unintentional plagiarism. Plagiarism simply means using another person's ideas, words or work as if they are your own when actually they are not. When that is done deliberately, it is called intentional plagiarism. When you fail to reference a cited work, albeit by omission, this is unintentional plagiarism. In the academic community, plagiarism is considered as intellectual dishonesty or cheating. It attracts punitive sanctions in the academic intellectual system. Where however there is appropriate citation of consulted sources, plagiarism cannot arise in the first instance;

c. It directs the reader to sources that may be of interest to him/her;

d. It verifies quotations and enable readers to identify and consult any item to follow up a cited author’s argument;

e. It shows the extent and quality of the writer's research, and

f. Referencing has the potential to strengthen a position by marshaling respectable published support.

3.0 **Referencing Rules**

There are four main rules of referencing

a. A reference must be included every time you use some a else's idea or information.

b. A reference must be included when you:

* paraphrase (express someone else s idea in your own words)
* summarize (express someone else’s idea a reduced form in your own words)
* quote (express someone's else's idea in their exact words or
* copy (reproduce a diagram, graph or table from someone else’s work

c. An important principle in referencing is to be consistent

d. Each reference must appear in two places:

* shown in the text of your assignment each time it is used (the in-text reference)
* listed once in the reference list at the end of the assignment

4.0 **Types of Referencing Style**

There are several citation or referencing style but seven of them are considered for the purpose of this chapter. They are named after the institution or individual responsible for their development. The seven citation styles under consideration are:

a. APA- American Psychological Association

b. Harvard citation style;

c. Chicago manual of referencing style;

d. MLA-Modern Language Association;

e. CSE-Council of Science Editors;

f. AMA-American Medical Association; and

g. Turabian citation style.

4.1 **APA Referencing Style**

APA is the acronym for the American Psychological Association and APA referencing style is mostly used in the social sciences and education. It consists of in-text citations which are compiled as references at the end of a piece of literary/research/scholarly work

4.1.1. **In-Text APA Citation Guidelines**

In-text citation refers to, how to cite to consulted sources in the body of a text. APA citation requires that you mention author and year of source consulted. The guidelines below will be useful.

**The guideline 1:** ***A work with one author*** Example, Jumba (2021) Insists that information technology will affect African culture in variety of ways.

Or

Information technology will affect African culture in a variety of ways (Jumba, 2006) and for a direct quotation: “Information technology will affect African culture" (Jumba, 2006, p.47)

**Guideline 2**: ***A work with more than one author.***

For Work with two authors, you name both. Example, Jumba and Bashiru (2020) maintain that in-text citation is very important in referencing

Or

In writing in-text citation you must indicate name and year (Jumba and Bashiru, 2022).

How to Cite Sources in Research Process for a work with three to five authors or co-authors, you mention all of them in the first citing. In subsequent Citing. you use the first author's name followed by "et al (for and others).

For a work with three to five authors or editors, you mention all of them in the first citing. In subsequent citing, you use the first author’s name followed by ‘et al’ (for and others).

If a work has six (6) or more authors, cite only the surname of the first author followed by et al. Each time you refer to the work.

However, list all the authors in the reference section.

When there are eight or more authors, cite only the surname of the first author followed by et. al. In the reference list include six authors names and use ellipsis (..) before concluding with the last authors name.

***Guideline 3: Author with more than one work in one year***

In an author with more than one work in one year, you place a lower-case letter after the date. Example, Jumba (2020a, 2020b) insists that librarians must be proactive to face the challenges of information delivery in the 21 century.

***Guideline 4: A work in another book edited by another person***

A work in another book edited by another person you have to cite the author of the work not the editor.

***Guideline 5: Quoting from an author cited in another book or***

***article***

In quoting from an author cited in another book or article the following example is applicable: Bashiru says that development of e-learning has a huge impact on staff learning (as cited in Jumba, 2020)

***Guideline 6: An electronic or internet sources.***

In an electronic or internet source, you have to give year of electronic publication or the dale on which you accessed the material.

The following arc examples of how journals, books, magazine newspapers, encyclopedia and online articles are referenced at the end of your own work.

**Journal Article:** where the page numbering continues from issue to issue (1998).

Okoro, L. (1998). Authorship in library acquisition. *Library Acquisition 28, 316-318.*

Lui, R. V. (1998). The complexities of citation practice. *Studies in Popular Culture, 13(2),* 53-65.

**Magazine or Journal Article from a Database**

Meyer, V. I. (2020, October/November). Bibliometrics: Theory and practices. *American Scientist, 86(6), 585.* Retrieved June 29, 2020, from Expanded Academic ASAP database.

**Newspaper Article**

Nwankwo, A. (2020, March 15). Child trafficking in Nigeria. Punch Newspaper. p. B2.

**Book**

Smith, M., & Smith, D. (1993). *Knowledge creation dissemination in Africa.* Dakar: CODESRIA

**Edited Book Article or Chapters in edited books**

Nwankwo, D. (Ed.). (2004). Librarianship in digital era. Awka, Nigeria: Hallman Educational.

Simui M. (2004). The provision of scholarly information in higher education in Zambia. In D. Palumbo (Ed.), *Spectrum of the fantastic* (Pp. 219- 223). Zambia: Greenwood

Omekwu, C. O., Okoye, M. O. & Ezcani, C. N. (Eds.) (2015) *Introduction to the use of the library and study stills (2nd).* Nsukka, Nigeria: University of Nigeria Press.

**Book author & Publisher are the same.**

Mid-central District Health Board (2014). *Local annual plan 2010. Palmerston, New Zealand*: Author.

**Encyclopedia Article**

Sturgeon, T. (1995). Science fiction. *In the encyclopedia Americana* (Vol. 24, pp. 290-392). Danbury, CT: Grolier.

**Website**

Narin, F. (1996). *DS9 trials and tribble-ations review.* Retrieved May 18, 1998, from Psi Phi: Brandlye’s Science Fiction Club Web site: http://www.bradley.edu/campusorg/psiphi/DS9/ep/

**Journal article (online from a database)**

Marshall, M., Carter, B., Rose, K. & Brotherton, A. (2012). Living with type I diabetes: Perceptions of children and their parents. Journal of Clinical Nursing, 18(10), 173-180. Retrieved from http//www.wiley.com/bwjoumal.asp

**Internet-No author no date**

Pet therapy. (n. d.). Retrieved from

http/www.holist.online.com/stress/stresspct-therapy.htm

**Internet-Organisation/Corporate author**

Ministry of Health (2012). Drug policy in New Zealand Retrieved from

http//www.moh.govt.nz/moh.nst/wpg\_index/about.drugs

**Blog post**

Liz & Ellory. (2012, February 6). The day of dread(s) [Blog post), Retrieved from http:/www.travelblog.org/occania/Australia blog o69396.html

**Brochure/Pamphlet (no author)**

Ageing well: How to be the best you can be. [Brochure) (2009) Wellington, New Zealand: Ministry of Health.

**Same Brochure accessed online**

Ageing well: How to be the best you can be. [Brochure] (2009).

Retrieved from <http://www.health.edu.govL.nz/resource/ageing-well-how-> be-best-you-can-be

**Conference Paper**

Williams. & Seury, K. (2010). Bridging the divide: Seaffolding the learning experiences of the mature age student. In J. Terrell (Ed.), Making the links: Learning, teaching an high quality student outcomes. Proceedings of the conference of the New Zealand Association of Bridging Educators (PP. 104-116). Wellington, New Zealand.

4.1.1 **Tips to follow**

* Arrange the items on your reference list alphabetically by author, interfiling books, articles, etc.
* Indent the second and following lines 3, 5 to 7 spaces or one halt inch.
* Use only the initials of the authors' first (and middle) names.
* If no author is given, start with the title and then the date.
* Article titles and book titles: capitalize only the first word of the title and subtitle. (Capitalize all significant words of periodical titles.)
* Magazine articles: include the month (and day) as shown under "Magazine Article from a Database" and Newspapers
* Websites: if the date the page was created is not given, use (n.d.).
* Use "&" instead of "and".
* If there are more than one work by the same author arrange according to publication date, oldest to the newest.
* Italicize or underline the titles of the book, journal and web documents.
* Capitalize only the first word of the title of the article and the sub title or proper names.

4.2 **Harvard Citation Style**

Harvard style or the Harvard system so named after it was first used in a paper published by eminent zoologist Edward Laurens Mark; he was a director of Harvard's zoological laboratory. The author-date method was later attributed to him and named after Harvard. In otherwise Harvard reference style involves a short author-date reference.

4.2.1 **In-Text Harvard Citation Guidelines**

In-text citation deals with how to refer to Consulted sources in body of a text, an article, term papa project/thesis. The Harvard Style requires that you mention basic details about the consulted sources such as author or editor s name and year of publication. These details are often available in the inside cover of the title page. The guidelines below on Harvard in-text citation have been developed by the Department of Lifelong Leaning of the University of Exeter.

**Guideline 1: When an entire piece of work is summarized**

When an entire piece of work is summarized you need to indicate the points of the summary with the author's name and date included. Example: Omekwu (2006) insists that information technology will affect African culture in a variety of ways.

**Guideline 2:** Direct quote from books or journals with one author.

**Example**: In referencing, Okafor (2009:3) states that "both in-text and end oi reference are very important in any write up".

In referencing both the "in-text and references at the end of the work are very important". (Okafor, 2009:3)

**Guideline 3:** ***Direct quote from a book or journal and article with two authors.***

**Example**: Omekwu and Okafor (2009:8-12) maintained that in-text citation is very important in referencing

OR

In writing in-text citation you must indicate name, year and page (Ukwoma and lgbokwe 2008:178-180).

**Guideline 4:** ***Direct quote from a book or journal article more than three authors*** Example: Omekwu et. al (2009:8) insisted that "libraries must be proactive to face the challenges information delivery in the 21" century.

**Guideline 5:** ***The" you paraphrase, you do of need to put inverted commas.***

**Example**: When you have in-text citation and reference at the end of the work, it makes the work more authentic. (Okafor and Ukwoma, 2008:182).

**Guideline 6:** ***Direct quote and paraphrasing from a source with a corporate or government author.***

**Example:** NLA (2006:9) emphasized that "information resources can only be enhanced through online and databases"

OR in paraphrase: The effect of online and databases on improvement of information resources cannot be overemphasized. (NLA, 2006:9).

**Guideline 7: *Citing of an author with two works in the same year***

When you cite an author with two books in the same year, you place a lower -case letter alter the publication data of the first reference, and 'b' on the second reference

**Guideline 8:** ***Quoting from an author ciled in another book or article.***

**Example:** Eze and Okoro (in Omekwu, 2007:13) state that the level of information literacy affect the use of computers in the libraries.

**Guideline 9:** ***Quoting an anonymous source***

In quoting an anonymous source the rule is that you replace the author’s surname with the title of the work. Example the development of e-learning has a huge impact on stall learning

Support (Libraries without Walls, 2005:7)

**Guideline 10:** ***Citations from Newspaper and Magazine articles***

The rule he same as you would cite other books and articles that the authors are anonymous.

Example: New Nigeria reported that thirty-four people died in the accident. (2008:14).

**Guideline 11:** ***Paraphrasing more than one author with the same idea.***

When you are paraphrasing more than one author with the same idea, follow the example below.

**Example:** In-text citation is essential in modern writing (Omekwu, 2009:6 and Okafor, 2008:9).

**Guideline 12: *Citing of Lecture Notes***

**Example:** Dr. Charles Omekwu stated in his lecture presented on 15 March, 2009 that any write up without reference is not a scholarly work.

**Guideline 13:** ***Electronic Sources***

These are cited in the text in the same Way as traditional print sources with the exception of page numbers.

**4.2.2 End of Work References**

**Examples of different citation are shown below.**

|  |  |
| --- | --- |
| **Material Type** | **Reference List Example** |
| **Book-single author** | Madu, DH 1997, Home making for girls, Loongmans, Lagos. |
| **Book – 2 or 3 authors** | Eze, EJ, Orji, DP & Onah, EC 1997, *Basic Marketing, Irwin, Sydney.* |
| **Book-more than 3 authors** | Bond, WR, Smith, JT, Brown, KL & George, M 1996, *Management of Small Firms,* McGraw-Hill, Nigeria. |
| **Book no author** | *A History of Lagos 1994*, Longman, Nigeria. |
| **Book-editor** | Okon, TM (ed.) 1998, *Management in Home,* Academic Press, Lagos. |
| **Book organization as author** | Nigeria Bureau of Statistics and Agricultural Resource 2006, *Aquaculture development in Nigeria: a review of key economic issues, ABARE, Canberra.* |
| **Book-chapter or article in edited book** | Milkman, R 1998, ‘The new American workplace: high road or low road?’ In *Workplaces of the future,* eds P Thompson & C Warhurst, Macmillan Press, London, pp. 22-34. |
| **E-book** | Aghion, P & Durlaud, S (eds.) 2005, *Handbook of economic growth,* Elsevier, Amsterdam. Available from: Elsevier books. [4 November 2004]. |
| **Book-different works by same year** | Bond, G 1991a, *Business ethics,* McGraw-Hill, Sydney. Bond, G 1991b, *Corporate government,* Irwin, London. |
| **Newspaper-print** | Ionesco, J 2001, ‘Federal election: new Chip in politics’, *Advertiser* 23 October, p. 10. |
| **Newspaper-elections database** | Meryment, E 2006, ‘Distaff winemakers raise a glass of their own to their own’, *the* *Australia,* 7 October, p. 5. Available from: Factiva. [17 June, 2022]. |
| **Journal article-print** | Jumba, M. E & Bashir, H (2020) The role of the library in teaching and learning process in Taraba State University, Jalingo, *Nigerian Library link: A Journal of Library and information science,* Vol. 19(1), 43-48. |
| **Journal article electronic database** | Malhotra, Y (2003), ‘The knowledge application gap in information systems research and education and their quest for the dependent variable’, *Information Resources Management Journal,* Vol. 16, no. 2, pp. 1-7. Available from: Proquest. [17 June, 2022]. |
| **Internet-website** | Kingsford, RT, Dunn, H, Love, D, Nevil, LJ, Stein, J & Tait, J, (2005), *Protecting Australia’s rivers, wetlands, and estuaries of high conservation value,* Department of the Environment and Heritage, Australian Government. Available from: [http://www.environment.gov.au/water/publications/environmental/pubs/protecting-rivers.pdf [6](http://www.environment.gov.au/water/publications/environmental/pubs/protecting-rivers.pdf%20%5b6) February 2022]. |
| **Internet-blog** | Newton, A. (2007), Newcastle toolkit. 16 January 2007. *Angela Newton: Blog.* Available from: <https://elgg.leeds.ac.uk/libajn/weblog/>[23, February, 2007 |
| **Conference proceeding print** | Riley, D (1992) ‘Industrial relations in Australian education’, in contemporary Australasian industrial relations: proceedings of the sixth AIRRANZ conference, ed. D. Blackmur, AIRAANZ, Sydney, pp. 124-140. |
| **Conference proceeding electronic** | Fan, W, Gordon, MD & Pathak, R (2000), ‘Personalization of search engine services for effective retrieved and knowledge management’, *Proceedings of the twenty-first international conference on information systems,* pp. 20-34. Available from: ACM Portal: ACM Digital Library. [24 June 2022]. |
| **Lecture notes** | Jumba, M. E. (2022), *Digitization,* lecture notes distributed in Introduction to Digital Libraries LIS 105 at Department of Library and information science, Faculty of Education, Federal University Wukari, Taraba State Nigeria on 29th June, 2022. |
| **Image** | *The Lunar Interior, (2000)*. Available from: <http://www.planetscapes.com/solar/browse/moon/moonint.jpg> [28 June 2022]. |

**Sources:** [**http://www.uwa.edu.au/help/guides/americanpsychological**](http://www.uwa.edu.au/help/guides/americanpsychological) **citation style.**

4.3 **Chicago Citation Style**

The Chicago manual of referencing style involves two basic documentation systems, the humanities style and the author-date systems. Citation of various information sources using Chicago citation style are shown below.

4.3.1 **Examples of referencing various sources using the Chicago style**

**Book**

Okoro, Evans and Okoye Denise. 1993. "Information Technology": Theory and practice. New York: Spectrum.

**Journal Article**

Okoro, Mercy. 1991. "The Complexities of Citation

Practice; A Way Forward". *Library Acquisition* 13 (2) 53-65.

**Journal Article from database or website**

Okoro, Mercy. 1991 "The complexities of Citation

Practice: A Way Forward,” *Library Acquisitions*

13(2): 53 -65. Accessed May 9, 2000.

Doi: 10\_ 1207/51532P11014\_15.

**Magazine Article**

Do not include the page numbers in the reference list.

Cite the specific pages in the parenthetical reference.

(Section 17.183)

Odo, Maria. 1996. "Crisis of Power Supply in Rural Areas

Newswatch, December 2. 30-35.

**Newspaper Article**

Do not include the page numbers in the reference list or the parenthetical reference. If the newspaper has several editions, include that information as shown below

Nwankwo, Alice. 2008. "ICT: Criteria for Achieving

Vision 2020. Punch Newspaper, March 15, sec. A

**Newspaper Article - No Author** (section 17.192) Do not follow this format for other items without an author. See notes below.

*Newsday* 2003. Activision suing over Star trek. July 2, Queens edition, sec. A.

**Encyclopedia Article**

Theodore Sturgeon V. 2013. "Science Fiction", *In Encyclopedia Americana*, edited by Hugo Gemsback,5: 2188-91. Detroit Hallman.

**Book Article or Chapter** For multivolume books, include the volume number before the page number. Joshi, Nancy E. 1999. "Scientific and Technological Research Universities in Spectrum of the fantastic, **edited Dhar Shafi, Vol 1(1) 216-228. Westport,** **Greenwood**.

**Website**

Lynch, Tim. (1996). Review of DS9 trials and tribble-ation Psi Phi. Bradley’s Science Fiction” accessed October 8, 1977 http/www.bradley.edu/campusorg/.html.

**Blog**

Amachi, John. 2014. "Sign of Mornopause: What Women Really Think (blog). Slate, June 16. Accessed February 2015. http:/www.slate.com/blogsmonopauseuse factor.

43.2 **Tips to follow**

* Double space all lines
* Indent the second and following lines
* If no author is given, start with the title and then the date
* **Journal, magazine, or newspaper article from a** database Follow the examples shown above. Then add the URL of the database's homepage after the period (it is not necessary to include the long link directly to the article). End the URL with a period Websites: Include the title of the web page, the title of the entire website (or the owner of the website these two might be the same, as in this example). Including the date, you accessed the page compulsory.

4.4 **MLA Citation Style**

MLA citation style was developed by the Modern Language Association. It is popular in the arts and humanities particularly in English, literary and cultural studies. Examples of citation of different information sources are shown below

4.4.1 **Examples of referencing various sources using the MLA style**

(a) **Book**

Okoro, Evans, and Denise Okoye Information Technology Theory and Practice. New York: Spectrum, 1995.

(b) **Journal Article**

Okoro, Mercy R. "The complexities of citation practice, A way forward". Library Acquisition 13.2 (1991): 53-65.

(c) **Newspaper or Magazine Article**

Odo, Maria. "Crisis of power supply in rural areas New Watch 12 Dec. 1996: B2.

(d) **Book Article or Chapter**

Joshi, Nancy E. "Scientific and technological research in universities.” Spectrum of the fantastic **Ed. Dhar Shafi**,. **Westport: Greenwood,** 1999.**216-228.**

(e) **Encyclopedia Article** (well known reference books)

Sturgeon, Theodore. "Science Fiction. The Encyclopedia Americana 1995 ed.

(d) **Encyclopedia Article** (less familiar reference books)

Horn, Maurice. "Flash Gordon." The World Encyclopedia

of Comics. Ed. Maurice Horn. 2 vols. New York: Chelsea,

1976.

(g) **Website**

Lynch, Tim. "DSN Trials and Tribble-ations Review." Psi

Phi: Bradley's Science Fiction Club. 1996. Bradley University. 8 Oct. 1997 http:// www.bradley.eduhtml>.

(i) **Newspaper or Magazine Article on the Internet**

Andreadis, Athena. "The Enterprise Finds Twin Earths Everywhere It Goes, But Future Colonizers of Distant Planets Won't Be So Lucky." *Astronomy* 18 Jan. 1999: 64- http:// web.lexis-nexis.com/universe. Accessed 20 May, 2012

4.4.2 **Tips to follow**

* Arrange the items on your reference list **alphabetically** by **author**, interfiling books, articles, etc.
* Double space **all** lines.
* Indent the second and following lines 5 spaces (or one hall inch)
* It no author is given, start with the title.
* Abbreviate the names of all months except May, June, and July.
* If the **paging** of a **magazine** or **newspaper** article is continued elsewhere in the issue, include only the first page followed by a plus sign (ex. **25**+.).
* If the **encyclopedia** does ***not*** arrange its articles alphabetically, treat the encyclopedia article as if it were a **book article**. Specific **volume and page numbers are** **cited in the text**, not in the list of references.
* **Websites**: include **the title of the web page**, the **name the entire web site, the organization that posted it** (this may be the same as the name of the website). Also include the full date the page was created or last updated (day, month, year if available) and the **date you looked at it**.
* **Internet Magazine Articles**: Include: the full **date of the** article (day, month, year if available) and the **date you looked at it;**
* If you are citing a **journal** instead of a **magazine**, include the **volume (and issue number)** and **date** as shown under the **Journal** **style** above.
* As for **page numbers**, different databases will provide different information. Include the range of pages (**25-28**.); or the starting page followed by a hyphen, a blank space, and a period (**64**-; or the total number of pages or paragraphs (ex. **12 pp. or 33 pars**.). If no page information is given, then leave it out.
* The **name of the database** (underlined) and the **company that created it**. The **library or other organization** (**and** **its** **location**) that provided you with access to the database.

4.5 **Council of Science Editors (CSE)**

This guide is based on Scientific Style and Format: The CSE Manual tor Authors, Editors, and Publishers, 7th edition, 2006 (T11 S386 2006). The developers of this citation style were formerly known as the Council of Biology Editors (CBE). **Bibliography** items are listed alphabetically at the end of the research paper. CSC is mostly used in life and physical sciences. The examples below show how in-text and bibliographic citations are done.

4.5.1 **Examples of referencing various sources using the CSE**

**style**

(a) Books

**In-Text:**

(Okoro and Okoye 1999)

**Bibliographic**:

1. Okoro, E, Okoye D. Information technology: Theory and practice. New York: Spectrum. 1999. 75-80p.

(b) Book Chapter

**In-Text:**

(Joshi, 2000)

**Bibliographic**:

2. Joshi, NE. Scientific and technological research in universities.

In: Dhar Shafi, editor Spectrum of the fantastic. 2 ed. 2nd ed.

Washington (DC): ASM Press. 2000. p473-488.

(c) Electronic Book

**In-Text:**

(Edward 1994)

**Bibliographic**:

3. Edward, SB. The unheeded cry. animal consciousness, animal pain and Science [internet]. Ames (IA): The Iowa State University Press; 1994 [Cited 2007 August 27]. Available from:

http/wwW.netiorancom

(d) **Journal Article (Print)**

**In-Text:**

(Okoro et al. 2003)

**Bibliographic**:

4. Okoro MR, Johnson DL, Stehlik LL, Manderson J, Shaheen P.

The complexities of citation practice; A way forward. Library

Acquisition 2012 July 1: 13(2):53-65.

(e) Electronic Article (From Journal Publisher's Website)

**In-Text:**

Leng et al. 2004)

**Bibliographic**:

5. Leng F, Amado L, McMacken R. Coupling DNA supercoiling to transcription in defined protein systems. Journal of Biological Chemistry [Internet). 2004. [cited 2007 Jul 24]:27946):47564 47571. Available from: http:/www.jbc.org/cgi/reprint279/46/47564

(f) **Electronic Article (From Online-Only Journal)**

**In-Text:**

(Hong and Wong 2005)

**Bibliographic**:

Hong P, Wong W. GeneNotes: a novel information management software for biologists.nicme BMC Bioinformatics.2005 [cited 2007 July 24 Available from hitp:/ww.biomedcentral.com/1471-2105/6/20

(g) Electronic Encyclopedia Article (From Database)

**In-Text:**

(Wang C 2007)

**Bibliographic**:

Wang C. Stem Cells. In: AccessScience@McGraw-Hill

[internet|[Hightstown (NDJ)] McGraw-Hill Education; 2007.

[cited 2007 Sept 10]. Available from

http:/wwwaccessscience.com/content.aspx/id=800100

(h) Dissertation/Thesis

**In-Text:**

(Dettmers 1995)

**Bibliographic**:

8. Nwodo JM. Information seeking behavior: the role of an introduced predator [dissertation). [Columbus (OH)D]: Ohio State University. 1999, 400p.

(i) Conference Paper

**In-Text:**

(Clarke and Crame 2003)

**Bibliographic**:

9. Clarke A, Crame JA. Importance of historical processes in global patterns of diversity. In: Blackburn TM, Gaston K, editors. Macroecology: concepts and consequences. Proceedings of the 43rd annual symposium of the British Ecological Society 2002 Apr 17-19, Bimingham. Malden (MA): Blackwell. p. 130

(j) Conference Abstract

**In-Text:**

(Swanson et al. 2004)

**Bibliographic:**

10. Swanson TA, Blair P, Madigan L Reduction in medication errors through redesign of the medication use system [abstract] In: American Society of Health-system Pharmacists 39th midyear meeting: 2004 Dec S-9, Orlando. Bethesda (MD): American Society of Health-System Pharmacists. MCS-28.

(k) Technical Report

**In-Text:**

(Ford et al. 2004)

**Bibliographic**:

11. Ford PL, Fagerlund RA. Duszynski DW, Polechla PJ. Fleas and lice of mammals in New Mexico. Fort Collins (CO): USDA Forest Service Rocky Mountain Rescarch Station General Technical Report No. RMRS-GTR-123

(l) Web Page (With No Author Listed)

**In -Text:**

(Emerald Ash Borer (updated 2007|)

**Bibliographic**:

12. Emerald Ash Borer (EAB) [Internet). [Updated 2007 Feb 27 bus (OH): Ohio Department of Natural Resources, Dhvisot of Forestry: [cited 2007 Jul 24). Available from: http://dnr.state.oh.us.forestry/health/eab.htm

4.6 **AMA Citation Style**

AMA citation style was developed by American Medical Association. It is mostly used in medicine and related disciplines. Examples of citation of information sources using this method of citation are shown below.

4.6.1 **Examples of referencing various sources using the AMA style**

**(a) Book**

1. Okoro E, Okoye D. Information technology: Theory and practice. New York: Spectrum; 1999.

**(b) Journal or Magazine Article (with volume numbers)**

2. Okoro VN. The complexities of citation practice, a way forward. Library Acquisition 2003: 15(2):53-65.

**Newspaper, Magazine or Journal Article** (without volume numbers)

3. Odo M. Crisis of power supply in rural areas. News Watch. December 12,.1996: B2.

**(c) Encyclopedia Article**

4. Sturgeon T. Science fiction. In: Lorimer LT, editorial director, Cummings C, ed-in-chief; Leish KW, managing ed. *The Encyclopedia Americana*. Vol 24. International ed. Danbury, Conn: Grolier Incorporated; 1995:390-392.

**(d) Book Article or Chapter**

5. Joshi, NE. Scientific and technological research universities". In: D**ha**rS, **ed**. Spectrum of the Fantastic.

**Westport, Conn: Greenwood; 1988:219-223.**

(e) **Website**

6. Lynch T. DSN trials and tribble-ations review. Psi Phi Bradley's Science Fiction Club Web site. 1996. Available at http:/www.bradley.cducampusorg/psiphi DS9 ep 205r Htm Accessed October 8, 1997.

f. **Journal Article on the Internet**

7. McCoy LH. Respiratory changes in Vulcans during pon far. *J Extr Med* [serial online). 1999;47:237-247. Available at: http/infotrac.galegroup.com/ituebims li ln Accessed April 7, 1999.

4.6.2 **Tips to follow**

* Items are listed **numerically** in the order they are cited in the text.
* If you are using a typewriter and cannot use italics, then use underling.
* **Authors**: use initials of first and second names with no spaces. Include up to six authors. If there are more than six, include the first **three**, followed by **et al**. If no author is given, start with the title.
* **Books**: include the edition statement (ex: **3rd** ed. or **ed** or **Rev ed.)** between the title and **place** if it is not the first edition
* **Place** use abbreviations of states, not postal codes.
* **Journals**: abbreviate titles as shown in *index Medicus*. If the journal does **not** paginate continuously through the volume, include the month (and day).
* **Websites**: include the name of the webpage, he name of the entire website, the full date of the page (available) and the date you looked at it.

4.7 **Turabian Citation Style**

Turabian citation style was developed by Kate Tunbian in her **Manual for writers of research papers and term paper**. It is similar to Chicago manual of style. Turabian can be used by researches m natural and social sciences. The examples of the Citation of information sources are shown below.

4.7.1 Examples of referencing various sources using the Turabian style

**(a) Book**

Okoro, Evans, and Denise Okoye, 1995. Information technology: Theory and practice. New York: Spectrum.

**(b) Journal Article**

Okoro, Mercy R. 1991. The complexities of citation practice, A Way forward, Library Acquisition 13 (June): 53-65.

(c) **Newspaper or Magazine Article**

Odo, Mana. 1996. Crisis of power supple in rural areas News Watch, 12 December, B2.

(d)  **Book Article or Chapter**

Joshi, Nancy E. 1999. Scientific and technological research in universities. In spectrum of the fantastic, **ed, Dhar Shafi, 219-223. Westport, CT: Greenwood.**

(e) **Encyclopedia Article**

Well-known reference books used as sources are not included in the Reference List but are cited in parentheses within the text. (Theodore Sturgeon, Science fiction," in Encyclopedia Americana, 1995 ed.)

(f) **Website**

Lynch, Tim. 1996. *DS9 trials and tribble-ations review* Peoria, IL: Bradley University. On-line. Available from internet, http/ www.bradley.cdu campusorg/ psiphi/lDS9cp/s0sr.htm accessed 8 October 1997.

4.7.2 **Tips to follow**

* Arrange the items on your reference list **alphabetically** by **author**, interfiling books, articles, etc.
* Indent the second and following lines 5 space.
* If you are using a typewriter and cannot use *italics*, then use underlining.
* If no author is given, start with the title and then the date.
* **Websites**: include the date the page was created (or updated) and the date you looked at it.

**Conclusion**

One of the distinguishing features of a good scholarly work is the quality of its referencing style. A badly referenced work is a mark of poor Scholarship. Where people s intellectual output are used by a student, a researcher, an author or a writer in a term paper project, thesis, journal article or any communication channel without crediting the source is a serious academic offence. It is called plagiarism. To escape the trap of intentional or unintentional plagiarism, consulted sources must be properly cited and referenced. It has been mentioned earlier that review of literature enables a researcher to explore the frontier or universe of Knowledge in order to forestall the reinvention of the wheel. A reinvention of the wheel occurs when an already completed work repeated or replicated in a way that adds nothing new to the body of knowledge in that participation discipline. The major referencing styles are APA, Harvard, Chicago, MLA, and AMA. Others are CSE and Turabian.

When contributing a paper to a journal it is a good advice to first identify the particular referencing style of that journal. It is also advisable for both undergraduate and postgraduate students to find out the referencing styles recommended by their faculties and universities tor the purpose of term paper, projects, thesis or dissertation. The best way to master the various referencing styles is by usage in appropriate circumstances in the research process.

**References**

American Medical Association (2008). AMA citation style In American Medical Association Manual of style, 9 ed at Available <http://www.liu> edu/cwis/ewp/library/workshop/citama. htm.

American Psychological Association (2008). APA Citation Style In Publication Manual of the American Psychological Association 5th ed. Available at http://www.liu.cdu./cwis/cwp/library/workshop/citapa.htm

Chicago Citation Style (2008). Chicago Citation style In The Chicago Citation Manual of Style, 9 ed. Available at http://www.liu.cdu/cwIs/cwp/library/workshop/citccs.nu

Council of Science Editors (2008). Council of Science Citation

Style Available at http:/www.library.uwa.edu.au/help/guidescsecitation/stle

The University of Western Australia (2008). Harvard Citation Style.

http:/www.library.uwa.cdu.au/help/guidesharvard\_citation style

McMillan, J. N. and Schumacher, S. (2006). Research in Education: Evidence- Based Inquiry. Boston: Peurson

Merrian-Webster, S (1998). Manual for Writers and Editors Massachusetts: Merman- Webster.

Modem Language Association (2008). MLA Citation Style in MLA Handbook for Writers of Research Papers, 6th ed Available http//www.liu.cducwiscwp/library/workshop/citmla. hem

Raimes A. (2002) Keys for Writers: A Bricf Handbook, 2 ed Boston: Houghton Mifflin

Turabian Citation Style (2008). Turabian Citation Style ln Manual for Writers of Term Papers, Theses and Dissertations 6th ed. Available at http://www.liu.edu/cwis/libry/workshop/cittur.htm

University of Exeter (2009). Harvard Citation Style. Available at hbttp://www.exster.ac.uk

**TERM PAPER AND STUDY SKILLS**

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1.0 **Introduction**

The term paper writing process as with any research process often requires a lot of hard work on the part of students. However, the Out-come Is very satisfying if one has put in a substantial amount of work. A term paper is primarily a record of intelligent reading from several sources on a particular subject. The task of writing such is not as formidable as it often is to students. All it requires is a definite and systematic procedure.

2.0 **Steps in Term Paper Writing**

The following steps must be taken in writing a good term paper.

2.1 **Step 1: Selection of a Term Paper Topic**

The topic for the term paper should be carefully chosen for clarity and accuracy. It should be an informative summary of the paper. Lengthy titles often contain waste words, and shorter words may not be specific and informative enough. Therefore, a title should be specific so as to accurately convey the term paper’s message. It is often necessary to start a term paper with more than one title and ask your coordinator to help in choosing which one better describes one's paper. Lecturer's approval must be sought before embarking on a full-scale research.

Most good papers are built around questions. Your paper is an attempt to write a well-organized answer to whatever question that is decided upon, using facts for the purpose of proving (or at least supporting) one’s contention. Select a subject that can easily be managed. Subjects too technical, learned or too specialized should be avoided at this beginning stages. Also avoid titles with only a narrow range of sources This therefore necessitates that students must have searched for materials thoroughly and are certain that their topics are researchable before topics are chosen.

2.2 **Step 2:** **Information Search in the Library**

Searching for information sources can be a daunting task for freshmen. Most students are at a loss on how to start the search process. Once a topic has been chosen and approved of, the next port of call should be at the library. The library currently has librarians as consultants to all the faculties on campus seek out who your consultants are and they will help by detailing you on how to start the search. It is also necessary at this point to delineate the different sections of the library and what services they can offer particularly to students writing term papers.

2.2.1 **The Reference Section**

The reference section houses. reference sources such encyclopedias, hand-books, guides, biographies. Indexes periodicals, maps, directories, abstracts useful preliminary sources of information are housed in this section. It is recommended that students start their search un this place. The reference librarian and his/her team are often there to help students in the search process.

2.2.2 **The Serials Section**

This section houses journals newsletters bulletins magazines and all serials in the university library. The Kardexs and its printouts in the serials show at a glance all the titles of journals in the library. Students also find this section very useful. The serials also keep magazines index which compiles, year by year, materials of educational interest to students and readers generally. These materials are crucial for term paper writing.

2.2.3 **The Circulation**

The circulation section holds core text Books in various discipline. To be able to use books effectively, the card cabinets at the ground floor should first be consulted. We have the Author catalogue, the title catalogue and the subject catalogue. Sometimes users may know a popular author who is an expert in a particular area without knowing any of his her works. The author catalogue helps such a student to access the authors works often times a title is known without the knowledge of who owns the work, or it might be a work of multiple ownership, and the student does not know how to search for such materials. The title catalogues usually a way out of this quagmire. Still, some students might not know an author or a specific title but might have an idea of the subject; this search is often done using the subject catalogue. The catalogues direct the students on how and where to locate materials,

2.2.4 **The Special Collections Division**

This place houses, theses projects, materials written by Africans or materials written on Africa. It also houses Government documents, such as technical papers, annual reports, statistics of major Government parastatals in Nigeria. In addition, it has the United Nations depository which keeps all resources published by the United Nations such as FAO, UNESCO, World Bank. USAID, UNEP and other agencies of the United Nations Students usually find this place invaluable as they can avail themselves of past theses written by students and other very current resources in this place.

2.2.5 **The Newspaper Section**

Papers and magazines are indexed in such a way that makes it easy for researchers to sit out information from them in the library. Students should first of all consult the Newspaper or magazine index card and copy out the details of all the information that is required and thereafter request for the papers and the magazines, to make a quick search. The News is in the first floor of the University library while the magazines are in the Serials section. Students are encouraged to visit the library with only writing materials. A3 x 5 card is usually apt for gathering information in the library. The card should state the subject, author, title, year of publication. publication imprint, library call number.

If it is a book, a summary of the article is usually made at the end of the the article is in a periodical, the name of the author, title, name the periodical, volume and page number should be properly written. A summary of the article should then follow. These cards card are written according to major headings and are later sorted out.

2.3 **Information Search for Online Resources**

Online Public Access Catalogue (OPAC) 1s available in the library which readers can use to access materials online. electronic resources are tremendous on the web but students are encouraged to use these resources with caution, as not all materials available online are reliable. To make a useful search, attention should be paid to the domain names of site e.g. edu (educational institution) gov (government), or org (non-profit organization). These sites represent institutions and tend to be more reliable.

For general or background information check useful URLS (Uniform Resource Locators) such as general information online, almanacs or encyclopedias online such as Britannica or Encarta.

Use search engines Such as google. googlescholar, yahoo etc. and

other search tools as a starting point.

* Consult other online resources such as:
* Online reference materials (including databases e.g. e-library)
* Index to periodicals and Newspapers (e.g.) magportal.com online newspapers.com etc.
* Online dictionary and encyclopedia all-in-one resource that you can install on your computer free of charge e.g. answers.com
* Encyclopedias e.g. Wikipedia free encyclopedia, Encarta, Britannica Canadian encyclopedia.
* Magazines and journals e.g. time, discover, National geographic, macleans newsweek etc.
* Newspapers (Foreign) New York Times, USA Today, Vancouver
* Newspapers (Nigeria) nigeriawebmaster.com. You read all the national daily's in this website.

Read, evaluate and bookmark your favourite Internet sites. It is important to jot down full bibliographic information of author, title, place of publication, publisher, date of publication, page numbers, URLS, creation or modification dates on webpages and date of access. These can be entered in one's laptop or desktop for later retrieval. If printing from the Internet is possible, set up the browser to print the URL and date of access for every page. Remember that an article without bibliographic information cannot be cited.

2.4 **Step 3: Thesis Statement**

A thesis statement should be written down in one sentence after critically examining the issues involved. It is the pivot of the research. The main portion of the essay will consist of arguments to support and defend this belief.

2.5 **Step 4: Making a Tentative Outline**

Making an outline, 1s akin to drawing a sketch in dress making. A sketch points to what the final outcome must be. 410 outline, link over what the subject and purpose are. It is necessary to also review notes to find main sub-divisions of the subject. Sort the Cards into major sub headings/groups and use this tor main divisions in the outline.

Example: *History of the Igbos South of the Sahara:*

I. Introduction-(brief, comment leading into subject matter -thesis statement on the Igbos)

II. Body-History of the Igbo's

A. Pre-colonial times

B. Colonial times

C. Post-colonial times

III. Education

A. Primary

B. Secondary

C. Tertiary education

IV. Religion

A. Pre-colonial religion

B. Advert of churches

C. The present (Pentecostalism) etc.

V Conclusion

A. Analytical summary

B. Thesis reworded

C. Concluding remarks

The purpose of an outline is to help one think through one's topic carefully and organize it logically before the writing process begins. A good outline is the most important step in writing good paper. The outline must have an ***introduction, a body*** and ***a conclusion.***

2.5.1 **Introduction**

This section should provide sufficient background information to enable the reader/lecturer understand the article. The thesis, the purpose of the term paper and the major points covered in the paper should be elucidated. Ensure your introduction does not suffer from a lack of continuous flow of information and ideas. Otherwise, your term paper may be seen as lacking in originality and clear thinking.

2.5. **Body**

This is where arguments are presented to support the thesis statement. Begin with a strong argument, use a stronger one and end with the strongest argument for the final point.

2.5.3 **Conclusion**

Restate or reword your thesis. Summarize your arguments and explain why you have come to this particular conclusion. The next step is to organize notes already token down.

Organize all the information gathered according to the outline. At point it is necessary to critically analyze research data. Check for accuracy and verify that information is up-to-date, factual and correct OPPOSING views should be noted if they support one's thesis. This stage is crucial as this is the time to critically analyze, synthesize, sort and digest the information you have gathered and hopefully learn something more about the title of the term paper. Make sure at this stage that all information noted are properly documented. Document all ideas borrowed or quotes used very accurately.

2.6 **Step 5: Writing a First Draft**

A draft of the term paper must be written according to the outline. The first topic in the outline must be addressed first. For example in the work mentioned earlier, the *Igbos south of the Sahara*, the history of Igbos would be tackled first. Highlighting the pre-colonial, colonial and post colonial times. Organize all the note cards in the order of the outline. After organizing the various aspects of the work including the introduction, body and conclusion, the writing process then begins. Students should write in an engaging. easy-to-read manner. Fancy words and heavy vocabulary should be minimized. Arguments should be presented in a logical sequence leaving out nothing. The draft should be re-read for grammatical mistakes and if a word processor is used, it is important to use the spell check to edit the work. Make sure the work is properly paragraphed and each paragraph started with a topic sentence. Avoid one sentence paragraph.

2.7 **Step 6: Final Paper**

The draft should be printed out and read thoroughly. Sometimes certain errors are never seen until a work is printed. Proof-read final paper carefully and make sure the work is error proof. Look out for spelling mistakes, missing links, duplicated words and punctuation errors. Check for proper form of tables, diagrams and graphs. Make certain that a table or graph is self explanatory. Reading the paper aloud is a good method of ensuring that the language is not awkward and lows seamlessly. Finally, it is important to ensure that the final copy of the term paper is clean, tidy and attractive and should be submitted a day or two before the deadline.

**Study Skills**

3.1 **Introduction**

Study skills are generally regarded as strategies and methods of motivated learning This often is centered around reading and writing. When study skills are effective, they help make good grades. In fact, the essence of any educational process is to make students appreciate what is taught and come out with good grades. Therefore, good study skills are essential not only for students to acquire good grades, but are also useful in improving the learning process throughout ones life either in enhancing one’s career or in support of other interests.

3.2. **Stages in Study Skills**

Figure I below provides a conceptual framework of stages involved in designing and developing functional study skills.

figure 1: **Stages in Study Skills**

3.2.1. **Time Management**

Study skill will be examined from three very important perspectives. The diagram above expounds these three stages effectively. The first stage ostensibly is preparing the study process. This is very fundamental for any effective study programme. time is not effectively managed students will never be able to study. Managing time demands that a study time/period be included in one's day to day programme. Time must be created out for study. A balance must be maintained between other activities within the campus and school work.

3.2.2. **Goal Setting and Scheduling**

Students must early-on in the academic session schedule their time. This is very important as it helps to get students organized. It also helps to prevent unnecessary waste of time and idling about. It is equally important that goals be set. A good student must have a target a set goal for every week of the semester. A student can determine that by the eighth week of a semester that all term papers and assignments would have been completed so as to have ample time to focus on school work.

Without the setting of reasonable and achievable goals students will be perambulating, and will allow assignments build up. Towards the end of the semester, with school work, assignments and term papers bursting at the seams, most students are often not able to stay focused and many sometimes fall ill.

3.2.3. **Organizing Tasks**

A well organized programme of activity must be strictly adhered to. This is important. particularly for freshmen. On arriving the campus, there should be time for registration and this period should never be exceeded. As soon as lectures start, students should have finished with every other business of registration and accommodation. Other tasks needed to be performed should be organized, so that events will move seamlessly and tasks executed night on target.

3.2.4. **Avoiding Procrastination**

This is very important. Procrastination according to the Websters Encyclopedic Dictionary (1994:1147) means to defer action, delay action until an opportunity is lost. Procrastination has remained one of the greatest threats to scholarship. It is also one or the most prevalent study problems that students encounter. Most assignments, projects, practice skills are deferred to a point that the culprit finds that work is crowding in on one and one is then helpless in the face of it all because things which should have been done long ago have been built up. To avoid this, it is necessary to tackle problems head on and not wait for another day. No matter how daunting a task is, it is helpful and important to embark-upon it immediately, and request for guidance in the process of executing the task than waiving it off for another day.

3.2.5. **Developing Self-discipline**

This helps to avert procrastination. Discipline helps one to stay focused, to manage time well, to stay organized and avoid procrastination.

3.2.6. **Note Taking**

The next step in the study process is ***note taking***. In classes, teachers will teach different types of topics in your course of study. The information gained during such lectures often help in the process of writing both examinations and term papers/projects. Students must be able to take good written notes from what lecturers teach them. The process of note taking involves three stages, the before, during, and after class note-taking. To be able to take notes effectively during class, certain things are usually expedient it done before the class. One of this is preparing for the class. Students should review notes from the previous class session and sometimes notes from all the earlier topics taught. This helps in remembering what was covered and prepares one to grab new things that the teacher provides It is necessary to complete all assigned readings before students come to class.

Your lecturer will expect that this has been done and will build upon what was previously taught. Reading extensively, even beyond the bounds of classroom work helps students a lot in note taking Avid readers are often more familiar with words and can spell words better than students who hardly read.

Note taking during class is very crucial and should never be toiled with. Students must listen to their lecturers with rapt attention and should always be attentive to 'signal statement These tell you that what the lecturer 1s about to say next is very crucial. Some of such signal statements may come in remarks such as it is important to note this down, 'include this point in your note and so on.

It is important to write quickly so as to be able to include all the important highlights in the note. This can be done by the use of abbreviations. The MS text we send is a good example of some of the abbreviations that can be used. Limit abbreviations to words that can easily be understood even after the lecture. Otherwise, the whole essence of the lecture would have been lost altogether. Place question mark(?) on information whose meanings are ambiguous and get back to recast these words later. The next step in note taking is what is done after class. It is necessary for students to get back to their notes after class. Notes should be properly read and abbreviated. Words and symbols should also be properly spelt out and certain abridged sentences should also be expanded. Use text books and reference sources to obtain information that would enrich whatever the lecturer has given in class. Write out difficult areas and questions that you need clarification on and ask during the next lecture t is often wise to check with other course mates to be sure that no important information has been left out.

3.2.7. **Studying**

The next very important area in study skills is studying. Studying is a skill that must be leant. A number of things are highlighted in this session which helps to improve the study process. The first part is inculcating effective study habit. There are certain important habits which every good student must have.

These are:

1. Plan specific times for studying. Study time is anytime you are doing something related to school work. It can be a term paper, a project, studying for a test or completing an assigned reading. Students must schedule specific times everyday for study.

2. Plan studying at the same time each day. This helps to establish a routine and becomes parts of the life of a student much like eating and sleeping. When a scheduled study time comes up, one is mentally prepared to begin the study process.

3. Set specific goals for study times. Goals will helps one stay focused and also help in monitoring of progress.

Simply sitting down to study has little value. It is necessary to be clear about want the study process is aimed to accomplish.

4. Plan not to study too much at one Siting The study process is usually not very effective it you plan to do so much work at a time. It can also make certain students hate the entire idea of studying. It is important to space the work that needs to be done over shorter periods of time. This can be achieved by drawing up a programme of activities of what one needs to achieve within each study time. Taking short breaks in the study process also helps restore mental energy.

5. Start the study process with the most difficult assignment. It is necessary to do this because the most difficult assignment will require more mental effort and should not be embarked upon when one is already tired.

6. Every student must have a 'me time. A time when all phones are switched off and every kind of distraction is warded off. Switching oft the phone allows you to progress in your study without any interruption. It is difficult and also takes time to get back to what one was doing before a phone call.

Another area worth investigating in studying is the ***study method***. These are methods used to study effectively and to achieve positive results in school work. ***Scanning*** means to read hastily. This is a kind of reading that one uses to have an over all picture of a work. It is often related to ***skimming*** which is also reading in a cursory manner but skimming is a much more detailed reading than scanning. These two methods of reading are important when one is looking for information and preliminary sources of information like when the encyclopedia and other reference sources are used. The student is not required to go through such works page by page but to Scan and skim through eliciting all important information. Next 1s speed reading which is very crucial in tertiary education. Students who read too slowly even when their comprehension is adequate will run into problems because of the amounts they have to read. Speed reading helps students cover a lot of grounds in very little time

**Memorizing**

Memorizing vocabulary words, multiplication tables, historical dates can be difficult. Fortunately there are easier ways to tackle these problems. First of all start small and learn and master things in small numbers and add more things as progress is made. Use of ***mnemonics*** can also help in memorizing things. ***Mnemonics*** is an old method of memorizing lists and organizing them This is a way of remembering new facts by linking them to event. word or song e.g. BODMAS in mathematics for Bracket, Division, Multiplication, Addition and Subtraction There are mnemonics that come as a sentence like Never Eat Shredded Wheat which helps in remembering the points of compass: North, East, South and West

3.2.8. **Studying with flash cards** also helps students immensely. To do this one can get a 3 X 5 card, write a vocabulary word or name on one side of the card and its definition on the other side. Then read one side of the card and try to remember the words on the opposite side. The cards can be kept round the room and one can study them as one prepares for lectures.

3.2.9. **Hybridization**

This is all the study methods are used at the same me. This is quite effective and helps to make an A students. Students should use all possible methods at their disposal ensure that success is achieved.

3.2.11 **Quizzes**

Quizzes are an excellent way to review study notes especially in the weeks and days before an examination. Quizzes can show where your strengths and weaknesses are.

This will then allow you to focus your efforts more precisely is also good practice to share your study quiz with your classmates and test each other periodically. This method can help throw up even more areas and details you may have missed.

3.2.12 **Thinking Skills**

Students must learn to be good thinkers. Effective thinking skills must be built up over a period of time. It is good to ask yourself questions as you read. If you are not a good thinker yet, then seek out other students who you feel are good thinkers and find out from them what you can do to think critically and creatively

3.2.11 **The SQ3R Method**

The SQ3R Method helps to sharpen study skills. SQ3R stands for Survey, Question, Read, Recite, Review.

**Survey**

You must get the best overall picture of what you are going to study before you study. Read the outlines to appreciate what the subject or topic is about.

**Question**

Ask questions tor learning It is important to know the answers to questions. When you raise questions it helps to guide you on what you should emphasize on by throwing up the what, why, how, when, who and where of the study content. Asking questions in the process of study helps you not only to make sense of the material but also to remember it more easily because the process will make an impression on you.

**Read**

Do not just run your eyes over a textbook. Read actively. Read to answer the questions you have raised or the ones raised by the lecturer. Look out tor marks of emphasis such as bold or italicized print in the text. Do not be selective when you are reading a text Also read tables. graphs and illustrations because in many cases, they convey an idea more effectively than the written text.

**Reading**

Reading is a primary means by which one acquires information. However, or this to be effective, you must read with a purpose. From the outset, it is important l know what your purpose is and then read accordingly, Find out the author's main or central idea in every paragraph of the text This implies that you must read the same assignment three to four times, each time with a different purpose.

**Recite**

Stop reading periodically and mull over what you have read by reciting it. Recitation enables you to review the text This is also a good time to go over what you may have noted as you read. The best time to review is when you have just finished studying something It is risky to wait until an examination to begin this process. A final review should be done before an examination, much like fine tuning one's knowledge of the material

3.3 **Study Group**

It is good practice to join a study group. However, caution must be exercised here. Students must ensure they join a up that is motivated, purposeful and focused. When you join the night study group it can really help you with difficult topics and course works. It may not be wise to be in the same study group as your best friend to avoid distraction. The study group should be one that each individual has something to contribute. None of the members should be a "sponge" who is only in the group to listen. Study group is most effective when topics are shares ahead of the groups meeting so that members can prepare ahead of the time. Also, the group should set tests from time to time. Note that while important, study groups must not take the place of personal study time.

3.4 **Examinations Strategies**

The aim of examinations is to test students’ knowledge of a subject or topic. It is a formal method of assessment of knowledge. Examinations can be a source of worry for a student who is ill prepared. Students are advised to begin their preparation well ahead of time by adopting the strategies that have been outlined earlier. However, at the examination proper, students can adopt the following measures so as to come out successful.

1. **Objective examinations**

*Surveying*

It is not wise to jump into answering the questions simply because the first question you lay your eyes on is simple and known by you. Survey any objective examination to find out what types of questions are being asked. Surveying helps you to know what to expect.

*Know the ground rules*

It is important that students read directions. Answer in line with the directions. Make sure your answers are clear. Find out what the rules tor marking are and be careful to follow them. For example, it wrong answers are penalized, don't guess unless you can reduce the choices to two.

*Answering easy questions first*

Answering the questions you find easy the best strategy. Thisgives you time to lace the more difficult ones. If you spend toomuch time on difficult questions, you may not be able to completethe examination.

*Picking out key words*

Objective examination questions usually contain one or more key words. A key or group of key words is those on which the truth or falsity of a statement hangs. Students should endeavour to detect the key words in the statement that define the meaning statement contains two clauses, one of which is false, the whole statement Is false. Usually, two-statement true-false questions are either both true or both false.

*Reading multiple choice questions*

Multiple choice questions are mostly true-false questions arrange in groups. Usually, only one alternative is correct. It is your job to pick the alternative that is more nearly true than the others. Be careful to read multiple choice questions the same way as for true- false. Eliminate obvious false choices.

2. **Reading Other Types of Questions**

You should use the same methods used to answer true-false and multiple choice questions to answer questions that require you to match. Always scan the entire list of alternatives before matching any. Try to identify the key words in each list and test them. Completion questions require you to provide a word or phrase. When you come across completion questions, choose your words carefully. It you don't know the answer, give it your best guess, as long as responses get at least partial mark.

3. **Essay Examinations**

Time is of the essence in answering essay questions. Plan your time so as to ensure that you distribute it evenly. Do not get carried away on one or two questions to the extent that you cannot answer the other questions in the time allowed. Read through the entire questions first to have a good idea of what you are expected to answer. If you are required to choose from a number of questions, ensure that your number the answers to match the questions. Watch out for key words such as "list, "describe compare and contrast" and "outline and do exactly as required. After scanning the list of questions to be answered, choose the you know most about. Prepare an outline of your answers while paying attention to time. Outlines will help you remember important ideas and facts. Write legibly!

4.0 **Conclusion**

This chapter dealt with Term paper writing and study select part on writing a term paper discussed the of a term paper topic, information search in the library, information search for online resources and ups for collecting and collating information from these sources. In addition, the major elements of writing the term paper were delimited. These are Thesis statement, outlining the work and the organization of the work in such a way as to highlight the Introduction, the body of the work, and its conclusion.

Study skills dealt with strategies and methods of studying in a proactive manner. Important issues such as time management, goal setting. organization of tasks, are effectively discussed. Various steps in note-taking and different study methods are also delineated.

This chapter therefore, is geared towards giving students all the necessary rudiments needed in writing an excellent term paper.

**Bibliography**

Dalby, H. (2013). 10 effective study habits for college students. Retrieved

17 August, 2015 from https://www.centuragollege.edu

Kisik, B. (2015). Effective study skills: how to study and make the most of your time. Retrieved 17 August, 2015 from www.adprima.com/Sudyouthtm

International Network for the Availability of Scientific Publications (INASP) (2006) *resource pack Journals*. London: Oxford Webster's *Encyclopedic unabridged Dictionary* (1994). New York: Random House

Library guide: Steps for writing a term paper. Retrieved August 2015 from flu.odu/oL-TP200

Term paper guidelines (1997). Retrieved 17 August, 2015 from htps/www.lhup.cdu dsimanck/termpapr.htm

**LAW LIBRARIES**

**Introduction**

A law library is a special library made up of collection of reference Law books, law reports, law journals, pamphlets, legislations as well as non-book materials These are housed, classified, catalogued, indexed and arranged and made easily accessible to users. Law collections can often be intimidating to a new user and this is partly because most law books come in volumes and are often covered in sober binding. With the advent of information and Communication Technology (CT), law collections need not be found or housed in physical building only.

They could therefore be in virtual libraries the result is that one can access these virtual libraries from anywhere in the world provided one has the night tools such as computers and internet or other such like tools.

**Early Law Libraries in Nigeria**

The development of law libraries in Nigeria closely with the establishment of the colonial administration and the introduction of English Legal System in Nigeria in 1862. Early Law libraries were created in the Federal Ministry of Justice Lagos and served as part of the British Colonial instrument of social, economic and political development of Nigeria. An example of an early private Law Library was owned by an individual Sapara William (1855-1915). a renowned legal luminary of his time. (Ejimofo & Aneme, 2005.

An early court library was established in a one-room space at the Court House in Tinubu Square, Lagos about 1877 by Mr. Justice Sudman Smith in turn formed the nucleus of the present High Court of Lagos State Library.

The library of parliament also located in Lagos, was later transferred to Abuja and is now the National Assembly Library serving the legislative arm of government.

**Modern Law Libraries**

With the development of constitutional and political changes in Nigeria, it became necessary to establish modem law libraries to meet the needs of emerging institutions, Thus we have about five types of modem law libraries in Nigeria namely:

1. Academic Law Libraries;

2. Private Law Office Libraries;

3. Legislative Libraries;

4. Ministry of Justice Libraries,

5. Judicial Libraries.

**Academic Libraries**

Libraries attached to faculty of Law in all Universities or colleges of Law as well as those of the Nigerian Law School are referred to Academic Law Libraries. Presently there are seventy-one (71) universities in Nigeria and thirty-four (4) of them offer law courses. The Nigerian Law School with headquarters at Abuja has campuses at Kano, Lagos and Enugu and they have Law Libraries attached to all the different campuses. The Nigerian institute of Advance Legal Studies located in Lagos which was established in 1984 for Post-graduate law students and researchers has a well-stocked functional academic law library. The academic aw library all serves the information needs of students and lecturers in their Various institutions

**Private Law Office Libraries**

Private Law Libraries are indispensable tools for lawyers and most law firms and chambers strive to set up well stocked functional libraries. Tine examples of what a good law office library should be is that of Gant Fawehinmi (SAN) and Rotimi Williams (SAN).

**Legislative Libraries**

Legislative libraries also referred to as National Assembly Library. Parliament Library, Congress Library or House of Assembly Library These libraries as the name indicate are to be found attached to the legislative arm of the government. Thus in Nigeria the National Assembly Library at Abuja serves both the Senate and House of Representatives. At the state level, there are legislative libraries serving the 36 States Houses of Assemblies At the Local Government Areas, there are such legislative libraries throughout the Federation and Abuja principal Councils.

**Ministry of Justice Libraries**

Ministry of Justice Libraries are established to serve the Legal information needs of the Executive am of Government. The oldest of such libraries is the Federal Ministry Of Justice Library which came into being in 1960. All the 36 States as well as the Federal Capital Territory Abuja, each have a State Ministry of Justice Law Library These libraries are extensively used by State Counsel and other judicial officers employed by the various Ministry of Justice.

**Judicial Libraries**

The Law library is the bed rock of the Judiciary. The Judiciary is the third arm of government and is vested with the administration is made up of the Supreme Court (the apex court), Court of Appeal, the Federal High Court, the High Court of the various State-these are the Superior Courts. The so-called courts are the Magistrate courts, the Sharia Courts and the Customary Courts Each of the Superior Courts has a library for legal information needs of both the Bar and Bench at their various locations.

**Types of Books in Law Libraries**

**Introduction**

There are two basic sources of law and these are known PRIMARY sources of law and SECONDARY sources of law.

**Primary Sources of** law are those works that were enacted by authoritative bodies empowered to do so by the constitution. These records can be stated as emanating from authoritative law-making bodies, such as the Senate, House of Representative, the various Houses of Assemblies to whom the Constitution has delegated powers to make laws.

**Secondary Sources** of law on the other hand are made up of publications and materials that relate to the law but which are not authoritative record of the law itself. They are opinions, criticisms and commentaries about the law.

**Definition of some Keywords**

**Act**: It is Federal legislative enactment passed by the Parliament of the Federation or the House of Assembly (Senate and House of Representative)

**Law**: This is an enactment passed by Regional/State Legislative i.e. State House of Assembly

**Ordinance**: Before 1961, Federal enactments were known as Ordinances but with effect from 28 December, 1961 they were recognized Acts passed by an Act of Parliament of the Federation.

**Statutory Instrument:** This is a subsidiary legislation passed by the National Assembly.

**Legal Notice:** This is a subsidiary legislation passed by a State House of Assembly.

**Decree**: This is a Law promulgated by the Federal Military Government. it differs from an Act in that it is promulgated by fiat without recourse to parliament during Military rule.

**Edict**: This is promulgated by the State Military Government and this is applicable in the State that passes it unlike a Decree which has force of law throughout the country.

**Examples of Primary and Secondary Materials.**

**Primary Materials:** These include the following:

1. Official Gazette;

2. Statutes (Parliamentary Publications)

3. Treaties;

4. Decrees;

5. Edicts;

6. Rules and Regulations (Administrative and Executive Publications);

7. Case Laws (Laws Reports etc.)

8. Codes;

9. Constitutions.

**Secondary Materials** include:

1. Index to Primary Sources,

2. Text Books on Law;

3. Digests of Judicial Decisions;

4. Periodicals and Journals;

5. Dictionaries;

6. Encyclopedias;

7. Year Books;

8. Bibliographies;

9. Atlases;

10. Commentaries;

11. Directories;

12. Maps.

**Types of Books and Materials Found in a Law Library Bibliographics**

Legal bibliographies are used to find what books have been published on a subject. They offer systematic listing of books on the particular legal subject.

**Example**:

- Jegede, Oluremi - Nigerian Legal Bibliography. New York: Oceana.

- Law Books In print. New York, Oceana.

**Biographies**

A biography is a narrative which seeks consciously to record factually the actions and personality of an individual life.

Legal biographies include:

Elias T.O. (1955) Makers of Nigenian Law. London: Watson.

Campbell, J. (1971) Lives of the Chief Justices of England New York: Books for Libraries.

**Citators**

The main reason for case citators is to help the reader find the source of the case cited by the author. Therefore a reference to a case is called a citation A case takes its name from the names of the parties to the litigation. Normally, only the surnames of the parties are used in citation When there are more than one party on either Side, only the names of the first mentioned are used on both sides. E.g. Niger Chemists v Nigeria Chemist (1996) All Nigerian Law Report 171.

In Criminal cases which is usually prosecuted by the State, it is usually written in the form State v Obi.

ln the civil case above i.e. Niger Chemist V Nigeria Chemist

a. The parties involved are stated

b. The year in which the case was reported is also given

c. The abbreviation for the name of the Law Repot in this case- All Nigeria Law Report, is stated;

d. The page number of the Law Report in which the case was reported is also noted as 171.

**Law Dictionaries**

These provide meanings of words from the legal perspective. Although the language of law is predominantly English, it also contains words and phrases in Latin and French. Legal dictionaries are indispensable in cultivation of good habits in both writing and speech and makes for clarity and preciseness in expression.

e.g.

1. de novo - anew, starting afresh

2. ad idem - agreement in all the essential

Parts e.g. in contact

3. Ante - before

4. Locus Standi - Right to be heard in court

5. Mala fide - in bad faith

**Example of a law dictionary include:**

Osborn, Percy G. (2001). Osborn's Concise Law dictionary.

London: Sweet and Maxwell.

Black, Henry C. (1979). Black's Law dictionary. St. Paul's, Minn. West Publishing

**Digests**:

A digest of case law is an index of reported cases, judicially heard in courts. They provide brief statements of court holdings and facts of the cases. E.g.

1. Supreme Court of Nigeria (1997) Digest of the Supreme Court Cases. Lagos: Nigeria Law Publishing.

2. Chukura, Olisa (1974), A digest of Nigerian case Law. Ibadan: Gillford & Co.

**Official Gazettes:**

Government gazettes are periodic publications by the government for the purpose of advising its officials and the general public of its decisions and actions. It is the main source of current laws. E.g.

1. Federal Republic of Nigeria Official Gazette-Published by Federal Government printers in Abuja.

2. Anambra State of Nigeria Official Gazette-Published by the Anambra State Government printers at Awka.

**Law Reports**

Law reports are published volumes of legal cases which appear periodically over a given time. hey contain accounts of the various cases argued and determined in the various courts of Record with decisions and opinions of the courts. Law reports carry not only facts, issues and decisions, but also the legal principles upon which the judgement is made. Examples include:-

1. Nigerian weekly Law Report (NWLR) Lagos: Nigeria Law Publications 1995

2. All Nigerian Law Reports (ALLNLR) 1961

3. ALL England Report (ALL ER) 1936

4. Supreme Court Judgments (S.C.) 1972.

**Statutes**

A statute is formal written enactment of a legislative body whether Federal, State or Local government. It is an act of the legislature, declaring, commanding, or prohibiting something. Example include:

1. Laws of the Federation of Nigeria (2004) Abuja: Federal Ministry of Justice.

2. Laws of Enugu State of Nigeria, Enugu Commissioner for Law Revision, Enugu State.

**Treaties**

A treaty is an agreement or contract made between two or more independent nations for their mutual benefit. These treaties are authorized by the contracting nations. A treaty is not only a law, but also a contract binding the nations and must be so constructed as to give full force and effect to all the parts of the treaty. Examples include:

1. United Nations Treaty Series (1946-)

New York: United Nations.

2. Glennon, Michael J (1969) - United States Treaties and other International Agreements. Washington: Government Printing Office.

**Law Journals**

Legal journals are very important tools for up dating current information in any legal subject. They are especially helpful for term papers, thesis writing, Seminar presentation and moot court arguments. Examples include:

1. African Journal of International and comparative Law.

London: The African Society of International and Comparative Law. 19--

2. The Nigerian Juridical Review. Faculty of Law, University of Nigeria Enugu Campus. 19.-

3. The Cambridge Law Journal. Cambridge: Cambridge University Press. 19--

**Precedent and Practice Books**

Precedent books aim to provide specimen of Wills, Conveyances, tenancy Agreements and other forms of legal documents which legal practitioners are required to draw up for their clients.

Practice book on the other hand contain procedures in court.

Examples include:

1. Archbolds, J. F. (2003), Pleading, evidence and practice in criminal cases. London: Sweet and Maxwell.

2. Atkins (1961). Encyclopedia of Court Forms in Civil Proceedings. London: Butterworth.

3. Aguda, T. A. (980). Practice and Procedure of the Supreme Court, Court of Appeal and High Courts of Nigeria. London: Sweet and Maxwell.

**Arrangement of Law Books in Law Libraries**

Books on Library shelves are classified and arranged in subject order. The Library ensures that subjects that are alike are grouped together in order to make for logical sequence.

There are many classification scheme used to arrange law materials in Libraries including law materials.

1. **Dewey Decimal Classification Scheme:**

This was published in 1876 by Melvil Dewey. The notation used in the scheme Is decimal numerals. Knowledge is grouped round (10) primary divisions and the basic outline is as follows:

***Dewey Basic Outline***

000 - Generalia (including Bibliography and Librarianship)

100 - Philosophy

200 - Religion

300 - Social Sciences (e.g. Politics, Economics, Law, Education

Commerce)

400 - Language

500 - Science (Mathematics, Physics, Chemistry, Biology)

600 - Technology (including Medicine, Agriculture, Business

Home Economics)

700 - Arts

800 - Literature

900 - Geography and travel, History, Biography.

2. **Library of Congress Classification Scheme**

Most universities and academic libraries as well as large libraries, use the library of congress classification scheme. This scheme as formulated by the National Library of United States of America for its National Library collections. The whole of human knowledge is classified into (21) broad subject areas and these are represented by a combination of alphabets and numbers thus :(Library of Congress 1986).

**Library of Congress General Outline**

A - General works e.g. General encyclopedia

B - Philosophy, Psychology, Religion

C - Auxiliary sciences of History e.g. Archeology

D - History

E-F - History of America

G - Geography, Anthropology, Recreation

H - Social Sciences

J - Political Science including International Law

K - Law

L - Education

M - Music

N - Fine Arts

P - Language and Literature

Q - Science

R - Medicine

S - Agriculture

T - Technology

U - Military Science

V - Naval Science

Z - Bibliography, Library Science.

At the University of Nigeria, the Library uses the Library of Congress classification scheme for the arrangement of its Library materials. For the law library user at the University, the most useful and often consulted class number is the K class for Law. This is followed by the class J for Political Science and in particular class JX for International Law. Presently, the law library adopts the Elizabeth Moys classification scheme for law subjects and this is an expansion or the Library of Congress K class. Elizabeth Moys was the Librarian of University of Lagos (1962-1965) and developed the scheme to redress the non-development of African laws in the library of congress

classification scheme. The scheme has been severally revised and most university law libraries in Nigeria are re-classifying their stock with the scheme. It is suitable for small to medium law libraries (Jegede, 2007).

***General Classes of Moys Scheme***

K-Journals and reference books

* **K** - Journals and reference books
* **KA** - Jurisprudence
* **KB** - General and comparative law
* **KC** - International law
* **KD** - Religious Legal systems
* **KE** - Ancient and medieval law
* **KF-KN**- Common law
* **KF** - British Isles
* **KG** - Canada, US, West Indies
* **KH** - Australia, New Zealand
* **KL** - General
* **KM** - Public law
* **KN** - Private law
* **KP** - Preferred jurisdiction
* **KR** - Africa
* **KS** - Latin America
* **KT** - Asia and Pacific
* **KV** - Europe
* **KW** - European Community Law (alternative)
* **KZ** - Non-legal subjects

**Information and Communication Technology (ICT) and Modern Law Libraries**

The modem trend is for most law libraries to embrace ICT wholeheartedly. With the advancement of ICT and the wealth of legal information currently available, it is no longer enough to rely on printed materials for information. The information available on the web is more than any single library can hold. Web-based legal literatures are vast and boundless and also borderless (Omekwu, 2007). Access to these information is not limited by space nor time unlike conventional libraries.

**What is the WEB? w.w.w.:**

World Wide Web has been variously defined as computer network consisting of a collection of internet sites that offer text and graphics and sound and animation resource through the hypertext transfer protocol (2007, word net. Princeton edu/per/webcon)

It is a network of servers linked together by a common protocol, allowing access to millions of hypertext resources (2007, www.utas.cdu.au/library/etutor/main/websglos).

Reduced to a layman's language and understanding, the Web is:

* A computer network consisting of Internet sites.
* It makes accessible multi-format resources made up of texts, graphics, sound and animation.
* It is accessed through tools.
* Web information sources and resources are interconnected and can be accessed through the internet

Internet is defined as "an electronic network of computers that includes nearly every University, Government and research faculties in the world. They also include many commercial sites (2007, www.oralag. com/glossary/laqglosi).

**Virtual Libraries**

These are Libraries that unlike physical libraries have no walls, windows or doors nor are they physical.

* They exist on the internet with internet address only.
* They can be accessed by an individual using the computer connected to the internet.
* Their documents can be downloaded and studied at a later date.

A good example of a useful law virtual library is:

www.virtuallibrary-law@www.law.indiana.edu/v-lib.

**Electronic Journals and Books (e-journals and ebooks)**

Just as there are physical hard copy journals in the traditional library, here are also electronic journals. They are publications which is made accessible in a computerized format. Example include:

**JSTOR- (Journal Storage)**

Provides free electronic journals to libraries in developing countries. The Enugu Campus libraries has access to this vast array of journal of journal available on this site (http://www.jstor.org)

**OARE-Online Access to Research in the Environment.**

This is an international public - private consortium coordinated by the United Nations Environment Programme (UNEP). Yale University and leading science and technology publishers Developing countries can access their resources free upon successful application. Enugu Campus Library is one of such beneficiaries and students and staff are free to access their resources on campus.

For **electronic books**, a good site for free access via the Internet is: www.onlinebooks4free.com. This site contains a lot of law texts and this can be downloaded free by law libraries. Another useful website for law is: America Law Sources Online (ALSO) (www.law.sources.com). This according to available information at the website, is a comprehensive uniform and useful compilation of links to sources of commentary and practice aids that are available without charge u practice aids that are available without charge.

For **Nigerian laws** a very useful website is: Nigerian Law (www.nigeria-law.org). it contains Nigerian Legal Literature on the web. It is comprehensive in its content of laws of Nigerian origin including Nigerian Judicial system, legal education and Judgments of the Supreme Court of Nigeria. Its web-based law reporting system is also very useful- e.g. Nigerian Internet Law

**Conclusion**

The symbiotic relationship between law library and the law student can never be over emphasized. It is absolutely important that the law student familiarizes himself with the contents of his library and learn how to source for legal information in their diverse formats. The law library is a great working tool for law students just as the science laboratory is to the scientist.

**References**

Ejimofo, P.N. and Anaeme (2005) History and Development of Law Libraries in Nigeria. Coal City Libraries Journal of the Library Association, Enugu State. 2(1-2) 70-86

Jegede, Oluremi (2007) Introduction to the Moy's Classification Scheme Proceeding of the Nigerian Institute of Advanced Legal Studies. Intensive Course for Law Librarians. 26-28 June. 16-33

Library of Congress (1986) LC Classification Outline Washington DC. Library of Congress

Omekwu, Charles 0. (2007), The nature and diversities of legal resources on the web, Proceedings of the Nigerian Institute of Advanced Legal Studies, Intensive Course For Law Librarians, 26-28 June, 142 – 147.

**APPLICATION OF ICT IN LIBRARY AND INFORMATION CENTRES**

**INTRODUCTION**

Information and communications technology or information and communication technology, usually abbreviated as ICT, is often used as an extended synonym for information technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage, and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information.

In other words, ICT consists of IT as well as telecommunication, broadcast media, all types of audio and video processing and transmission and network based control and monitoring functions. The expression was first used in 1997 in a report by Dennis Stevenson to the UK government and promoted by the new National Curriculum documents for the UK in 2000 (Wikipedia, 2012).

Information and communication technology (ICT) plays a vital role in bringing about changes in our society. As technology is getting more sophisticated and more affordable every day, the range of services that are provided also increases accordingly. **Electronic technologies** for collecting, storing, processing and communicating information are divided into two main categories:

1. those that process information, such as computer system, and
2. those that disseminate information, such as telecommunication systems.

The term information and communication technology (ICT) is more commonly used. While Information Technology (IT) has been the accepted term in the UK and USA, it is not the universal term: telematics is widely used in France, and information is also used elsewhere in this sense (International Encyclopedia of Information and Library Science, 2003). In India the term IT and ICT are simultaneously used.

ICT has been one of the major factors causing changes in the way people communicate, locate, retrieve, and use information. Libraries and information centers have embraced the ICT more profoundly than many other fields, and most of them are currently using electronic products and services. It is evident that ICT has created a division in the modem society; information poor and information rich. The countries that had the ability to utilize ICT for information resource development have generated information-rich societies while those countries which were weak in utilization of ICT have created information-poor societies. As information is directly related to knowledge and skills which influence socio-economic development, one could hypothesize the relationship between information and development. This has speculated the assumption that information-rich countries have developed economies and information while poor countries have less developed economies (Yapa, 2003).

Because economy and information are closely related, and information resource development leads to economic development, policy makers pay special attention to the development of information resources, it is recognized that ICT is a tool which could be manipulated effectively for information resource development. This explains why economists in the Developed World are interested in ICT. Library systems were re-structured to accommodate ICT in library operations, because of the belief that the success of a library can be measured by the extent of ICT use by the library (Yapa, 2003).

**INFORMATION TECHNOLOGY**

Information technology; a generic term that covers the acquisition, processing, storage and dissemination of information of all types textual, numerical, graphical and sound-and in all application areas e.g. banking, business, science and technology-not just librarianship and information science. The term is restricted to systems dependent on a microelectronics-based combination of computing and telecommunications technology. Has largely been replaced by ‘ICT’ Information and Communications Technology. Some of the modern and emerging fields of information technology are next generation web technologies, bioinformatics, cloud computing, global information systems, large scale knowledge bases, etc. advancements are mainly driven in the field of computer science (Wikipedia, 2012).

UNESCO defines Information Technology as “scientific, technological and engineering disciplines and the management techniques used in information handling and processing information, their applications; computers and their interaction with man and machine and associated social, economic and cultural matters” (Stokes, 1985).

According to Online Dictionary of Library and Information Science define, “information Technology as a very broad term encompassing all aspects of the management and processing of information by computer, including the hardware and software required to access it”. (Joan M. Reitz).

The McGraw-Hill Encyclopedia of Science and Technology (2002) defines information technology as “the”

**INFORMATION AND COMMUNICATION TECHNOLOGY**

ICT has transformed the way of collection, storage, processing, dissemination and access to information. Recent technological developments such as explosive growth of internet and www, sophisticated search engines, fast processing power and reducing cost of the computers, high bandwidth networks and increasing number of electronic publications assist the libraries in providing extensive access to the variety of information sources and provide a way to enrich the teaching and learning environment. Accessibility to the required information at a fast rate as well as quick response to the query is the expectations of users. These factors are responsible for the changes in library environment.

ICT have transformed Library and Information Services globally, It has changed the traditional practices of library and information centers in distribution of services to the end users. Now users can access to a variety of information and scholarly journals through online. ICT literacy is the ability to use digital technology, communication tools, problems including the ability to use technology as a tool to research, organize, evaluate, and communicate information and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information more easily than ever.

In ICT environment, every library grows in terms of reading material, equipment, space, staff, readers, etc. The library and information scenario is changing at a dynamic pace there is a paradigm shift from print media to web media; from ownership of documents to access to information, intermediary to end-user model of services, and from location of specific libraries to digital/virtual/hybrid libraries. Similarly, there is a change in the needs and interests of the readers. Hence, the role of library and information professionals has also changed dramatically. To meet the current requirements, library professionals must be able to perform various tasks coping up with the changes in technological environment. However, the ICT has nowadays becomes as it plays a very important role in meeting information needs of the research and institution as a whole.

The term ICT is now also used to refer to the merging (convergence) of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the audio-visual, building management and telephone network with the computer network system using a single unified system of cabling, signal distribution and management. This in turn has encouraged the growth of organization in the process of merging the different network systems.

*Adeyoyin* (2005) cites *Bayode* who defines ICT as “the acquisition, processing, storage, and dissemination of information by means of computers and other telecommunication equipment.”

The Wikipedia free internet encyclopedia defines “information technology (IT) or information and communication(s) technology (ICT)” as the” technology required for information processing. In particular the use of electronic computers and computer software to convert, store, protect, process, transmit, and retrieve information”.

In keeping with their complex nature and multiple applications, information and communication technologies (ICTs) may be viewed in different ways of The World Bank defines ICTs as “the set activities which facilitate by electronic means the processing, transmission and display of information and to communicate, through computers and computer networks” (ESCAP, 2001). “ICTs are a complex and varied set of goods, applications and services used for producing, distribution, processing, transforming information- (including) telecoms, TV and radio broadcasting, hardware and software, computer services and electronic media” (Marcelle, 2000). ICTs represent a cluster of associated technologies defined by their functional usage in information access and communication, of which one embodiment is the internet, Hargittai (1999) defines the Internet technically and functionally as follows: “the sociological it is also important to consider it as a network of people using computers that make vast amounts of information available. Given the two [basic] services of the system-communication and information retrieval-the multitude of services allowed… is unprecedented”. ICTs, represented by the internet, deliver “at once a worldwide broadcasting capability, a mechanism for information dissemination, a medium for interaction between individuals and a marketplace for goods and services” (Kiiski and Pohjola, 2001).

“ICT is an umbrella term that includes any communication device or application, encompassing; radio, television, cellular phones, computer and network hardware and software, satellite system and so on, as well as the various services and application and applications associated with them, such as video conferencing and distance learning”.

From these definitions, some of the applications of ICT have become clear such as video conferencing and distance learning, both of which can be facilitated by the academic library. Other applications of the ICT specific to libraries could include; access to online resources on the internet such as e-journals, e-books and e-magazines, e-publishing; using CD-ROM for literature searches, access to local or network data bases on LAN (Local Area Network) or WAN (Wide Area Network), the opportunities for the application of the ICT in library and information centre especially in a developing nations.

**COMPONENT OF ICTS**

ICT is a broad term that covers wide range of technologies. It is the convergence of computers, communication and microelectronic-based techniques. The technologies and devices like Radio, Telephone, Telegraph, Fax, TV, Telephone, Mobile phone, Internet, WWW, Email, LAN, ISDN, Videoconference and Satellite communication Techniques are major part of the ICT. With the help of LAN, Library and Information Centre users community easily shares the information. Telephone and another device play important role in library services like SDI, Inter library loan, reference services, and online information retrieval. ISDN has increased the capacity for data transmission which facilitated introduction of new services such as e-mail, fax etc. Cheaper data storage media has increased the storage capacity of libraries (Antherjanam and Sheeja 2008).

Fig 1.1 Component of ICTs

**NEED FOR ICTs IN LIBRARIES**

The application of ICT in libraries and information centers are very importance, committed to proving better library services to the users. Kanakachary (2002) stated the necessities of ICT in libraries, some of these are:

1. There are many advantages like speed, accuracy, and reliability in the process of information.

2. In the future there is also a danger of no availability of hard copies of documents, particularly the secondary sources that are available only on CD-ROM. Knowing this, continuing education about ICT for librarians is essential.

3. Due to the escalation in prices of periodicals and books, no library can afford to acquire all the publications, requiring active resource sharing through networking. To participate in the network, computerization of libraries is a prerequisite.

4. Many international databases like DIALOG, MEDLARS, INIS, AGRIS, etc. are delivering the information electronically. Unless the libraries are automated, there is no possibility for accessing the information from these global level databases.

5. The literature in almost all the fields is increasing tremendously and in a multi-dimensional way. Because of this growth, manual bibliography control is not feasible and ICT is needed.

6. The information seeking behavior of the users is also changing according to their varied needs. To meet these changing needs, storage capacities of information and retrieval techniques should be improved.

7. The quality, user friendliness, effectiveness, reliability and regularity of library services can be improved through ICT.

8. To be able to utilize the growing world of electronic information, application of ICT is a must.

9. With the help of ICT it is possible to gain local, national, regional and international reputation.

10. To be able to provide round the clock access and service to users.

**ADVANTAGES OF ICT**

ICT helps in growth and development of libraries in different directions. Veena Saraf in her paper mentioned some of the advantages of ICT given by Cochrane (Saraf, 1998).

a. Allows easy integration of various library activities.

b. Facilitates cooperation and the formation of library networks.

c. Helps to avoid duplication of efforts within a library and between libraries in a network.

d. Eliminates some uninteresting and repetitive work of libraries, i.e. a database created with bibliographical information can be updated easily and unnecessary information can be deleted with much less labour than in manual operation.

e. Helps to increase the range of services offered.

f. Provides marketing opportunity to its services.

g. Ultimately may save/generate money.

h. Increases efficiency.

Further, use of ICT in libraries enhances users’ satisfaction. It provides numerous benefits and advantages to library users. Veena Saraf also mentioned some of the other advantages given by Hendersson: (Saraf, 1998).

**APPLICATION OF INTERNET AS AN ICT TOOL FOR LIBRARIES**

The global network of networks called “Internet” is an information superhighway that allows information to flow to unimaginable distances at an incredible speed. Internet has made all the information resources available through connectivity tools. These connectivity tools described in brief are as follows:

1. **Electronic Mail (E-mail)**

E-mail, meant for exchange of electronic information, is the most popular features of the Net. It is cost effective and fastest mode of communication wherein one can correspond electronically with anyone anywhere in the world. Message can be sent or received in the form of texts graphics, images, photos and sounds. There are various possible usages of e-mail like communication, exchange of documents, entertainment, email discussion forum, collaboration and many more.

2. **File Transfer Protocol (FTP)**

It allows users to access and retrieve files at remote sites. This is both a program and a method used to transfer files between computers on the internet. FTP sites may contain any type of files (binary or text). The files may contain books, articles, software, games, images, sounds, multimedia, course work, databases or any other thing.

3. **Listservs/Mailing Lists**

As well as sending e-mails to individuals it is possible to send them to groups using mailing lists, which are also called discussion lists. There are thousands of mail lists available on the internet, and each is devoted to a particular topic and aimed at a specific audience. Mail lists can be used in a variety of ways. In general they provide a forum for requests for factual information; requests for advice and opinions or experiences; information about new websites, products and publications; information about job vacancies, etc. a mail server may be hosted by a public library to send up-to-date information to the user via e-mail regarding new arrivals, news release and so on.

4. **Telnet (Remote login)**

Telnet is a program that allows one to log into computers on the internet. Once you are connect to another system, the same keyboard will be become the keyboard of the remote computer and you can use their resources or download the information available on the other side. To utilize this services, a telnet client is to log on to host computer on the internet then provide the services of a terminal. It used online databases, library catalogues, chat services etc.

5. **Newsgroups or Usenet**

Newsgroups or Usenet are similar to discussion lists in that they provide an opportunity to share with like-minded people, and libraries should introduce them to users.

It is a global electronic bulletin board, in which millions of people exchange public information on every conceivable topic. It is also called “Net news”. It consists of thousands of news groups covering vast range of topics. The newsreader software allows you to post an article to any group for others to read.

6. **Wide Area Information System (WAIS)**

Wide Area Information Servers or WAIS is a client-serve text searching system that uses the ANSI Standard Z39.50 information retrieval service definition and Protocol Specifications for Library Applications” (Z39.50:1988) to search index databases on remote computers. It was developed in the late 1980s as a project of Thinking Machines, Apple Computer, Dow Jones, and KPMG Peat Marwick. WAIS allows the users to search text, sound, or images from a single interface located anywhere on the network.

6. **World Wide Web (WWW)**

The WWW is the most powerful navigation tool on the internet. It is based on a concept and technique called ‘hypertext’. The Web is a client or server system used to access all kinds of information to anyone on the net provides access to information in the form of text, graphics, pictures and even sound.

WWW is an important tool for libraries, as it provides an extremely powerful method of organizing and providing access to information. It present a wide variety of information resources to library users and all internet users in efficiently and effectively.

7. **Internet Relay Chat (IRC)**

IRC is a service where user can talk on different channels by typing to people around the world. It is a public talk facility which can be used by anyone on the internet at any time. Within IRC, there are many conversations on a particular topic or idea going on at any time. To use a client program connects to an IRC server, then enter IRC commands. Using IRC commands anyone can join a group of people and whenever wants move from one group to another (Rathinasabapathi, 2000; Kan, 2003; Panwar & Murthy, 2004).

**APPLICATION OF ICT IN LIBRARIES**

Information and Communications Technology (ICT) have transformed Library and Information Services Worldwide. The Internet has provided worldwide access to information. Technological innovation has dramatically increased the rate of conversion of knowledge, information and data into electronic format. Development in the software arena has generated powerful knowledge management software which has transformed the way knowledge is organized, stored, accessed and retrieved (Tam & Robertson, 2002).

1. **Collection Development**

Information and communication technology has had a fundamental impact on library collection development policies. Collection development can be defined as the selection and acquisition of library materials based on current and potential user needs. It is concerned with managing the utilization, storage and accessibility of a collection.

Collection of reading material plays a vital role for the user or any library, large numbers of documents are accessible on net; few of them are available fee and rest against payment. Libraries can access on-line the electronic journals via internet. A number of electronic books, including encyclopedias are available on the Net. Acquisition of documents in e-form is becoming the order of the day as now-a-days there is a remarkable shift from the concept of ownership to accessibility. Collections of material through internet save the space of the library. Postage stamp, binding, transportation cost are not required. Multiple, copies of documents are not required, as any number of users can access them anytime from anywhere in the world.

One of the benefits of ICT is enhanced access to library services and resources. The academic library can expose its users to a much larger collection than it can house physically because users can access information remotely. With online access it is possible to accurately measure utilization of e-resources and that is invaluable to search e-resources and access speed is greatly enhanced. Other advantages are that users can simultaneously access the same resource, and there are no incidences of lost copies or mutilated issues (Moahi, 2002).

2. **Acquisition**

With the advent or internet, the job of acquisition librarian has become much faster and easier and has substantially reduced the paper work. The library is integrating electronic and internet based information sources in its collection. The library has been information sources in its collection. The library has been keeping non-book materials like floppy disks, CD-ROMs and multimedia reference books in the collection. With the help of web, acquisition work has become very much simplified. Order placing, duplication checking, price checking etc. are done very effective using ICT techniques. Online bookshops and publisher’s websites save the time of the librarians. For the procurement of journals, order is placed in the prescribe format to the publishers through internet. Invoices can be downloaded from the websites that makes service faster and avoids postal delay. Through e-mail correspondence with book sellers and publishers become very easy and speedy, e-mail also helps in sending the reminders to the users and booksellers etc. foreign publications can be acquired in a few days whereas earlier they used to take several months to reach the libraries. IT also helps in the process of the serial control in the university library. It helps in preparing union list of serials and helps in circulating via-email to the branch libraries.

3. **Technical Processing**

Reading material can be classified and catalogued with the help of on-line classification schemes and Online Public Access Catalogues (OPACs) there are many classification systems available on the internet. E.g. BUBL-user DDC, Cyber Dewey, Engineering Electronics Library Classification, Internet public Library and Gateways users Classification System etc. Internet sources like LC and OCLC or the publishers’ catalogues are available on the Internet. Other cataloguing systems are interact, CORC and MARC adds 856 fields etc. Standardization and uniformity in classifying and cataloguing of the documents can be achieved as these are in conformity with international standards such as MARC format.

4. **Circulation**

With the computerization of libraries, the world wide OPACs can be accessed online to see the collection of their libraries. The users can see the particular book by subject/author title. Documents can be reserved are requested online using internet facility. All the work of circulation can be done through computer except the delivery of the document physically.

5. **Resource Sharing**

Resource sharing has become an important facility where internet is being used heavily due to high cost of documents. Under this programme all networked libraries make their resources available on the Net to be used by other libraries, union cataloguing can be accessed, added and downloaded. Access to databases over networks e.g. Ohionet, WLN, OCLC and full text journals, ILL became very economical.

6. **Consortia Collaboration**

Library consortia are a means to achieve more users for a lesser price and are finally beginning to become established in India. For the library it is more-for-less bargain strategy. Another initially libraries got involved in consortia in order to reduce costs particularly with regard to the acquisition of e-resources (Hirshon, 1999). Consortia development is thus an attempt to maximize limited resources through co-operation and resource sharing. In the consortia scenario the emphasis is on access to information rather than ownership (Darch, Rapp & Underwood, 1999). Consortia collaboration provides more power when it comes to negotiating contracts. It also provides a platform for libraries to co-operate in terms of services (Hooper, 2001).

Nowadays libraries also turn to consortia to provide advice and guidance in complex decision-making. The input of consortia is also valuable in terms of evaluating e-resources in terms of quality, different options e.g. whether to subscribe to journals or pay article-by-article (Hirshon, 1999).

7. **User Education**

User education is required for all library and information services and facilities, and far retrieving information precisely, exhaustively and expeditiously. In user education, instruction has been given to readers to help them make best use of a library. All the guides like know, your library policies, library rules, instruction can be put on the web, particularly using internet solutions.

i. **Changes in Education Environment**

ICT have changed every fiber of society including education. Lifelong learning has become essential. A very competitive working environment has influenced this. Even educational methodologies have changed. Greater interaction between learner, educator, and materials is becoming the norm, learners have greater choices in terms of curricula. The 24 hours networked classroom became reality leading to the birth of the virtual library. Network technologies and ne educational methodologies have empowered learners, given them a greater measure of control and participation in the learning process and enabled network interaction with both fellow students and lecturers (Tam & Robertson, 2002).

ii. **Distance Education**

In distance education, ICT can be used in preparing and presenting lectures. A distance education provides can create and use a portal to provide technical and methodological help for academic staff for developing ICT based courses and provide video conferencing facility for distance learners. New technologies driven by ICT innovation have enhanced the virtual delivery of academic programs and stimulated unparelled growth of distance education at institutions of higher learning (Moyo & Cahoy, 2003). The phenomenal growth in the availability of online academic programs and a tremendous increase in remote users (Moyo, 2002). In order to support these programs academic librarians have developed excellent portfolios and programs for remote students.

8. **Electronic Resources**

ICT has fundamentally changed academic library collections. Forever gone is the era when an academic library’s physical collection determination its stature. In the modern networked technological era the emphasis has shifted form ownership of physical resources to access to electronic resources that are globally accessible. There are huge amounts of unedited information on the internet. There are countless web sites and no single listing of them all. There is also the phenomenon of web sites disappearing overnight that create problems in terms of access. There are huge amounts of unedited information on the internet. There are countless web sites and no single listing of them all. There is also the phenomenon of web sites disappearing overnight that create problems in terms of access (Singh, 2004).

These days a single search can yield hundreds of thousands of items. The unfiltered nature of web resources has made evaluation of these resources essential. One often finds that unlike in traditional printed media, e-resources found on the web pages because of its non-linear textual nature has added new effects to the search process such as sound, videos and access to thousands of items by clicking a mouse. These new element imply that new sets of skills are required on the part of the researcher (Stapleton, 2003).

i. **E-Books**

E-books have numerous advantages. There are no printing, storage, warehousing and shipping costs. Consequently e-books can be published at costs much lower than conventional books. Additional advantages are online availability, keyboard-searing capability, cross-referencing, be stored, and searched in CD-ROM, (iv) user friendly, (v) permanent storage, (vi) durability, (vii) low cost and so on.

CD-ROM services should be introduced in libraries of all types. It opens the door to search a huge volume of information rapidly, most of the reputed organization in the world are producing CD-ROM databases, encyclopedias, and books for the sake of the users. So, it is an important service that can meet the users’ needs to a large extent.

9. **Information Services**

Internet is playing a very significant role in providing personalized services such as Current Awareness Service (CAS) and Selective Dissemination of Information (SDI) at a minimal cost and time. Internet is very useful in reference service because it links the useful sites, directing the right sources, answering short range and long range questions. Important references sources like encyclopedias, dictionaries, directories, bibliographies, abstracts, indexes, current contents etc. are readily available on the internet.

10. **Current Awareness Service (CAS)**

In the age of ICT most of the services in developed countries have become automated including CAS. Electronic methods make CAS easier to access and to offer to users. However, many of them are still very expensive and therefore out of reach for some libraries. The internet, on the other hand, has not only reinforced the need to have access to information and to keep track of new developments, but has also introduced a number of interesting, affordable, easily accessible and user friendly CAS of keep track of developments, (Fourte, 2001) Some newer methods of CAS are :

1. Book alerting services
2. news alerts
3. notification systems
4. (iv) push services etc.

examples of these services include the mining company (<http://www.minigco.com>), Directory of scholarly and professional e-conferences (<http://www.n2h2.com/KOVACS.html>) and the International Federation of Library Associations and Institution’s Internet mailing Lists Guides and Resource (<http://www.ifla.org/ifla/l/training/listserv/lists.html>)

11. **Selective Dissemination of Information (SDI)**

In the age of IT SDI services involve the automatic notification of users when new records are added to the database. The records are matched against a search strategy reflecting the user’s profile. In the case of SDI services, the search strategy is often referred to as the search profile (Fourie, 2001). These services are predominantly used in special libraries, but public libraries can also offer these services to its community scholars.

12. **Virtual Reference Service**

Virtual reference services does not mean 24 hours a day, 7 days a week (24/7 service) availability by default. Rather it mean real time, synchronous service for users, available remotely and/or within the library. The Library sets the hours and service levels it is willing and able to support. What hours to offer the service may be based on staff availability, peak traffic times on the library website, or the time questions are posed via email (Ronan, 2001). Once the library begins investigating and offering digital reference services (either real time or email), the door opens for collaborative 24/7 access. Examples of collaborative services include the joint OCLC/Library of Congress Collaborative Digital Reference Service (CDRS) and Alliance Library System ‘Ready for Reference System’. Advantages of virtual or digital reference service include the opportunities for the librarian to know what page a user is looking at, by viewing the browser remotely using the software to send a specific webpage to the browser. Many program allow one to walk through a process or search with the user via co-browsing or escorting, most of the available packages provide the ability to email the chat transcript and URL

ICT is a general terms that stresses the role of unified communications and the integration of telecommunication (Telephone lines and wireless signals) computers middleware (computer software that connects two separate applications) as well as necessary software, storage and audio-visual system, which enable users to create, access, store, transmit and manipulate information.

However, ICT, consist of IT as well as telecommunication, broadcast media, all types of audio and video processing, transmission and network based control and monitoring functions.

* IT e.g. Banking, Business, Science and Technology not just Librarianship and Information science only.
* Computer
* Telecommunication ICT
* Communication technology
* Communication system IT
* Communication software

Acquisition

* Processing
* Storage
* Dissemination

ICT is a broad terms that covers wide range of technologies. It is the convergence (merge) of computer, compilation and microelectronic based techniques. The technologies and devices like, radio, telegraphs, fax, Tv telephone, internet, www, email, LAN ISDN video conference and satellite communication techniques one major part of the ICTs.

With the help of LAN library and information centre user community easily shares the information, telephone and other devices play important role in library services like; SDI, ILL, references services, and online information retrieval.

**ISDN:** Integrated Service Digital Network: It is a telecommunications networks that is capable of handling digital traffics, either voice or data.

Integrated library system: It is an automated package of library services that contains several functions such as acquisition, processing (cataloguing and classification), circulation, storage etc.

**ISDN** has increased the capacity for data transmission e.g. email, fax, phones etc.

**Information Technology:** IT refers to acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical

Information by means of computer and telecommunications.

**Computer**: Refers to a machine which can accept data in a certain form and process them to give results or to control a process. It can input and store data, operate a program and output results to the user.

**Telecommunication**: Refers generally to any form of signals transmission and reception of data in the form of electromagnetic signal, using broadcast radio or transmission lines.

**Communication**: is a process of transferring information from a source via a transmission medium to one or more receiver.

**Communication Technology:** Are devices, method and network that transmit information is digital form.

**Communication software:** Are software that makes it possible to send and receive data over telephone lines using madness.

**Communication Network:** Refers to “physically dispersed computers connected by telecommunications channels”. Sometimes called a telecommunication network.

**Acquisition:** Is a process of obtaining books and other materials for a library or information centre. By purchase, exchange, gift, donation, legal deposit, bequest, inter-library loan etc

**Technical (processing)** these are procedures relating to obtaining, organizing and processing library materials to make it ready for use through cataloguing and classification.

**Storage**: Place in a computer where data are stored for future use. Or media used in storage of data e.g. Floppy disk, CD, CDROM, flash devices external storage devices, cloud etc.

**Dissemination:** Distribution or sending information to a user population i.e. vocal, pictorial, textual and numerical information via computer and telecommunication media.

**Telecommunication:** Is the suite of technologies, devices, equipment, facilities, network, and application that support communication at a distance. It allow processing storage and communication.

**Databases:** Is a collection of information organized in such a way that a computer program can quickly select desire pieces of data. It is an electronic filling system. Traditional databases are organized by field, records and files.

**Field:** Is a single piece of information.

**Records**: is a complete set of field.

**Files:** Is a collection of records, organized and structured collections of information so as to facilitate access.

Therefore, internet contains numerous hypertext databases, where many object whether text, pictures, film can be linked to any other object.

**Data:** Are values, numbers, characters or symbols that have been arranged to represent information which can be input, processed or stored by a computer.

**Library Network:** Refers to cooperative arrangement between several librarians and for resource sharing of ideas, interlibrary lending or an electronic communication within or between libraries.

**Component of ICTs**

* WWW
* LAN
* FAX
* Mobile
* Tv
* Telephone
* Radio

**APPLICATION OF INTERNET AS AN ICT TOOL FOR LIBRARIES**

**Internet:** Is the global network of network which is an information super highway that allows information to flow to imaginable distances at an incredible speed.

Internet has made all the information resources available through connecting tools e.g.

**E-mail:** File transfer protocol \*list service/madding list \* Telnet (remote login) \* Newsgroup or usenet \* Wide area information system \* www \* Internet relay chat.

**IMPORTANCE OF ICT**

* Speed (information retrieval)
* No physical boundary
* Round the clock availability
* Multiple access
* Space
* Easily accessible
* Added value

**Digitization:** Is the process of converting information from the print format into electronic format. The library resources that are usually digitalize includes. These, dissertation, projects rare books and remote access to these resources are made accessible by computer network.