
Module for Bachelor of Education Programme (Primary and JHS)

EBS118SW: INFORMATION LITERACY SKILLS

PAULINA KWAFOA



REPUBLIC OF GHANA



INSTITUTE OF EDUCATION, UC

**IoE/MoF/TUC/GHANA CARES TRAINING AND RETRAINING
PROGRAMME FOR PRIVATE SCHOOL TEACHERS**



Ministry of Finance



Trade Union Congress



University of Cape Coast

DECEMBER, 2022

TABLE OF CONTENT

CONTENT	PAGE
UNIT 1: LIBRARIES AND SOURCES OF INFORMATION	1
Session 1: Introduction to Information Literacy Skills	1
Session 2: Categories of Libraries	6
UNIT 2: TYPES OF LIBRARIES	11
UNIT 3: LIBRARY RESOURCES	18
UNIT 4: ORGANISATION OF KNOWLEDGE	28
Session 1 – Information and Knowledge	28
Session 2 - Tools for organizing information in libraries	30
UNIT 5: THE INTERNET AND DIGITAL INFORMATION	36
Session 1: Introduction to Internet and Computer networks	36
Session 2: Effective search strategies	44
UNIT 6: ETHICAL AND LEGAL ISSUES IN USING INFORMATION	52
Session 1: Introduction to the Copyright Law	52
Session 2: Plagiarism	54
Session 3: Citation/Referencing	56

UNIT 1: LIBRARIES AND SOURCES OF INFORMATION

This unit introduces the reader to the concept of information literacy and its relevance to teaching and learning. The unit also highlights the various literacies which constitute Information Literacy and its application to personal, professional, and academic life. Finally, the unit introduces the reader to the categories of libraries and highlights the advantages and disadvantages of establishing these libraries.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Explain the meaning of Information Literacy.
- Enumerate, with examples, the various literacies which constitute Information Literacy.
- Identify the characteristics of an information-literate person
- Explain, with real-life examples, the importance of information literacy
- Demonstrate the advantages and disadvantages of Traditional, Digital, and Hybrid Libraries

SESSION 1: INTRODUCTION TO INFORMATION LITERACY SKILLS

This session focuses on the relevance of the concept of information literacy to the personal, academic, and professional development of the teacher. The session also looks at the standards of information literacy. Finally, the reader is introduced to the criteria for evaluating the quality and credibility of sources.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Explain the meaning of Information Literacy Skill
- Outline the various kinds of literacies that make up information literacy
- Discuss the significance of information literacy in real-life situations

Meaning of Information Literacy

The Association of College and Research Libraries (ACRL) describes information literacy as a set of abilities that enables an individual to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” The relevance of information literacy as an educational concept has become even more necessary due to rapid technological change and proliferating information resources. The uncertain quality and expanding quantity of information require individuals with the ability to identify credible information and the knowledge of how to use information effectively.

In a nutshell, you can think of information literacy as the ability to identify, find, evaluate and use information in an ethical and legal manner.

Standards of Information Literacy

A “standard” is the benchmark, ideal, or set of criteria against which we can make some meaningful judgment (Vocabulary.com, 2022). In this vein, the standard of information literacy is the benchmark by which we can measure an individual to determine whether he/she is information literate or not. The Association of College and Research Libraries (ACRL) has developed five (5) standards for information literacy. Although each of these standards is individually important, understanding how they fit together is essential to becoming an information-literate person.

Standard 1: To know

The information-literate person must have the ability to determine the nature and extent of information needed. He/she must be able to recognize the need for information and determines the kind, format, purpose, and quantity of the information needed.

Standard 2: To access

The information-literate person must have the ability to access needed information effectively and efficiently. He/she must have the ability to determine where and how the needed information can be obtained. That is, he/she must have the skill to determine if the information being sought can be obtained electronically through the internet or in print, which online search tools (search engine, metasearch engine, database, etc.) or information centre (libraries, archives, museums) can provide the needed information.

Standard 3: To evaluate

The fact that you have found information that matches or satisfies your information needs does not mean that information is wholesome for consumption. The information must be evaluated in order to determine whether it is wholesome for consumption. The information-literate person must have the ability to evaluate information and its sources critically and incorporates selected information into his or her knowledge base and value system. In evaluating information, the information-literate person thinks critically about the reliability, validity, accuracy, authority, timeliness, point of view, or bias of the obtained information.

Standard 4: To use

The overall goal of obtaining information is to use it. The information-literate person, individually or as a member of a group must have the ability to use the obtained information effectively to accomplish a specific task or purpose. He/she must have the ability to identify the best ways of presenting the obtained information taking into his/her intended audience.

Standard 5: Ethical/Legal

It is important that you understand that the information you obtain either in print or electronically is the intellectual creation of others. This means that the information so acquired must be used in a responsible, culturally sensitive, and ethical manner (Entsua-Mensah, 2021). The information-literate person must have an understanding of the many economic, legal, and social issues such as censorship,

plagiarism, copyright, etc. surrounding the use of information and be able to access and use information ethically and legally.

Significance of Information Literacy

Information literacy skills are vital to success in your personal, professional, and academic life. In fact, the application of information literacy skills extends beyond the academic realm and reaches right into our homes and workplace. Every day we encounter an increasingly large and diverse sea of information through the Web, mass media, and published works. These pieces of information come in many different formats and from an endless number of sources. However, just because so much information is so easily and quickly available does not mean that all of it is worthwhile or even true. Information literacy equips us with the skills to be able to identify factual information from outdated, misleading, or false information.

In school, information literacy equips you with the skills needed to perform effective literature searches, and evaluate sources critically and therefore, equipping students with the skills needed for them to perform well in their research papers, projects, and presentations. At work, you will likely encounter situations that would require you to seek for new information to make some logical decisions. In today's, information economy, employers are increasingly seeking out people who understand and can adapt to the characteristics of the Information Age. Therefore, an information-literate person who has "learned how to learn," becomes a much more attractive job candidate. This is because, with their strong analytical, critical thinking, and problem-solving skills, the information-literate person is expected to be able to adapt to work situations and thereby become a valuable employee. Other characteristics of an information-literate individual include the spirit of inquiry and perseverance which can be a vital skill set needed to get the job done.

In the home, we are constantly faced with deciding consumer issues and forming opinions on social and political topics. Information literacy, therefore, equips us with the skills needed for effective political participation, decision-making, and the creation of an enlightened citizenry. In a nutshell, information literacy impacts our lives in many ways inasmuch as we require information to make personal, academic, and professional decisions.

Evaluating Information Sources

In our daily lives, we seek information from various sources such as books, newspaper and magazine articles, specialized databases, and websites. It's crucial to evaluate each source to determine the quality of the information so acquired. Various criteria have been developed to determine the quality of an information source. Common among these are the RADAR (Rational, Authority, Date, Accuracy, Relevance) and CRAAP (Currency, Relevance, Authority, Accuracy, Purpose) tests. Burkhardt and MacDonald (2010) taking inspiration from the RADAR and CRAAP test provides more comprehensive evaluation criteria which include: purpose and intended audience, authority and credibility, accuracy and reliability, currency and timeliness, and objectivity or bias. Each of these criteria is explained in more detail below.

Purpose and intended audience

- What is the purpose of the source? For example:
 - To provide information (e.g., newspaper articles)
 - To persuade or advocate (e.g., editorials or opinion pieces)
 - To entertain (e.g., a viral video)
 - To sell a product or service (e.g., advertising or marketing materials on a company website)
- Who is the intended audience? For example:
 - Scholars and academic researchers with specialized knowledge
 - The general public (without specialized knowledge)
 - Students in high school, college or university (e.g., textbooks for students learning a new subject).

Authority and credibility

- Who is the author?
 - Is it a person?
 - Is it an organization such as a government agency, non-profit organization, or corporation?
- What are the qualifications of the author?
 - What is the author's occupation, experience, or educational background?
 - Does the author have any subject matter expertise?
 - Is the author affiliated with an organization such as a university, government agency, non-profit organization, or corporation?
- Who is the publisher?
 - For books, is it a university press or a commercial publisher? These types of publishers use editors in order to ensure a quality publication.
 - For journals or magazines, can you tell if it is popular or scholarly in nature?
 - For websites, is it an organizational website, or a personal blog?

Accuracy and reliability

- Is the information well-researched?
 - Are there references (e.g., citations, footnotes, or a bibliography) to sources that will provide evidence for the claims made?
 - If the source includes facts or statistical data, can this information be verified in another source?

- If the data was gathered using original research (such as polling or surveys), what was the method of data collection? Has the author disclosed the validity or reliability of the data?

Currency and timeliness

- When was the information published?
 - For books and articles - you should be able to easily verify the publication date.
 - For websites, try to determine the date the web page was created or updated
- Is current information required? If not, then accurate, yet historical, information may still be acceptable.

Objectivity or bias

- Does the source contain opinions or facts?
- Is the information presented in the source objective (unbiased) or subjective (biased)?
- Does the information promote a political, religious, or social agenda?
- Is advertising content (usually found in business magazines or newspapers) clearly labelled?

(Adapted from Burkhardt & MacDonald, 2010)

Key ideas

- Information Literacy is the recognition of the need for information and the ability to locate, evaluate, and use the information acquired in an ethical and legal manner.
- In determining whether an individual is information literate, The Association of College and Research Libraries has developed a standard for information literacy. The standard includes the ability to; know, access, evaluate, use, and knowledge of ethical/legal issues surrounding the use of information.
- The application of Information Literacy can be found in our personal, academic, and professional lives.
- The Information is sought from various (i.e books, newspaper and magazine articles, specialized databases, and websites). It's crucial to evaluate each source to determine the quality of the information so acquired.
- The criteria for evaluating information include purpose and intended audience, authority and credibility, accuracy and reliability, currency and timeliness, and objectivity or bias.

Reflection

- What are some of the sources from which I acquire information (i.e., books, newspaper and magazine articles, specialized databases, and websites)? How do I evaluate the quality of the information acquired from these sources?
- How has my participation in this session prepared me to be a better classroom practitioner? Which specific examples can I draw from the course to support my position?

Discussion

- How has this session equipped you to prepare adequately for your classroom lessons?

SESSION 2: CATEGORIES OF LIBRARIES

In this session, we will focus on the categories of libraries based on the nature of their collections and operational activities. Specifically, we will consider three categories of libraries (i.e., Traditional, Digital, and Hybrid Libraries). Furthermore, we will study the advantages and disadvantages of the various categories of libraries and their relevance to effective teaching and learning.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Define what a library is.
- Identify the various categories of libraries
- Distinguish between the various categories of libraries
- Identify the advantages and disadvantages of the various categories of libraries

Definition of a Library

Libraries began with efforts to record, store, preserve and organize human records. Alemna (2000, p.9) defined a library as a “collection of records of human culture in diverse formats and languages, preserved, organized and interpreted to meet broad and varying needs of individuals for information, knowledge, recreation and aesthetic enjoyment”. In a nutshell, a library is basically a room or series of rooms containing a collection of materials (books, novels, periodicals, or media) that are accessible for use and not just for display purposes.

From the era of the papyrus to clay tablets libraries have always performed the function of acquiring materials, processing them, and making them accessible to patrons. These activities are usually carried out sequentially in various departments within the library.

- **Acquisitions-** This activity is carried out by the acquisitions department of the library. This involves the selection and obtaining of library resources (Petersen, 2022). This is usually the

responsibility of the acquisitions librarian who evaluates the needs of patrons and acquires the needed resources within budgetary limits. Library materials may be acquired through direct purchases, donations, exchanges, and legal deposits.

- **Processing** – Processing of library materials basically refers to procedures that newly acquired library materials are taken through to ensure that they are ready to be displayed for circulation and use. These activities can be classified into two main groups, namely; physical and technical processing activities. Physical processing activities mainly include inspection, reinforcing paper books, stamping, lettering, and preparation of call number tags. Technical processing activities on the other hand include the classification and cataloguing of library materials in accordance with a carefully chosen classification scheme or standard.
- **Display** – this activity basically involves making available the processed materials for circulation and use. This is usually done by placing the materials on shelves located at designated areas in the library either for borrowing or reference by users.

Categories of Libraries

Libraries can be categorized based on the nature, format, or media of the materials in their collection and the processes used in organizing these materials. As you may be aware library materials can be in print and non-print or electronic format. Accordingly, we can classify libraries such as physical/traditional libraries (print materials), electronic/digital libraries (non-print materials), and hybrid libraries (both print and non-print).

Traditional Library

The traditional library commonly referred to as the physical library is a library whose collections (i.e. books, periodicals, newspapers, and other publications) are only in print format. The activities involved in the acquisition, processing and display of the library's collections are done manually. Traditional libraries can exist in varying sizes from single-room size libraries to multiple storey size libraries. These are usually located in small communities such as villages, towns, and small cities.

Advantages of Traditional Libraries

The following are some of the advantages:

- Free and universal access to the collection
- Can be used without electricity
- Documents can easily be photocopied
- No computer expertise is required on the part of the library staff and users.

Disadvantages of Traditional Libraries

The following are some of the disadvantages:

- Limited access to materials

- Centralized management of the resources
- Users are limited by physical location;
- Only one user can use a printed resource at one time
- Content of materials are not directly linked with each other;
- Slow update of collection.

Electronic Library

The electronic library, popularly referred to as a digital library or virtual library, is a library whose collection is in non-print format. Its collection includes text, visual material, audio material, video material, stored as electronic media formats and are either “digitally born” or “digitized”. Digitally-born materials are the library materials that were created originally in digital form while digitized materials refers to those items that were originally created in print format and have been converted from print into non-print format with the aid of technology. That is to say that digitized materials are the electronic versions of physical materials. Activities and services rendered in this library are done electronically. This library is accessed through a network of computers or the internet.

Advantages

The following are some of the advantages:

- They allow users to directly access and use the documents information they have found;
- Access to information is quicker because of the use of computers and a network of computers.
- The use of a computer network allows users to have access to a wide variety of content.
- Information is easily updated.
- A single content can be made accessible to multiple users at the same time.
- Unlimited access to multiple resources
- Searching for information in digital libraries are simple as compared to traditional libraries. This is because in traditional libraries users must devote both time and effort to finding the right book. Also, locating pertinent information in print material takes time. However, these are simplified in digital libraries as these activities typically involve the clicking of a button.
- Information can be accessed anywhere internet is available and at any time (there are no closing hours) since one does not need to be physically present in the holding library.
- A digital library can provide access to content in different and more appealing forms including animation, graphical, audio, and video formats;
- Information is more easily shared with other digital libraries. There is therefore enhanced access to users.

Disadvantages

The following are some of the disadvantages:

- Initial setting up cost is high as compared with traditional libraries

- With the much larger volume of digital information, finding the right material for a specific task becomes increasingly difficult.
- Requires persons with some level of IT competencies to be able adequately used the library and its resources. Therefore, can only be used by persons who are computer literate.
- It cannot be used when there is no electricity and inadequate bandwidth;
- Highly skilled professionals are required to organize, maintain the collection as well help patrons in accessing information.

Hybrid Library

These days, most libraries have collections in both print and non-print formats. These are termed as hybrid libraries since they hold in their collections print, digitized and born-digital resources. It also means that some of its operations or services (such as acquisitions, cataloguing and circulation) are performed with the aid of computer technology. This implies that the users of a hybrid library have access to physical collections as well as digital collections.

Advantage of Hybrid Libraries

The main advantage of this form of library is that information can be accessed in both print and non-print formats. It harnesses the advantages of both the traditional and digital libraries.

Disadvantage of Hybrid Libraries

It is expensive to establish.

Key ideas

- A library is basically a room or series of rooms containing a collection of materials (books, novels, periodicals, or media) in diverse formats and languages, preserved, organized and interpreted to meet broad and varying needs of individuals for information, knowledge, recreation, and aesthetic enjoyment.
- The materials or collections of libraries are meant for use and not just for display purposes.
- Libraries acquire, process, and display library materials in such a way as to facilitate easy retrieval.
- Libraries can be categorized based on the nature of their collections (i.e traditional, digital and hybrid).

Reflection

- Libraries collect informational resources and organize them to meet the varying needs of individuals for information, knowledge, recreation, and aesthetic enjoyment. What are the reason(s) why you would access the resources of a library?
- How has my participation in this session prepared me to better understand the activities of libraries? Which specific examples can I draw from the course to support my position?

Discussion

- How has this session equipped you to prepare adequately for your classroom lessons?

UNIT 2: TYPES OF LIBRARIES

In unit 1 we have seen that libraries can be categorized based on the nature of their collection. The current unit highlights the five types of libraries (i.e. school, academic, special, public, and national libraries) based on their intended users or patrons. The unit also looks at the purpose of establishing these libraries, their functions, collections, and services rendered to clients or patrons.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- discuss the core functions of the five (5) types of libraries
- enumerate and explain the various services offered by the types of services

Types of libraries

Libraries are set up to meet the information needs of a specific group of people. Although individuals can set up their own collections to meet personal information needs. This unit looks at libraries set up by institutions and governments. Libraries set up by institutions and government can be grouped into five main types, namely; school library, academic library, special library, public library and national library. It must however be noted any of these libraries can broadly be classified as being physical/traditional, electronic/digital or hybrid based on how nature of its collections and how its executes its functions and services. In the preceding paragraphs we will discussed the types of libraries with key emphasises on the purpose/functions for establishing these libraries, their intended users/clients/patrons, services and collections.

School library

This is library set up in a pre-tertiary institution (i.e KG, primary, Junior High and Senior High Schools). The purpose of the school library is to attain the objectives of the educational programme. It concerns with the development of effective methods of thinking, inculcation of the habit of reading and writing, improving the scholastic efficiency of children through self-study and to develop their capacity to think critically.

Patrons

Users of school libraries are main the pupils/students, teachers and administrative staff of the school.

Collections

The collections of school libraries may consist mainly of textbooks, novels/story books and general reference materials (i.e dictionaries, encyclopaedias, atlases, magazines and newspapers) in both print and non-print formats. Some well-endowed schools may have television sets, computers, scanners and photocopiers.

Services:

- **Reference:** This is a service where the clients or patrons seek *personal assistance from the school librarian provided their search for information*. Assistance provided under reference services may typically include answering questions on how to locate specific library materials, using the library catalog, using computers to access information, and using basic reference sources.
- **Lending:** This is a service where the school library lends out its books and other resources in its collection to its clients or patrons. This service is typically available only to registered users and staff of the library. Novels which may be fiction and non-fiction are the most common items loaned out by school libraries. Items sent out on loans are returned after a stipulated period, usually within a week or two.

Academic library

Also known as a college or university library, an academic library is a library set up in a tertiary institution (i.e., Universities and Training Colleges). Its main function is to support teaching, learning and research needs of students, faculty, and staff of a particular tertiary institution. The main objective of an academic library is to provide high-quality information resources and innovative services to support the learning, teaching and research needs of its clientele.

Patrons

Users of an academic library would specifically be students (postgraduate and undergraduate), research scholars, faculty members (lecturers), and administrative staff of the tertiary institution.

Collections

Since the core function of the academic library is to support the teaching, learning, and research activities of the institution, its collections are expected to reflect the academic programmes offered by the institution. The adequacy of the collections of the academic library to support the curriculum used in running the respective programmes offered by the institution is critical to the accreditation for new programmes and the renewal of the accreditation for existing programmes. In this respect, the collections of academic libraries would typically include text books, general references materials (i.e., Dictionaries, encyclopaedias, bibliographies, abstracts, etc.), periodicals (magazines, journals, newspapers, etc.), research reports, theses, etc. in both print and non—print formats.

Services

- **Reference: in academic libraries,** this service is often provided in person (face to face) or via a technology-aided tool such as telephone, e-mails, or an online chat service. Through the aforementioned means, a professional librarian provides answers and guidance to users' queries on how to access the library's resources.

- **Lending:** Academic libraries allow registered users of the library to borrow books from the library for a limited period. The lending period varies across libraries but would typically range from a few hours to two weeks. Users who fail to return the item within the stipulated time typically pay a fine and those who return the item in a damaged state, may be required to pay typically twice the cost of the item. However, it must be noted that not all the collections of an academic library are available for loans. Some items are kept for use only in the library because of cost and scarcity of the item.
- **Reservation:** Patrons of academic libraries may ask for books, discussion rooms, study carrels or sitting space to be reserved for them. This is usually done in advance (i.e., a few hours or days before the actual use of the service or facility).
- **Inter-library Lending & Document Delivery (ILL/DD):** Since no single library has all the collections in the world. Academic libraries usually enter into agreements with other libraries to borrow materials from them on behalf of their patrons. This allows patrons to have access to items not held by their parent libraries. This service begins with the library receiving a request from a user, the library then finds libraries that have the requested item, places a request, receives the item, gives it to the user, and makes arrangements for its return. Services usually come along with some cost implications, which are usually borne by the user.
- **Electronic Support:** with the advent of the Internet and the increasing preference for electronic resources (i.e., e-books, e-journals, etc.), academic libraries subscribe to online academic databases which are usually accessed by clients on-campus or remotely. They typically would have a wired or wireless network and computer workstations that allow patrons to access these resources via the Internet.
- **Reprographic Service:** This refers to the facsimile reproduction of library materials. This service allows the user to photocopy, scan or print out sections of a particular material. This service usually comes at a cost to the user. However, it must be noted any form of duplication or reproduction of library materials must fall within the realm of copyright law and fair use policies.
- **User Education:** this refers to the “various programmes of instruction, education, and exploration provided by libraries to users to enable them to make more effective, efficient and independent use of information sources and services to which these libraries provide access” (Fleming, 1990, p.). In academic libraries, this is usually carried out as library orientation where fresh students are taken on a guided tour of the library, to enable them to use the library effectively. Additionally, some tertiary institutions and their libraries execute this service in the form of a formalized course and often compulsory for all fresh students.

Special Library

A special library is one which serves a particular group of people, such as the employees of a firm, government department, or the staff and members of a professional or research organization. Its main function is to provide for information needs of members or staff of the organisation or professional body in the execution of their duties and responsibilities.

Patrons

Users of special libraries are typically the members or staff of the organisation or professional body and researchers. These researcher or research scholars who not members or staff of the organisation are classified as “walk in users” and may use the library upon the grant of permission. It is predominantly for research and thus provides limited lending service for users and reprographic services for walk-in users.

Collections

The collections of a special library would typically reflect the kind of activities engage in by the firm or professional body. For example, the collections of a special library like the Supreme Court of Ghana Library which was established in 1876 are mainly legal documents (statutes, law reports, reports of commissions of enquiry, bulletins, cases,) produced by the various courts in Ghana, the United Kingdom and other Commonwealth jurisdictions. Similarly, the Forestry Research Institute of Ghana library houses a comprehensive collection of recorded information on forestry and forest related disciplines.

Addition to the books and other information resources relevant to the activities of the firm, institution or professional body, the collections of special libraries include general reference materials and periodicals in both print and non-print formats.

Services

- Lending: this service is typically offered to only staff or members of the organisation who may require some information to work from home.
- Reference service: especially for walk-in users.
- Reprographic: available to both staff and walk-in users
- Selective Dissemination of Information (SDI): this a service whereby the library user is alerted by the librarian on the arrival or availability of materials that meet their information need profile (usually their field of study or research interest). The aim of SDI is to create awareness for new arrivals and to users abreast with the latest developments in their field of study or research interest.
- Abstracting Service: this is where the librarian prepares a summary of the core content of documents to enable users to determine whether or not they need to read the entire text. It is usually accompanied by full bibliographic details of the documents.
- Indexing Service: this a service whereby the librarian analyses the content of documents and provides a guide to the information contained in them. This allows library users to easily locate

documents in the library through the use of subject terms and headings that describes the content and main themes covered in the original document.

Public Library

Commonly referred to as the municipal, community or district library, a public library, is a library that is accessible by the public and is generally funded from public purse or by the state. The main function of the public library is to provide for the informational needs of members of the public irrespective of age, citizenship, occupation, economic status, educational level etc. (Entsua-Mensah, 2021). In Ghana, the establishment, management and maintenance of public libraries is the responsibility of the Ghana Library Authority.

Patrons

Users of the services and resources of public libraries ranges from children, the aged, students, adult learners, the visually impaired and physically challenged. Public libraries may also extend the services to the hospitalised, home-bound or bed ridden and prisoners.

Collections

The collections of public libraries typically include popular reading materials for children and adults, basic reference sources, classics and resources specific to the local economy and culture. Also included are general textbooks, storybooks, encyclopaedias, dictionaries, newspapers and other materials (print and non- print).

Services

- Reference Service
- Lending Service
- Reprographic Service
- Extension Library Service (includes mobile services to prisons and hospitals).
- Storytelling sessions for the infants, toddlers, preschool children, or after school programmes to encourage early literacy;
- Some public libraries provide art and craft materials for children, often housed in a special section. In the developed countries, child-oriented websites with on-line educational games and programmes designed for younger library clients are becoming popular. (http://en.wikipedia.org/wiki/public_library);
- Provision of community meeting rooms and study areas for quiet study for students and working professionals; and
- Support for Book Clubs to encourage appreciation of literature and reading in adults.

Extracted from Entsua-Mensah (2021)

National Library:

A national library is a library specifically established by the government of a country to serve as the preeminent repository of information for that country. Unlike public libraries, these rarely allow citizens to borrow books. It is usually the largest library in the country and has the largest collection of books and other information resources published in that particular country and about that country. Examples include the British Library in UK, the Bibliothèque Nationale de France in Paris, the Library of Congress in USA and the National Library of the Republic of South Africa (RSA). Ghana, unfortunately, does not have a national library, however, the George Padmore Research Library on African Affairs acts as the national library for Ghana.

Patrons

Users of the national libraries ranges from children, the aged, students, academics, researchers, adult learners, the visually impaired, and physically challenged. Thus, the target users of a national Library is the nation at large.

Functions

- Legal deposit (the national library is supposed to receive free of charge at least one copy of every work published in the country);
- Compilation of the national bibliography;
- Storage of numerous valuable works and rare books;
- Practical training for library personnel;
- Conducting research as a consultancy service for individuals and the nation.

Collections

Its collections typically include numerous rare, valuable, or significant works (i.e. books, newspapers, magazines, journals, government publications, etc.) published in a particular country and about that country, both in print and non-print format.

Services

Services

- General reference service
- Inter-library Lending and Document Delivery at national and international levels

Key ideas

- There are five types of libraries (i.e., school, academic, special, public and national).
- Every type of library is established basically to provide for the informational needs of a targeted group of users.
- Each type of library has a unique set of services that it renders to its patrons.
- Reference is a service that can be accessed in all types of libraries
- Ghana unfortunately does not have a national library
- The George Padmore Research Library on African Affairs acts as national library of Ghana.

Reflection

- The various types of libraries are all geared towards providing for the collective informational needs of a targeted group of individuals. What are the reason(s) why you would access the resources of any of these libraries?
- How has my participation in this session prepared me to better distinguish between the various libraries within the city, metropolis or community I live?

Discussion

- How has this session informed your choice of a library to visit when preparing for your classroom lessons?

UNIT 3: LIBRARY RESOURCES

In the previous units, we have learned that the relevance and prestige of libraries revolve around their collection (resources). This unit introduces users to the different types of resources that make a library's collection. Specifically, the unit highlights the different types of reference materials and their uses.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- State the characteristics of reference materials
- Describe the different types of reference materials and their uses.
- Identify some examples of periodicals indicating their time periods

Library resources

Libraries are built to cater to the informational needs of their patrons. This is achieved through its resources. Library resources are basically the materials held in a library for use by patrons. These can be found in both print and non-print formats.

Historically, the majority of library resources have included books, dictionaries, encyclopaedias, journals, newspapers, and other print materials. However, the advent of ICT tools (i.e., computers, mobiles phones, tablets, etc.) and the rise of the internet have led to an increased preference for the use of digital sources of information. A library's digital resources may typically include but are not limited to CD-ROMs, e-books, audiobooks, e-journals, movie clippings, and databases.

Categories of Library Resources

Broadly speaking, library resources can be categorized as;

- **Textbooks** - A textbook is *a book that contains comprehensive information on a particular course or subject* designed specifically for the use of students that is usually developed based on a syllabus and geared towards meeting specific quality and learning requirements (UNESCO International Bureau of Education, 2006).
- **Novels** - A novel is *a narrative piece of work usually written in prose fiction that tells a story about specific human experiences and is published as a book.*
- **Reference sources** - Reference material is "a book designed by the arrangement and treatment of its subject matter to be consulted for definite items of information rather than to be read consecutively" (Levine-Clark *et al.*, 2013). Examples of reference materials are dictionaries, encyclopaedias, handbooks, yearbooks, almanacs, directories, etc.
- **Geographical sources** – These are materials that are used to find and locate places. Examples of geographical sources are maps, atlases, and globes.

- **Biographical sources** – these sources provide information about well-known individuals basically focusing of their birth, education and life accomplishments. Example are biographies and autobiographies.
- **Periodicals** - A periodical is a serial publication with a distinctive title and which appears at regular or irregular intervals, generally more than once per year (Entsua-Mensah, 2021). Examples are magazines, newspapers, journals, etc.
- **Electronic resources** - These are library information resources in electronic format and which can only be accessed through the use of computers or any electronic medium. Examples include online databases, e-journals and e-books.

Reference materials

A reference material is a book or an information source that contains brief facts, statistical information, and background information that has been that have been brought together from many sources and organized for quick and easy use. These materials are designed basically for consultation and may occasionally direct the reader to additional sources of information.

From Levine-Clark *et al.* (2013) definition it is clear the content of reference materials is arranged in a specific manner to facilitate easy access and retrieval. The arrangement and design of the content of reference materials are to serve a specific purpose. Common arrangements of information in reference materials are:

- Alphabetical arrangement – commonly found in dictionaries and encyclopedias
- Tabular arrangement - commonly found in mathematical and statistical works;
- Regional arrangement - commonly found in maps and atlases
- Chronological arrangement - as in the case of the Bible and history books
- Classified arrangement - according to some features or characteristics (as in bibliographies and directories).

Characteristics of Reference Materials

Some of the characteristics of reference materials are:

- They are consulted for specific pieces of information.
- Generally meant for sporadic consultation
- Contain facts gathered from a wide range of sources.
- Organized so that it can be easily and rapidly recalled.
- It follows some methods of arrangement, such as alphabetical, chronological, or other techniques.
- They rarely go into depth on a subject and only offer basic facts.
- They frequently focus on the facts.
- They are only available for use in the library and are not loaned out.

Dictionaries

The word dictionary was derived from the Medieval Latin word “*dictionary*” meaning collection of words or phrases. The ancient Greeks and Romans were the first to produce dictionaries. These Greek and Latin dictionaries typically contained a listing of words that were rare, and difficult to pronounce.

Today, a dictionary basically refers to “a reference book or a set of books containing words and usually phrases, alphabetically arranged, together with information about them, especially their forms, pronunciations, usage, spelling and meaning” (Entsua-Mensah, 2021).

The basic focus of a dictionary is to provide meanings to words. These words may include those used in everyday life, technical words, words used in scholarly writing, idioms, words and phrases from other languages as well as new words emerging from social interaction and scientific or technical discoveries.

Types of dictionaries

Based on the number of words, scope, and coverage of other items of information, the dictionaries can be categorized as:

- General Language Dictionaries
- Subject Dictionaries
- Specialized dictionaries
- Translating Dictionaries

General Dictionaries

Also referred to as monolingual dictionaries, general dictionaries cover all aspects of words in all fields of knowledge. It is usually written a particular language and give meanings, definition, and explanation of the words in that same language. For example, an English language general dictionary will include English and give their meanings as they pertain to various disciplines in the English language (i.e the word “mouse” may be explained as an ICT tool and at same as a rodent). Examples of general dictionaries are; the Merriam-Webster’s Third New International Dictionary of the English Language, the Oxford Dictionary of English, the Shorter Oxford English Dictionary, and the Collins COBUILD Advanced Dictionary.

Subject Dictionaries

These dictionaries concentrate on the definition of the terms as they apply to a particular subject area. They usually focus on offering explanations or definitions for terms, words, and phrases as they apply to a particular field of study. Subject dictionaries are becoming increasingly common, due to the increase in study and research in different subject areas ranging from arts, humanities, social sciences to science and technology. Examples of general dictionaries are the McGraw-Hill Dictionary of Scientific and Technical Terms, *the Chambers Dictionary of Science and Technology*, the *Oxford Concise Companion to Classical Literature*, and the *Longman Dictionary of Contemporary English*.

Specialized Dictionaries

A specialized dictionary comprehensively deals with special types, special and literary aspects of words. The special types covered by specialized dictionaries typically includes certain aspects of words such as slang, abbreviations, and rare or obsolete word. It also deals with special aspects of words such as pronunciations, synonyms, antonyms, and usage. Specialized dictionaries may also cover literary aspects of words such as idioms, quotations, and proverbs. Although most of these aspects of the words can be found in general dictionaries, special dictionaries provide much more detailed explanations. Examples include the Bloomsbury Spelling Dictionary, the Cambridge International Dictionary of Idioms, the Oxford Dictionary of Quotations, the Macmillan English Dictionary for Advanced Learners, and the Cambridge English Pronouncing Dictionary.

Translating Dictionaries

Also referred to as Bilingual, Multilingual, or polyglot Dictionaries, these give the meaning of a word from one language to two or more different languages. These dictionaries typically do not define words but simply translate words from one language to another language. For example, the English, Akan, Ewe, and Ga dictionary simply lists words in English and provides their equivalent words in Akan and Ewe. Other examples of translating dictionaries include the Standard English-Kiswahili Dictionary, the Multilingual Biomedical Technical Dictionary (in English, Spanish, Portuguese, French, German, Swedish, and Dutch), and the Concise Oxford Spanish Dictionary (in English and Spanish).

Uses of Dictionaries

According to Entsua-Mensah (2021) dictionaries are commonly used to;

- define words
- verify spelling, syllabication, or pronunciation of words
- check on the usage of words
- determine the etymology of a word
- standardizes the language based on current usage.

Encyclopedia

An Encyclopedias is a book or set of books containing information about a variety of topics covering all branches of knowledge or a particular field of study. This information is often written in the form of short essays and authored by experts in a particular field of study or subject area. The information contained in encyclopedias is usually arranged alphabetically. Though encyclopedias may typically provide summarized information about people, places, events, and things, there are no limits to the length of these summaries. The explanations provided vary in length ranging from a paragraph to over a hundred pages depending upon the topic covered, target audience, and type of encyclopedia. Encyclopedias are great starting points for fact-finding, getting background topic information, and obtaining information on key events and individuals.

Type of encyclopaedias

- **General encyclopedias** – this encyclopedia covers topics from all fields of knowledge. Examples are the *Webster's New Explorer Desk Encyclopedia*, the *New Encyclopedia Britannica*, Single Volume Britannica Concise Encyclopedia, and the Britannica Student Encyclopedia. Today due to technological advancement, preference for electronic information, cost, and quest to make effective use of library spaces, most libraries prefer to have electronic versions of encyclopedias on CD-ROM, DVD, and the World Wide Web. Examples are Microsoft Encarta, Wikipedia, and Encyclopedia Britannica.
- **Encyclopedia for different age groups** – the target audiences for these encyclopedias are young adults, students, and children of various age groups. They are usually written in simple language and with illustrations to make the topic clear and easily understandable. Examples are the *New Children's Encyclopedia* and the *Scholastic Children's Encyclopedia*.
- **Subject encyclopedias** – these cover topics in a single subject area or discipline (ie. Physics) or group of subject areas (i.e physics and chemistry). Examples are the McGraw Hill Encyclopaedia of Science and Technology, the Encyclopedia of Library and Information Science, *the Encyclopedia of the Social Sciences*, and *the Concise Encyclopaedia of Christianity*.

Uses of Encyclopedias

According to Entsua-Mensah (2021) encyclopaedias are used to;

- define words
- find facts
- locate background or historical information
- locate explanatory material or definitions;
- guide one to related topics within its pages or outside sources of information

Bibliographies

The word bibliography originated from the Greek word *bibliographia* meaning “book writing”. Bibliographies are comprehensive lists of compiled books, journals and/or other resources that share some common characteristics such as author, subject, geographical area, etc. Bibliographies generally provide the bibliographic details (ie. Author, title, date, publisher, place of publication, ISBN, etc) of the listed resources. However, some also provide brief descriptions of the listed resources.

Types of Bibliographies

- **Author bibliographies** – these bibliographies provide a listing of the books or other resources written by or about a particular author. They are a useful resource for tracking an author's contributing to knowledge or gaining information about an author.

- **Subject bibliographies** – these bibliographies list published works or resources in a particular specific subject area. Examples are *The Culture of Ghana: A Bibliography*, *Christianity in Tropical Africa: A Selective Annotated Bibliography*
- **National bibliographies** – these contain listing of all materials published in a country or about a country in a given year. They serve as useful source for tracking the intellectual output of a country. In most countries, the preparing of national bibliographies is the responsibility of the national library. Examples are the *Ghana National Bibliography (GNB)*.

Uses of Bibliographies

Bibliographies are a useful resource for;

- searching for published literature (ie. Books, journal, etc.) on a particular subject or by a particular author.
- verifying the details of publications;
- indicating the scope of a particular subject area
- **creating a course reading and supplemental reading list.**
- **Looking for resources for independent study**
- **Distinguishing between reliable and unreliable or out-of-date resources.**

Biographies

Biographies contain information about a person (both living and deceased) written by another person. They typically contain brief summaries of information about the life of prominent individuals (ie. education, date and place of birth, family, country, profession, and their contribution to a particular field of endeavour and society at large). Biographies may cover generally important personalities and may be organized thematically (i.e. race, ethnic grouping, geographical location, profession, etc.)

Types of Biographies

- **Universal biographies** – these biographies typically contain information about prominent persons all over the world. Its coverage is not restricted to a particular race, ethnic grouping, geographical location, or profession. An example is the *International Who's Who*.
- **Regional biographies** – these biographies cover prominent personalities within a particular geographical area (i.e town, city, region, or continent). Examples are the *Outstanding Ewes of the 20th Century: Profiles of Fifteen Firsts*, the *Dictionary of African Biography*, the *Makers of Modern Africa* and *Africa Who*, etc.
- **Professional or subject biographies** – these biographies restrict their coverage to persons who have made significant contributions to or are involved in a particular profession, discipline, or subject area. Examples are *The Cambridge Dictionary of Scientists*, the *Dictionary of African Christian Biography*, etc.

Uses of Biographies

- Find facts or detailed information about a person or group of people.
- Locate individuals who have made significant contributions to knowledge or society
- Find prominent persons within a given country, occupation, career, or profession
- Provide useful historical information
- Prepare towards introducing a guest speaker

Directories

Directories contain an organized list of names and of people and/or organizations *which are usually arranged alphabetically*. Additionally, directories may information such as phone numbers, email addresses, social media handles, institutional affiliations, etc. of the organizations or people included within the scope of that directory.

Types of Directories

- **Telephone/ Facsimile Directories** - A telephone directory is a listing of telephone and addresses of telephone subscribers within a particular geographical area. These directories are usually compiled by postal and telecommunication agencies or companies. Telephone directories can be published in print and non-print formats. Also, with the advent of the Internet, some of these directories can be found online.
- **Directories of academic institutions** – These directories provide a listing of tertiary institutions (i.e universities, university colleges, training colleges, etc.). They provide information regarding, the type of courses and facilities offered, eligibility criteria, faculty size and research interests, student population, etc. on each listed institution. These directories may cover academic institutions within a particular geographical area (i.e. National or regional) or all around the world. They are published in print and non-print formats. Also, some of these directories can be accessed online. Examples are the Encyclopedia of Associations, World List of Universities and Other Institutions of Higher Education, Universities Handbook, etc.
- **Professionals Directories:** These directories list the contact details of members of a particular profession, society, or association. They are a valuable resource for finding information about the professional life, education, and training of individuals. Examples are the World directory of mathematicians, the *Directory of Libraries and Library Personnel in Ghana*, the Dentist Register, the Banker's Almanac and Year Book, etc.
- **Trade and Business Directories:** These provide basic contact information about organizations and companies within a particular trade, business, or industry. Examples are the Kothari Industrial Directory of India, the Afrikta, the yellow pages, etc.

- **Directory of Directories:** These directories point users to other directories that contains the information they are looking for. They are used in situations where the user requires a specific directory but does not know the precise name.

Uses

Directories are used to

- find names, addresses, and other contact information for individuals, organizations, and businesses.
- locate brief information about products and services.

Index

An index is an information resource that point users to other information resources. They point users to particular library resources (i.e. book, journal, magazine, etc.) that contain the information they looking for and therefore serve as a guide to the content of documents. It provides bibliographic information such as author(s), title, publisher, place of publication and sometimes abstracts.

Types of indexes

- **General Index** - list periodicals from all fields of knowledge and geographical locations. An example is the reader's guide to periodical literature.
- **Subject Index** – list published works or resources in a particular specific subject area or topic. Examples are religion index one and two.
- **Newspaper index** – list topics, events or stories published in newspapers. It enables users identify the date an event occurred and the newspapers that published stories on the event. An example is the New York Times Index.
- **Back of Book Index** – Found at the back of books, this index point users to certain topics or words discussed in the book. It points users to the page where certain words can be found in the book.
- **Journal Index** – focuses on articles that has been published in academic journals. An example is the International Bulletin of Missionary Research.

Uses

- Assist users in locating publications
- Enable users to familiarize themselves with a document and decide if they need to explore it further
- Act as a guide for selecting library materials
- Used as an information retrieval tool in libraries and archives

Periodicals

Periodicals are serial publications with distinctive titles that are published within particular time intervals (i.e., daily, weekly, monthly, etc.). Common examples include *newspapers*, *magazines*, *newsletters*, *journals*, *yearbooks*, etc. Periodicals are usually published and referenced by volume, issue, and page numbers. The "Volume number" refers to the number of years the periodical has been in circulation while the "issue number" indicates the number of times the periodical has been published in a particular year. Periodicals are usually published either in print format, non-print format (electronic) or both.

Categories of periodicals

Periodicals are generally categorized based on their targeted or intended audiences. There are four main categories of periodicals:

- **Popular/Consumer periodicals** – target the general public and have a wide audience. They are often given greater attention paid to cultural, literary, or political issues. The articles in these periodicals are usually written by journalists and freelance writers. Examples of popular periodicals are magazines and newspapers.
- **Scholarly periodical** – target academics, scholars, researchers, and students within a particular academic discipline or subject area. They are also referred to as "juried" periodicals. This is because the content of these periodicals goes through a peer-reviewing process during which a judgment is made on whether the content is deemed fit for publication. Articles in these periodicals are usually written by scholars and researchers, often professors at colleges, universities, or medical institutions. An example is a journal.
- **Trade/professional periodicals** – target practitioners of a particular trade or industry. They cover only topics relevant to those working in a particular industry. They contain news, trends, developments, and new products in the industry or profession and are often written by professionals in the field.

Types of Periodicals

Based on the frequency of publication, there are five types of periodicals. Namely;

- **Daily** – are published on a daily basis. These are usually newspapers. Examples are the Daily Graphic, the Daily Telegraph, etc.
- **Weekly** – are published once a week. These are usually newspapers and newsletters. Examples are the Mirror, the Junior Graphic, the Weekly Spectator, the Weekend Crusading Guide, etc.
- **Monthly** – are published once a month and are mostly magazines. Examples are the New African, Time, the Readers' Digest, the National Geographic, etc.
- **Quarterly** – are published four times in a year (i.e every three months). These are scholarly in nature and are usually published as journals and magazines. Examples *Africa*, *International Bulletin of Missionary Research*, *American Anthropology* and *Journal of African History*, etc.

- **Biannual** – are published twice a year and are mostly journals. Examples are the *Journal of African Christian Thought*, the *General Anthropology*, the *African Journal of Criminology and Justice Studies*, etc.

Key ideas

- Information resources in libraries can be found in print and non-print formats.
 - Library information resources can be categorized as textbooks, novels, reference sources, geographical sources, biographical sources, periodicals, and electronic resources.
 - Reference sources are those materials that contain brief facts brought together from many sources and organized for quick and easy use.
 - Examples of reference materials are dictionaries, encyclopedias, directories, etc.
- Periodicals are classified based on their intended audience and frequency of publication.

Reflection

- Libraries house various types of information resources. What are the reason(s) why you would use of any of these information resources?
- How has my participation in this session prepared me to make effective use of the various types of library resources?
- How has my participation in this session prepared me to better distinguish between the kind of library resources?

Discussion

- How has this session informed your choice of a library information resource to use when gathering information for an assignment or preparing for your classroom lessons?

UNIT 4: ORGANISATION OF KNOWLEDGE

This unit introduces the library user to the concept of information and how information in libraries is organised. It introduces the reader to the knowledge pyramid. The unit also highlights the major classification schemes used by libraries in Ghana. Finally, the unit looks at library catalogues and how the information in the library catalogues can be accessed.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Distinguish between data, information and knowledge.
- Identify the various classification schemes
- Identify the forms of library catalogue
- Identify the various access points to a cataloguing record

SESSION 1 – INFORMATION AND KNOWLEDGE

In this session, we will focus on the concept of information and knowledge. Specifically, we will consider the difference between data, information and knowledge. Furthermore, we will study the knowledge pyramid and the hierarchical relationship between data, information and knowledge.

Learning outcomes

By the end of the session, the participant will be able to:

1. Define information and knowledge
2. Explain the knowledge pyramid
3. Identify the relationship between data, information and knowledge

Definition of Data, Information and Knowledge

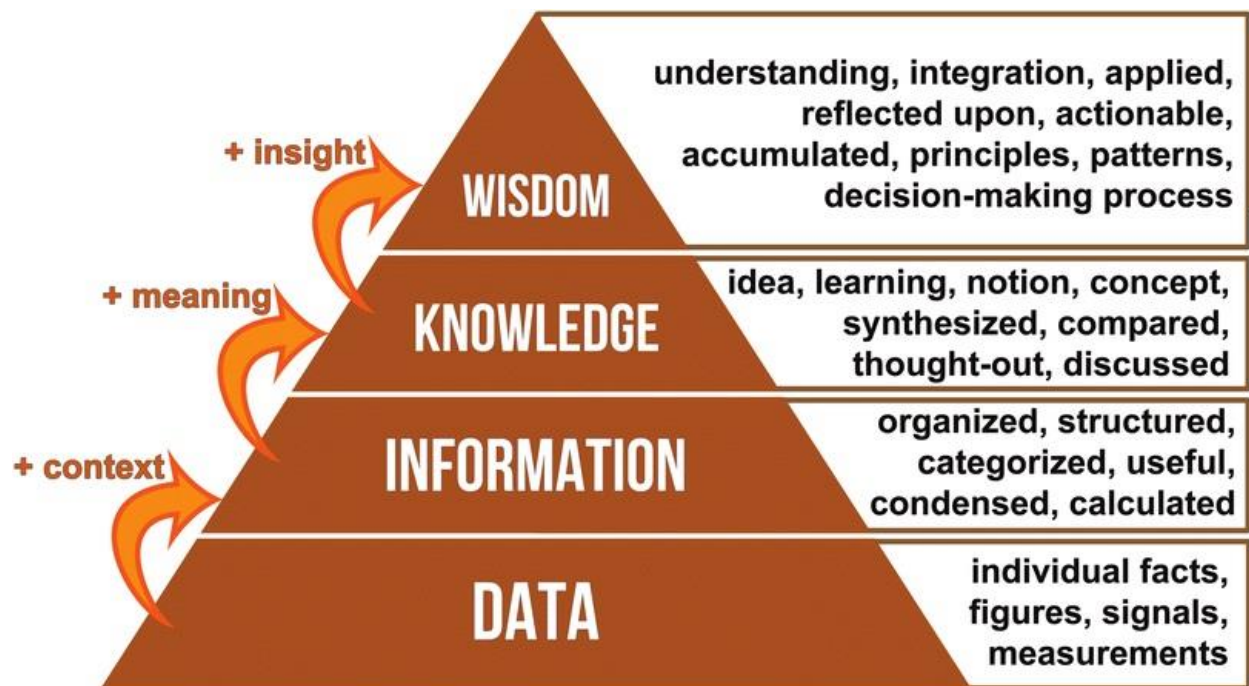
Data is defined as plain facts. Data is the name given to basic facts such as names and figures. Data in itself are fairly not useful unless they are interpreted and processed into something meaningful.

Information is defined as processed data. **Information** is data that has been collected, recorded and processed in such a way as to be meaningful to the receiver. These processed data are often stored in an easily retrievable format.

Knowledge refers to human inferences and interpretations derived from processed information. It is largely dependent on an individual's ability to recall or use information based on his/her experiences. Therefore, knowledge is a blend of human experience, analysis, deduction, and assimilation (Entsua-Mensah, 2021). For example, the alphabet "A" is data, "your best grade is A" is information, and "It is the result of your hard work" is knowledge.

Information Pyramid

The information Pyramid commonly referred to as the **DIKW (data, information, knowledge, wisdom) pyramid** is a hierarchical model that represents the structural and functional relationships between data, information, knowledge, and wisdom. It represents a continuum in which information develops from data, information provides knowledge, and finally the acquisition of wisdom is through knowledge.



Source: *Tedeschi (2019)*

Like other hierarchy models, the information pyramid has rigidly set building blocks. The building blocks begin with “data” at the base and continue through to “wisdom” at the apex of the pyramid. Each step up the pyramid highlights how the initial data has been transformed and the value that has been added to it. In other words, the higher we move up the pyramid, the more value is added to the initial data making it more meaningful.

As we move up the pyramid the data is enriched with meaning and context, making it possible for us to draw more knowledge and insights from it.

SESSION 2 - TOOLS FOR ORGANIZING INFORMATION IN LIBRARIES

In this session, we will focus on cataloguing and classification. This is because they are the two main tools for organizing information in libraries. The session will consider the various classification tools in Ghanaian libraries. Specifically, we will consider the Dewey Decimal Classification Scheme and the Library of Congress Classification Scheme.

Learning outcomes

By the end of the session, the participant will be able to:

- Identify the main tools for organizing information in libraries.
- Identify and use various access points to retrieve information.
- Demonstrate a basic understanding of library classification schemes
- Identify the various forms of library catalogues

Meaning of Cataloguing

Cataloguing or Library Cataloguing is the process of recording information about a library resource (e.g., books, dictionaries, novels, etc.) according to an acceptable standard. It usually involves recording and maintaining the bibliographic information (e.g., author, year of publication, publisher, ISBN, etc.) of items owned by a library. In cataloguing library materials, librarians provide a description of the physical characteristics of the material as well its subject matter.

Forms of cataloguing

- **Descriptive Cataloguing** – This involves recording the information about a library item, such as the name of the author(s), contributor(s), title, edition, publisher, publication date, the number of pages, its size, series, etc. Descriptive Cataloguing enables the user to find and identify a book, by the name of the author, the title, ISBN, etc. The Anglo-American Cataloguing Rule I (AACR I), Anglo-American Cataloguing Rule II (AACR II), and Resource Description and Access (RDA) are the most commonly used descriptive cataloguing standards.
- **Subject Cataloguing** – This involves the process of analysing the subject content of a library item and assigning the item a subject heading from a list of subject headings (Young & Joudrey, 2020). The most common heading list used in most libraries is the Library of Congress Subject Headings (LCSH) and Medical Subject Headings (MESH).

Reasons for Cataloguing Library Materials

1. To enable a library user, find a book of which the author, the title or the subject is known.
2. To show what the library has by a given author, on a given subject and in a given kind of literature.
3. To assist library users in the choice of a book as to its edition or as to its character.

Library Catalogue

A library catalogue is a list of documents in a library, with the entries representing the documents arranged in some systematic order. The library catalogue contains a listing of all items in a library's collection or holdings. In other words, a library catalogue contains records of a library's holdings. Each record, referred to as an entry represents a specific item. The purpose of a library catalogue is to show the user how and where library materials can be located.

Physical Forms of Library Catalogues

Library catalogues are available in many physical forms and are usually classified based on their physical appearance. Based on physical appearance, a library catalogue can be classified as;

- **Book Catalogue** - As the name implies, this catalogue lists the library's holdings in book form. The entries are arranged and printed on sheets. The sheets are then bound together to form a book. It is easy to prepare but difficult to keep these catalogues up-to-date. Entries for new items cannot be accommodated at proper places, hence, it requires frequent revisions or production of supplements. As such it is not economical to keep it up-to-date.
- **Card Catalogue** - Catalogue entries are prepared and recorded onto 3 X 5 cards. The main catalogue entries consist of the following information: Call Number, Author, Title, Edition Statement, Imprint, Collation, Series Note, Contents and Accession Number. The cards are alphabetically arranged in a drawer or multiple drawers.
- **Microform Catalogue** - is a library's holdings listed in micro format. This usually requires a reading device like a microscope or microfilm reader.
- **Computer Access Catalogue/Online Catalogue** - With the advent of computers and the Internet, library activities, services and resources are increasingly being automated, ranging from acquisition to withdrawal of books from the library, records can be automated. The Computer Access Catalogue is a catalogue that can be *accessed via terminals*. The computer-accessed catalogue, also referred to as the Online Public Access Catalogue (OPAC) allows users to effectively search or retrieve bibliographic records of library materials in-house or remotely and with little or no human assistance.

Inner Forms of Library Catalogues

A catalogue can also be classified based on how its entries have been arranged. There are many inner forms of catalogues, however, the most common among them are;

- **Author Catalogue** – A catalogue whose entries are arranged alphabetically based on the name of authors or editors.

- **Title Catalogue** – Arranged alphabetically based on the title of the entries (i.e., books, serial, etc.).
- **Subject Catalogue** - The entries are listed under a designated subject heading. The entries under each subject heading are listed alphabetically or systematically to facilitate easy subject identification and retrieval.
- **Dictionary Catalogue** – In this catalogue, all the entries (author, subject, title, etc.) are inter-filed in single alphabetical order.

Access Points

Reitz (2013) defines an access point as "a unit of information in a bibliographic record under which a person may search for and identify items listed in the library catalogue or bibliographic database". When searching through a library catalogue, there are pieces of information that can be used to locate or search for an item. Access points are specific pieces of information, such as call mark, author, title, subject (subject headings), series and ISBN etc.

Examples of access points

Some examples of access points are;

- Author (Name (person, family, corporate body, etc.))
- Title
- Subject
- Series
- Classification Number / Call Number
- Codes such as ISBN, ISSN, serial numbers, etc.

Library Classification

Classification is the process of grouping entities based on a common feature or characteristic. It basically involves putting together like entities and separating unlike entities. In libraries, this grouping is usually based on the subject content of the material. Library classification also known as book classification is the process of arranging, grouping, coding, and organizing library materials according to their subject in a systematic and logical order. To ensure consistency and uniformity in the grouping of library materials, library classifications are done in accordance with a classification scheme or system (Young & Joudrey, 2020). Classified materials are assigned numbers (call numbers) based on a particular classification system. The call number is used to determine the position of a library material on the shelf and ensures that materials that have the same or similar subject content are kept next to each other.

Classification Scheme

Classification, as explained above, comprises the arrangement of documents on the shelves in a logical order. This is done with the aid of a classification system. A library classification scheme is a standard that provides descriptive information for the grouping and arrangement of materials based on their subject content. A classification system either uses the letters of the alphabet, numbers, or a combination of letters and numbers. The most common classification schemes used in libraries are the Library of Congress and Dewey Decimal Classification Schemes.

Library of Congress Classification Scheme

The Library of Congress Classification (**LCC**) scheme was developed in the late 19th and early 20th centuries by the Library of Congress. The LCC is mainly used by libraries with a large collection such as large research and academic libraries. The LCC divides the entire field of knowledge into 21 main classes (subject areas). Each main class or subject area is represented by a single letter of the alphabet.

Letter	Subject Area	Letter	Subject Area
A	General Works	M	Music
B	Philosophy, Psychology, Religion	N	Fine Arts
C	Auxiliary Sciences of History	P	Language and Literature
D	World History and History of Europe, Asia, Africa, Australia, New Zealand, Etc.	Q	Science
E	History of America	R	Medicine
F	History of the Americas	S	Agriculture
G	Geography, Anthropology, and Recreation	T	Technology
H	Social Sciences	U	Military Science
J	Political Science	V	Naval Science
K	Law	Z	Bibliography, Library Science, and General Information Resources
L	Education		

Note: The letters I, O, W, X, and Y have not been assigned subject areas but could be used for future expansion.

Dewey Decimal Classification Scheme

The Dewey Decimal Classification (DDC) was developed by Melvil Dewey in 1873 and first published in 1876. It is a numerical scheme for the arrangement of library materials. The DDC divides the entire field of knowledge into 10 main classes (subject areas) and is usually used in small libraries such as schools and special libraries.

Each main class or subject area is represented by figures beginning with 000 and going on to 999. Class 000 is the most general class and is used for works not limited to any one specific discipline, e.g., encyclopaedias, newspapers, and general periodicals. Each of the other main classes (100-900) comprises a major discipline or group of related disciplines.

Numbers	Main Class
000 - 099	General Reference Works
100 - 199	Philosophy & psychology
200 - 299	Religion
300 - 399	Social sciences
400 - 499	Language
500 - 599	Natural sciences & mathematics
600 – 699	Technology (Applied sciences)
700 - 799	Arts
800 - 899	Literature & rhetoric
900 - 999	Geography & History

Reasons for classifying library materials

In general, the library classification is to ensure:

- the systematic arrangement of library materials
- that library collections are well organised
- that materials that cover the same subject are kept in the same place.
- that materials that cover similar subject areas are kept closer to each other
- that each library material can be distinctly identified
- that library materials are kept at their proper place on the shelf after use
- that new materials are allocated their proper place in the library's collection

Key ideas

- cataloguing and classification are the main tools used in organizing library materials.
- Cataloguing is the process of recording information about a library resource (e.g., Books, dictionaries, novels, etc.) according to an acceptable standard.
- In cataloguing library materials, librarians provide a description of the physical characteristics of the material as well as its subject matter.
- Classification is the process of grouping entities based on a common feature or characteristic.
- LCC and DCC are the most common classification schemes used in libraries
- The main aim of organizing library materials is to facilitate easy identification and retrieval.

Reflection

- Each library material that is classified is assigned a call number based on a particular classification scheme. How has your participation in this session prepared you to effectively identify and locate materials in a library?
- How has your participation in this session prepared you to better understand how library materials are organized?

Discussion

- How has this session informed your use of print and non-print library catalogues?
- How has this session improved your understanding of the various classification schemes used in libraries?

UNIT 5: THE INTERNET AND DIGITAL INFORMATION

This unit introduces the reader to the concept of computer networks, the internet, and computer networks. The unit also highlights the uses and misuse of the internet. The unit further highlights major tools for searching for information online. Finally, the unit looks at criteria for evaluating online information.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Demonstrate an understanding of the internet and computer networks.
- Outline the uses and misuses of the internet.
- Identify the various internet search tools
- Develop an effective internet searching strategy.
- Demonstrate understanding of criteria for evaluating online information resources.

SESSION 1: INTRODUCTION TO INTERNET AND COMPUTER NETWORKS

In this session, we will focus on the concept of computer networks and the internet. Specifically, we will consider the two main modes of internet connectivity. These are the broadband and dial-up internet connectivity. Furthermore, we will study basic internet terminologies that are necessary for the functional use of the internet.

Learning outcomes

By the end of the session, the participant will be able to:

1. Define the term 'Internet' and differentiate between the various types of computer networks.
2. Explain the various internet connectivity modes.
3. Explain basic Internet terminologies such bandwidth, protocols, browsers, etc.

Computer Network

A computer network is a group of computers (two or more) that are linked to each other in order to communicate with one another, exchange files, and share resources such as scanners, printers, etc. The computers on a network may be linked using either cable or wireless media such as radio waves, satellites, or infrared light beams. The first computer network was created in the 1950s by the US Defense Department called the Advanced Research Projects Agency Network (ARPANET). The ARPANET was developed mainly for military and defense communications and data sharing via fixed telephone lines. However, with technological advancements, the establishment of computer networks has become essential for many businesses, and educational and research institutions.

Types of Computer Networks

A computer network can be categorized by its size or coverage. A **computer network** is mainly of **five types**:

- **Personal Area Network (PAN):** A PAN is a computer network that connects personal technological devices such as laptops, mobile phones, scanners, tablets, etc. within a short range. It is made of computers and other *devices that are under the control of a single user*. *PANs cover short distances, usually less than 10 meters. PAN is typically set up using some form of wireless technology.*
- **Local Area Network (LAN):** A LAN links devices within a building or group of adjacent buildings. A LAN typically links computers and other devices within a radius of 1 km to 10 km and is connected via ***Ethernet or Wi-Fi***. Depending upon the needs of the organization, a LAN can be a single office or a whole building, or a group of buildings.
- **Campus Area Network (CAN):** - is made up of interconnections of local area networks within a large campus or the LANs of different offices on a university campus linked together. CANs are typically an interconnection of multiple local area networks (LAN) within an educational or corporate campus. CANs are smaller than metropolitan area networks (MAN) and wide area networks (WAN).
- **Metropolitan Area Network (MAN):** MAN refers to a network that covers an entire city or metropolis. MANs typically consist of numerous LANs within the same geographical area connected via a high-capacity backbone technology, such as fiber-optical links, and provide up-link services to wide area networks and the Internet.
- **Wide Area Network (WAN):** WAN refers to a network that connects countries or continents. Wide Area Networks (WANs) are typically set up using dedicated transoceanic cabling or satellite uplinks.

Internet

The Internet, also called the Net, is simply defined as a global network of computer networks. The Internet is a global network consisting of billions of computers and other electronic devices. With the Internet, it's possible for businesses, government agencies, educational institutions, and individuals to communicate and share information. Using the internet organizations and individuals can send messages, emails, videos, and images or pictures to their business partners and relatives. In today's information economy, the internet has become the most common and fastest communication medium for sharing and receiving information.

Characteristics of the Internet

According to Potts (2014), the internet has the following features;

- **Not centrally controlled** – the internet does not have a regulatory body or agency. That is no single person, company, institution, or government agency that controls the entire Internet. Individual countries, organisations, institutions or governments may have control over their part of the network and are responsible for its maintenance but not the entire network (Internet).
- **Global in nature:** The Internet is truly global nature. As of April 2022, there are 5 billion internet users worldwide, which is 63.1 percent of the global population (Statista, 2022).
- **Accessibility:** Accessibility is another feature of the Internet that distinguishes it from traditional print or broadcast media. The relatively low cost and ease of connecting to the Internet make it the first point of call for persons seeking information.
- **Anonymity:** Internet users do not have to reveal their true identity in order to send an email or post messages online. Users are able to communicate and make such postings anonymously or under pseudo names.
- **Hyperlinks:** the internet is full of hyperlinks connecting webpages. Hyperlinks are links created within webpages, typically using HTML, to allow a user to navigate easily, by the click of a mouse, to other content located internally within the website, or externally on another website.
- **Multimedia:** The digital electronic technology of the Internet allows information to be packaged in a variety of formats (i.e. video, audio, images, etc.). Information can be transformed from one medium to another either completely or partially.

Basic internet terminologies

Browser

A software that allows internet users to surf or navigate the World Wide Web. Browsers allow individuals to be able to access and display documents, watch pictures, and videos and listen to music via websites. Browsers are specifically designed to convert HTML and XML files code into human-readable files. There are two categories of browsers, namely text-based browsers and graphic-based browsers. Text-based browsers allow users to read plain text. It does not display pictures and is unable to play audio or video files. It is strictly text-based and does not place high memory demands on your computer. Examples are Moosaic and lynx. Graphic-based browsers on the other hand allow users to view pictures or images and videos, and listen to music or audio available on the world wide web. Examples include Mozilla Firefox, Safari, Internet Explorer, Google Chrome etc.

Internet Protocols

Internet protocols are the set of rules that help the different computer networks on the Internet communicate without conflict. These rules govern the communication and exchange of data over the internet or other network. Common internet communication and data exchange protocols are the Transmission Control Protocol (TCP), Internet Protocol (IP), File Transfer Protocols (FTP), and Hypertext **Transfer Protocol (HTTP)**

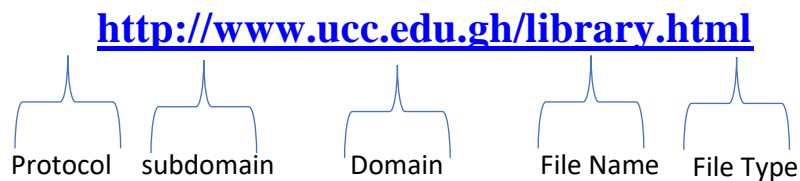
Homepage

A Homepage is the main page of a website. It is usually the first page that is viewed you visit a website. It is also the page of a Web site that links you to other pages of the website.

Uniform Resource Locator (URL)

Popularly known as the web address, the URL is an addressing scheme that is used on the Internet to locate resources and/or services on the World Wide Web. With a URL, a browser is able retrieve webpages on the worldwide web. An example of the typical format of a URL is <http://www.ucc.edu.gh/library.html>

The format for a URL can be broken down into four basic parts namely, the protocol, subdomain, domain name and file name.



The **protocol** part of the URL indicates the **set of rules that is used for the transmission and exchange of data**. In our example the protocol http which stands for Hyper Text Transfer Protocol tells the browser to **display the web page in Hyper Text Markup Language (HTML) format**.

After the protocol is the subdomain. The subdomain indicates the **type of information or file** that should be displayed by the browser. The most common subdomain used on the web is 'www'. This tells the browser to display any files or webpages on the worldwide web.

The domain name also referred to as the server name indicates the name of the computer (server) on which the webpage or the information you are accessing is hosted. From our example 'ucc.edu.gh' is the server name.

The File name is the name used to uniquely identify a resource (files and webpages) located on the host server. From our example 'library' is the file name.

The File type is the document format or the application used in creating the file. This is comes after the file name and is separated with a period. From our example 'html' is the file type and it means the file named library was created in hypertext mark-up language. Other common

file types found on the Internet are doc (word document), ppt (power point), pdf (portable document format), etc.

World Wide Web (WWW)

The World Wide Web popularly referred as the web is a collection of information that is stored and shared across the Internet. The worldwide web is basically a collection of all the web pages, documents and files that are stored online and which can be seen when surfing the Internet. Invented in 1989, the worldwide web was created by Tim Berner-Lee to enable researchers at the CERN laboratory share their research findings. Today, it is an essential information retrieval service of the web that provides access to billions of hyperlinked documents online.

Bandwidth

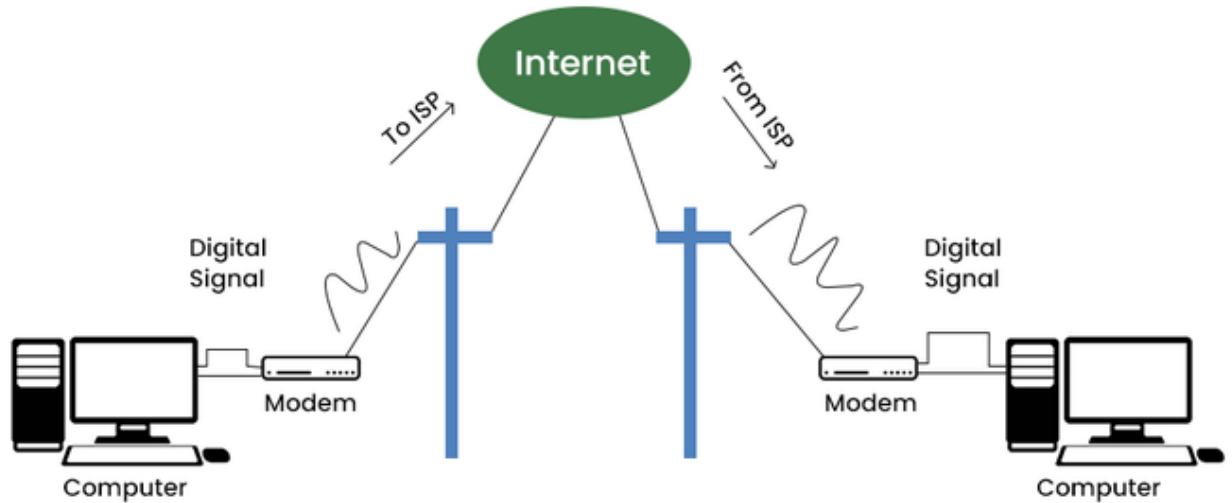
Bandwidth is the maximum quantum of information or data transmitted over an internet connection in a given amount of time. It is a measure of the volume of data or information sent across the internet within specific period of time. It is measured in bits per second (bps).

Internet connectivity

Internet connectivity basically refers to way individuals and organisation gets connected to the internet. There are various types of internet connectivity models. However, the type of Internet service an individual or organisation chooses largely depends **the Internet service provider (ISP)**. This is because ISPs provide internet access to individual and organisations through the use of numerous technologies that offer varying speeds and hardware requirements. Broadly speaking, internet connectivity can be categorised as; Dial-up Internet Connection and Broadband Internet Connection.

Dail -up

A dial-up connection is any connection that is connected through a public switched telephone network. The dialup connection is established by connecting a computer to a dialup modem and public telephone line. The telephone line is configured to dial a specific number. When a user wants to access the Internet, user's personal computer (sender), will literally pick up the telephone line signal and dial up the telephone number of a receiving computer (receiver). The modem takes the digital information generated by initiating computer generates and turns it into analog information that can travel along the telephone network to the receiving computers. At the receiving end, there is another modem the covert the analog signal into digital signals. Dialup connection is the slowest type of Internet connection. Typically, dialup speeds ranges between 34 and 56 kilobits per second.



Source: geeksforgeeks.org, 2022

Broadband Internet Connection

Broadband refers to various types of high-speed internet connections that are faster than the dial-up connection. They are usually more expensive than the dial-up. Over the years, there have been various types of broadband connections as a result of the increase demand for high-speed internet and advances in internet technologies.

Types of Broadband Connections

- **Digital Subscriber Line (DSL) connection:** The DSL just like the dialup provides internet connection through the telephone line. The setup for the just like that of the dialup. However, the difference is that the DSL does not require the initiating (sender) computer to dial the number of the receiving computer (receiver) in order to connect. Also, unlike dial-up, DSL connections allows you to use the Internet and the phone line at the same time. It uses a router to transport data and the speed of this connection range between 128k to 8Mbps.
- **Cable Modem Connection:** Cable modem connection provide Internet access via coaxial television cables rather than a telephone or DSL line. The Cable modem does the signal conversion (analog to digital and vice versa) and transmit it via coaxial cables and an Ethernet cord that connects directly into computer devices or a network router. Cable modem connections are delivered only through television cables and are only available in areas where there is a cable TV. It is faster than both dial-up and DSL internet connection and has speeds ranging *between 20 Mbps and 100 Mbps*.

- **Satellite Modem Connection:** A satellite connection provides internet access via communication satellites orbiting the earth. It is among the most expensive forms of broadband Internet access, but may be the only choice available in some remote areas. Data sent and received across a satellite connection is made possible a satellite dish. Data coming from a computer travel through a modem then to a satellite dish and transmitted out to a satellite in space as radio signals. The signal is then transmitted back to earth to a network operations center (NOC) where it is delivered to the receiving device or computer. The use of satellite makes it possible to access the Internet anywhere across the globe. However, the connection is usually affected by geographical and climatic conditions. The speed of Satellite connections ranges between 2 kbps and 1 gbps.
- **Wireless Internet Connection:** Wireless Internet connection popularly referred to Wi-Fi is a type of Internet service that provides connectivity through either a fixed and mobile Internet access. It allows laptops, smartphones, and other mobile devices to connect to Internet over a wireless communication network. These devices have a typically have wireless network adapters or cards that detect the radio signals being broadcast from a wireless router and a modem. The broadcast signals travel within a specified geographical location, typically 20 to 250 meters or from 65 to 820 feet. Wireless Internet connections are generally slower than wired Internet connections and have speeds ranging between *20Mbps and 450Mbps*.
- **Mobile Broadband:** Mobile broadband is a form of high-speed wireless internet delivered through mobile communication networks. These mobile networks are typically operated by telecommunication companies such MTN, Airtel and Vodafone that allow mobile subscribers to connect to the internet. Typical mobile broadband speed ranges between 20Mbps and 100Mbps depending on the telecommunication network architecture.

Uses of the Internet

- **E-Commerce** – the internet has become a global market place. On a daily bases billions of financial transactions taking place online. Electronic commerce is the buying and selling of products and services online. Internet shopping is increasing gaining popularity because of its easy and conveniences. Today, many small, medium and large business entity have websites that showcase and sells their products.
- **Cashless transactions/society - With the advent of the internet,** *financial transactions can be conducted without physical banknotes or coins. Many business entities and organisation offer customers the opportunity to pay for product and services online using either credit and debit cards, e-wallets or mobile banking application.*

- **Education** - The internet houses billions of scholarly and academic information. The internet provides quality educational materials in the form of videos, text, images and audios. This variably helps improve the quality of education. The internet also provides opportunities for persons who are unable to attend physical classes to enrol onto online educational courses or programmes that allows to have quality education in the comfort of their homes.
- **Research** - The Internet has quickly become one of the most-used resources for gathering information. This is because there is a huge amount of information available online for every subject and which can be accessed irrespective of your geographical location. In of this, the internet has become a research for students, academics and individuals from various fields of human endeavour.
- **Social Networking:** The internet today prevents users with the opportunity to connect people all over the world. With the help of social networking sites and apps such as Facebook, WhatsApp, Twitter, Telegram, etc. internet users can talk, share videos and images, as well as organise meetings and discussions with friends and colleagues all over the globe.
- **Entertainment:** *Internet* has become of the most common entertainment medium for many people. This is because it is the most convenience and cost effective entertainment source available in today's world. There are numerous entertainment options available on the internet like watching movies, concerts, videos, playing games, listening to music, etc. produced all over the world. This offers the internet user an opportunity to see, appreciate and enjoy the various forms of entertainment from other cultures and traditions.

Misuses of the Internet

- **Pornography: The internet unfortunately hosts thousands of pornographic websites and webpages.** These pornographic sites on the Internet can easily be found and accessed without restrictions. The pornographic content hosted by these sites present a serious threat to society due to its negative impact on the individual, his or her sexual partner and the society at large. Addiction, isolation, increased aggression, distorted beliefs and perceptions about relationships and sexuality, negative feelings about one's self, and neglect of other aspects of life are some of the most common identified harmful impacts of pornography (Maltz & Maltz, 2006; Manning, 2006). These negative consequences often carry over into other aspects of their lives, especially family and couple relationships (Brower, 2022). Also, he unrestricted access to these sites means that children can easily have access to these contents that can have negative effects on their mental development and upbringing.
- **Negative Impacts on health:** Spending too much time on the internet may negatively impact one's health. Several studies have established an *excessive Internet usage and anxiety, depression, insomnia, laziness, sedentary life style and improper eating* (Kwak, Kim & Ahn, 2022). The lack of physical activity and improper eating habits of can lead to obesity which in turn can lead to

hypertension, depression, and other heart diseases. Also, looking at the screen for long hours can lead to eye strains duration causes serious impacts on the eyes.

- **Cyber Crimes:** Cyberbullying, spam, hacking, and identity theft are some of the most common crimes being committed online. Increasingly people are devising ingenious ways to access confidential information of others. This information is then used in blackmailing them or to defraud others.
- **Spamming:** Spamming is the use of messaging systems to send multiple unsolicited messages to large numbers of recipients. These messages are sent for both commercial and non-commercial reasons. However, these messages often overcrowd the in-box of the receiver and may lead to him/her missing out very important personal messages. Also, some of these spam messages may have inherent programmes or embedded codes harvest login information such as a bank or credit card details. Such emails originate from criminals and are designed to trick you out of your login information.
- **Viruses:** A computer virus is a type of malicious software, or malware, that spreads between computers and causes damage to data and software. The main aim of a computer virus is to disrupt the normal function of a computer. As you download files such as movies, audio, software, etc. from the internet particularly from unsecured websites, some of these files are attached with virus. Typically, computer viruses are attached to an executable host file, which results in their viral codes executing when a file is opened. The code then spreads from the document or software it is attached to via networks, drives, file-sharing programs, or infected email attachments.
- **Spreading negativity:** Increasingly, the Internet has become a tool for spreading falsehood. Under the cover of anonymity and the ease with which one can create a social media account or join a social media platform, many people are able to spread or send inaccurate messages across the Internet with aim of spreading hate and negativity.

SESSION 2: EFFECTIVE SEARCH STRATEGIES

In this session, we will focus on the tools for searching for information online. Specifically, we will look at search engines, meta search engines, web directories and databases. Furthermore, we will study the steps for effectively searching for information online.

Learning outcomes

By the end of the session, the participant will be able to:

- Effectively search for information online
- Identify the various search tools available for searching information on the Internet
- Evaluate online information.

Internet Search Tools

An Internet search tool is an online software that are designed to search for information on the Internet based on the user's search query. These search tools can help users search or retrieve a variety of information that meets their information needs. Internet search can be group into four main categories as Search engines, Metasearch engines, Web Directories/ Portals (Subject Gateways) and Scholarly databases.

Search engines

Search Engine is a software program that helps users retrieve information using keywords or phrases. Search engines are made up of programs or algorithms ("spiders" or "robots") to collect information. These "spiders" or "robots" scan through the internet continuously and indexing every page they find and create databases of web sites visited which are regularly updated. When a user enters a Search term, the spiders" or "robots" looks at the website page titles, contents and keywords it has indexed and produces a list of sites with the most relevant websites or webpages at the top of the list. Some examples of search engines are Google, Bing, Msn, Alltheweb and Ask.

Meta Search Engine

Metasearch engines are online search tools that that run on data of a web search engine to generate its own outcomes. Metasearch engines aggregates the web search results for a keyword or a Phrase of many different search engines using a proprietary algorithm. Meta Search engine works by user entering a search term or phrase in the search bar of a Metasearch engine and clicking the search button. The metasearch engine sends the request to many other search engines. Before the Meta search engines can show any results, their servers have to wait for the answers from each requested search engine. A metasearch engine also filters out duplicates so their URL does not appear twice in the search result list for a search query. The advantage of using a metasearch engine is that you do not have to use each search engines separately to obtain the desired search results. This is because the search query is searched by multiple search engines concurrently. Some examples of meta Search engines include 1xquick, Webcrawler, Metacrawler, Dogpile and Zoo.

Subject Gateways/Web Directories

Subject Gateway or web directory collect and systematically put together web sites into several categories or disciplines. It is basically a database of websites, arranged in such a way as to facilitate easy retrieval. Each category contains links to sub-categories that link web pages containing information on broad subject area or discipline. These links to web addresses are classified according to specific criteria (i.e subject, topic, theme, etc.) and are usually arranged alphabetically. This helps users to easily search for information on a specific subject or topic. The websites organized by web directories are usually managed by humans rather that software ("robots or spiders"). A subject gateway is a useful guide to start your search as it often provides structured overviews of resources. There two main types of web directories, namely commercial and academic web directories. Commercial subject directories organised websites based on themes such as sports, shopping, weather,

etc. examples of some commercial web directories are yahoo and lycos. On the other hand, Academic subject gateways organised websites into academic disciplines or subject areas such as Education, Finance, Physics, etc. Academic subject gateways provide high quality information as they are organized by Subject Specialists or Librarians.

Scholarly Databases

A database is simply a collection of structured records. It is structured in such a way to permit orderly retrieval for research, study or administration. Online scholarly or academic databases typically index periodicals and books covering a specific or all fields of knowledge. These databases contain scholarly and peer-reviewed articles written by academics, researchers and experts in their field. These scholarly databases allow users to search for articles, books or book chapters with defined fields such as title, author, date, journal name, volume numbers, issue number, URL, etc. The content of some of these scholarly database such as BASE, CORE, PubMed Central, arXiv, etc. can be accessed for free whiles such, JSTOR, SAGE, PubMed, Hinari, Agora, OARE, Science Direct, Emerald, and Ebsco can be accessed upon subscription.

Effective internet searching

Today, searching the internet for information has become an integral part of the information seeking behavior of many individuals. Unfortunately, many do not know the best way to finding information online leading to spending so much time online in locating the right information and leaving many frustrated. The following paragraphs outlines the basic steps for effectively retrieving information from the Internet:

Define your information need: Before doing a search, you need to be clear in your mind the information you are looking for. This is done by defining your topic as completely and succinctly as possible. Write down exactly what information you're looking for and the purpose or the reasons why looking for that information. This will help you to discover the best keywords for your search.

Choose your search terms: Search terms are the keywords that would be used in your search. Most Internet search tools don't read sentences but rather look for the key words in your query and matches them with websites where those words appear. Therefore, you don't need to write sentences when searching for information online but keywords that adequately reflects what exactly you are looking for. For instance, if you're just looking on the health implications of water pollution, then our keywords would be 'water' 'pollution' 'health'. Alternatively, we can also consider synonyms such as 'rivers', 'lakes', 'degradation', etc.

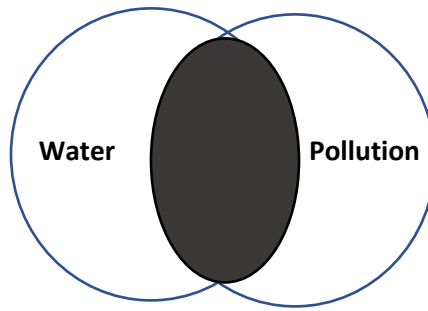
Decide which sources/search tool to use: At this point you decide on the most appropriate search tool that you think would provide you with the best results. That is, you decide whether to use a search engine, meta search engine, web directory or scholarly database. For example, if you decide to use a

search engine, then have to choose which one you going to use. That is are you knowing use Google, Bing, Msn, Alltheweb or Ask.

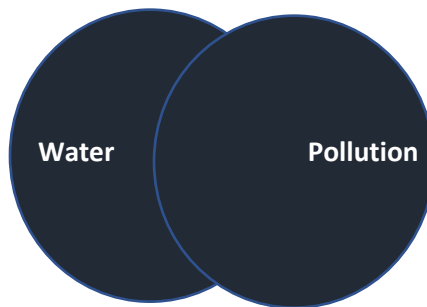
Find out how the search tool functions: Like all applications online, to be able effectively use the search tool of your choice, you need to know how it works. Internet search tools function slightly different, however there are some common functionalities:

- **Phrase searching:** allows you to search for an exact phrase. Phrases are combinations of two or more words that must be found in the documents you're searching for in the EXACT order shown. This is done by putting quotation marks around the phrase. For example, "water pollution"
- **Case sensitivity:** recognition of upper or lower cases in search terms. However, it must be noted that most search tools particularly search engines are case insensitive. That is, you can type your search queries in uppercase, lowercase, or a mix of cases and they would still provide you with the same results. This notwithstanding, it is generally recommended that search queries are typed in lowercases.
- **Truncation/wildcards:** allows you to search for a keyword with all of its different endings by placing a symbol at the end of the word. This is done by typing the first few letters of the keyword followed by either an asterisk (*), exclamation mark (!) or question mark (?). For example, femini* would retrieve entries for documents containing the words such as feminist, feminism, feminists, feminine, feminize.
- **Advanced Searching:** Most search tools particularly scholarly databases have advanced search features, that allows you to limit or refine your search. The advanced search feature may be used to limit your search as to the date or year of publication, publisher, file type, identification of optional search terms, exact matching, etc.
- **Boolean searching:** Named after George Boole, a 19th-century mathematician, the Boolean searching is technique that can be used to effectively narrow your search results. Boolean searches are simple to learn and tremendously effective. The three most commonly used Boolean commands or "operators" are AND, OR and NOT operators.

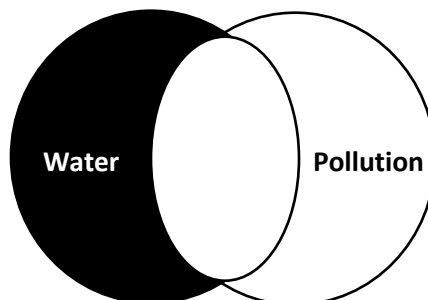
AND is an operator that is used to combine two or more concepts or keywords. It used when you want the search tool to retrieve documents that contain the both or all the keywords used in the search. For example, the search query "Water AND Pollution" would return only documents that contained these two keywords or phrases. AND is the most frequently used Boolean operator. The venn diagram below illustrates the function of the AND operator by shading the intersection of the circles.



OR is an operator that allows either keywords to be present in each record of the search results. For example, search query "Water OR Pollution" would return documents that contained the keywords 'water' only, 'pollution' only as well as documents that contain both 'water and pollution'. The OR operator is used when you want to expand your search results. The venn diagram below illustrates the function of the OR operator by shading all sections of the circles.



NOT operator is used when you want to eliminate or exclude a keyword or phrase from you search results. It is sometimes indicated by placing a minus sign (-) before the term or phrase to be excluded. For example, search query "Water NOT Pollution" would return only documents that contained the word 'water' and exclude any document that contained the word 'pollution'.



Running the Search: this basically involves typing the keywords in the search bar of your chosen search tool and clicking the search button. After a few seconds, the search tool would present a list of search results (list of webpages). The list is arranged mostly by relevance, with the most relevant item

listed first. The research results are an index list of documents titles which usually appear in bolded blue font, underlined and are hyperlinked to the actual documents or web pages that contain the related information.

Review and Revise your Search: After the search results have been displayed, it is important that you evaluated the results for quality and authenticity. You need to find out whether the search results adequately satisfy your information need. If the results adequately satisfy your information need, then you successfully completed your information search. However, if not then you start the process all over again from step two by refining your search terms or trying out other search tools.

Evaluation of online information resource

The Internet has become one of the most valuable source of information and the first point of call for most information seekers. However, it must be noted that information on the Internet can becoming from anybody (i.e from the novice to the expert). This means that not all information published on the Internet are credible or accurate. Its therefore necessary that you critically evaluate a source to test its credibility and accuracy before using it in an assessment to ensure that you are supporting your arguments with correct and credible information. In evaluating online resources, we can adopt some of the the criteria applied in evaluating print sources as outlined in Unit 1.

Authority

- Is it clear who is responsible for the contents of the page?
- Is there a way of verifying the legitimacy of the organization, group, company or individual?
- Is there any indication of the author's qualifications for writing on a particular topic?
- Is the information from sources known to be reliable?

Accuracy

- Are the sources for factual information clearly listed so they can be verified in another source?
- Is the information free of grammatical, spelling, and other typographical errors?

Objectivity

- Does the content appear to contain any evidence of bias?
- Is there a link to a page describing the goals or purpose of the sponsoring organization or company?
- If there is any advertising on the page, is it clearly differentiated from the informational content?

Currency

- Are there dates on the page to indicate when the page was written, when the page was first placed on the Web, or when the page was last revised?

Coverage

- Are these topics successfully addressed, with clearly presented arguments and adequate support to substantiate them?
- Does the work update other sources, substantiate other materials you have read, or add new information?
- Is the target audience identified and appropriate for your needs?

Reliability

- Is the host a reputable organization or individual? This can be done by examining the Website's URL if the source is from an educational institution (.edu), a government agency (.gov), a non-profit organisation (.org) or a commercial enterprise (.com), etc.
- Are there any disclaimer saying that the host institution or organisation is not responsible for the contents?
- Are there a check list of sources or references contact information, available collaboration, claims supported, and documentation supplied on the site?
- Does the site look well organized?
- Do the links work?
- Does the site appear well maintained?

(Adapted from Northern Michigan University, 2018)

Key ideas

- The Internet is a global network of computer networks. There are various ways by which individuals and organisation gets connected to the internet. Broadly speaking, these ways can be categorised as; Dial-up Internet Connection and Broadband Internet Connection.
- The advent of the internet has some advantages and disadvantages.
- There are several tools used in searching for information online. These tools can be broadly categorized as search engines, meta search engines, web directories and scholarly databases.
- The Internet is a valuable source of academic or scholarly information. However, the internet has no centralized monitor or control; and therefore the information found on the must be checked for reliability, authority, or accuracy.

Reflection

- What are some of the tools that I can use to acquire information online (i.e., search engines, meta search engines, web directories and databases)? How do I evaluate the quality of the information acquired using these tools?
- How has my participation in this session prepared me to be a better classroom practitioner? Which specific examples can I draw from the course to support my position?

Discussion

- How has this session equipped you to critically to evaluate online information for your classroom lessons?

UNIT 6: ETHICAL AND LEGAL ISSUES IN USING INFORMATION

This unit introduces the learner to the ethical and legal issues in the use of information. The unit introduces the learner to the copyright law and exceptions granted libraries under the law. The unit also highlights major citation styles used in academia with emphasises on the APA citation style. Finally, the unit discusses plagiarism and its consequences within the academic context.

Learning outcome(s)

By the end of the unit, the participant will be able to:

- Explain the ethical and legal issues surrounding information usage
- Discuss what constitutes plagiarism, strategies for avoiding it and its consequences
- Discuss copyright issues as pertains in the Ghanaian jurisdiction
- Properly cite sources using the APA citation style

SESSION 1: INTRODUCTION TO THE COPYRIGHT LAW

In this session, we will focus on the rationale behind the enactment of the copyright law. Specifically, we will consider the items that can be protected under the copyright law and the rights authors/creators of such copyrighted item enjoy under the copyright law. Furthermore, we will study the criteria or requirements for copyright protection.

Learning outcomes

By the end of the session, the participant will be able to:

1. Explain the rational and aim of the copyright law.
2. Identify items that can be protected under the copyright law.
3. Identify the rights the copyright law offers to authors/creators of literary and artistic works
4. State the requirements for copyright protection.

The Copyright Law

Copyright is one of the intellectual property rights given to persons over the creations of their minds. The copyright provisions constitute standards developed by the World Intellectual Property Organization (WIPO) of the United Nations designed to protect the rights of authors of literary and artistic works (such as books and other writings, musical compositions, paintings, sculpture, computer programs and films). The objective or the rational for copyright protection is to restrict the use of intellectual creation of others for commercial purposes and to ensure that authors/creators enjoy the financial benefits associated with their creations or inventions. To ensure that authors/creators have control over the use of the creations, copyright gives the authors/creators of original work “exclusive rights” to control the use of their creations/inventions for a limited period. These rights are:

- the right to make copies,
- the right to be credited for the work,

- the right to determine who may adapt the work to other derivative forms, such as translations, performance, financial benefit from the work, and other related rights.
- Right to transfer ownership

Legal Exceptions to the Copyright Law

Copyright law gives monopoly to authors and creators in order to stimulate intellectual and artistic creativity. The following are the legal exceptions:

1. Authors and creators may transfer their monopolistic rights to publishers for marketing purposes.
2. Users or the public have rights in the form of fair use (academic purposes and knowledge improvement).

Duration of copyright protection

The standard duration of copyright protection as proposed by the World Intellectual Property Organization (WIPO) of the United Nations works is copyrighted items to transfer to the public domain 50 years after the death of the author. However, despite this standard, duration of copyright varies from country to country. For example, in Ghana, authors enjoy copyright protection throughout their lives and 70 years after their death.

Copyright in Ghana

In Ghana, copyright is administered by the Copyright Office. Established in 1985, *the Copyright Office is responsible for the implementation of the copyright law, investigate and settle disputes that have not been reserved for settlement by the Copyright Tribunal.* However, over the years, three copyright laws have been enacted to reflect the current trends and demands. Initial copyright laws of Ghana (Copyright Act 85 of 1961 and PNDC Law 110) focused mainly on violations within the music industry and made provision mainly for the protection of the music industry. This led to the need to expand the law to include other artistic and literary works. The current copyright law (Copyright Act 690 of 2005) was then enacted to cover all areas of intellectual and creative products.

Requirements for Copyright registration in Ghana

- The work must be an original creation
- Fixed in a definite medium of expression
- The creator must be a citizen of Ghana or the work must be published in Ghana before elsewhere

Libraries and Archives

The copyright of Ghana (Act 690) gives special treatment to libraries and archives. Permitted Uses of Copyrighted materials by libraries and archives as enshrined in Section 21 of the Copyright Act of Ghana are:

1. A library or archive with activities that are not for gain may, without the authorization of the author of copyright, make a single copy of the work by reprographic reproduction.
2. A reprographic reproduction under subsection (1) may be made when the work reproduced is a published article, other short work or short extract of a work and where the purpose of the reproduction is to satisfy the request of an individual.
3. The library or archive shall under subsection (1) ascertain that the copy is to be used solely for the purpose of study, scholarship or private research.
4. The act of reproduction under subsection (1) permits that a copy is made in order to preserve or replace a copy which has been lost, destroyed or rendered unusable in the permanent collection of similar library or archive if it is impossible to obtain the copy under reasonable conditions.
5. Where a library or, archive requires more than a single copy of a work by reprographic reproduction, the permission for this shall be obtained from the author, other owner of copyright or from an appropriate collective administration society authorized by the publisher.

Penalties of copyright violations

Copyrighted infringement can result in criminal penalties including imprisonment, fines and civil judgments. In Ghana, individuals found culpable of copyright infringement are liable to the following punishment:

- A fine of not more than 1000 penalty units and not less than five hundred penalty units.
- Imprisonment of not more than three years.
- In case of a continuing offence, the culprit is liable to an additional fine not more than 25 penalty units and not more than 100 penalty units for each day during which the infringement occurred.

SESSION 2: PLAGIARISM

In this session, we will focus on what act constitutes plagiarism. Specifically, we will highlight examples of plagiarism, consequences of plagiarism and strategies students can adopt to avoid plagiarising.

Learning outcomes

By the end of the session, the participant will be able to:

1. Discuss what constitutes plagiarism
2. Identify the various types of plagiarism
3. State the consequences of plagiarism
4. Identify strategies for avoiding plagiarism

Meaning of Plagiarism

The word “plagiarism” comes from the Latin word ‘*plagiarius*’, meaning kidnapper. Plagiarism is the act of taking someone's work or ideas as your own without crediting or stating the sources. Plagiarism basically involves using a previously published idea, expression, word, image, or process as one's original creation. Plagiarism may be intentional or reckless, or unintentional and is regarded as a serious academic offence.

Examples of plagiarism

- Copying a text from the Internet, from a book or an article, without citing the source and handing it in as your own;
- Rewriting a text in your own words without stating your source;
- Paying for an essay and presenting it as your own;
- Handing in another student's work under your own name;
- Copying statistics, maps, tables or charts without stating your source;
- Stating someone else's artistic work as your own.
- Failing to clearly identify (by using quotation marks) materials which have been picked from other sources.

Types of Plagiarism

- **Complete Plagiarism** – Commonly referred to as the “Grandpa Syndrome”, complete plagiarism involves the copying of someone else's work in its entirety and presenting it as your own. It is regarded as the most serious form of plagiarism.
- **Source-based Plagiarism** – occurs when one provides an inaccurate citation or reference for the source of an information. This also includes citing or stating sources that are inaccurate or don't exist, data fabrication and data falsification.
- **Direct or verbatim plagiarism** - occurs when one copies text of another author, word for word, without the use of quotation marks or acknowledgement. It is like **complete plagiarism** except that it involves copying only a section of document rather than the whole document.
- **Self or Auto Plagiarism** – occurs when an author duplicates or reuses significant portions of his or her previously published work
- **Paraphrasing plagiarism** – also referred to as “Patch writing”, this is the most common type of plagiarism. It involves copying from another person's work with some minor changes in the sentences and presenting it as your own.

- **Accidental** – this form of plagiarism occurs out of neglect, mistake, or unintentional paraphrasing. However, it must be noted that whether intended or unintended, plagiarism is a serious academic offence, there is no excuse for plagiarism and the consequences are often the same for all types of plagiarism.

Avoiding unintentional plagiarism

To avoid plagiarizing accidentally:

- Keep accurate notes when doing research
- Organize your reference materials.
- Ask your tutors/instructors for assistance when you have questions
- Educate yourself on plagiarism policy
- Master the procedure for citing sources
- Use reference management software such as Mendeley, Refworks, Zotero, etc. to assist with writing references.
- Learn to paraphrase without borrowing the language or structure used in an original source.

Consequences of plagiarism

Plagiarism can have negative personal, professional, ethical, and legal repercussions. The following are some of the penalties or sanctions that can be applied to persons found plagiarising:

- Allegations of plagiarism may result in a student's probation, suspension or expulsion.
- Withdrawal of certificate
- The students work may not be graded
- Destroy student's professional and academic reputation which can ruin his/her professional or academic progression.
- Can lead to the cancellation or revocation of financial aid. E.g., A student on scholarship who is found plagiarism can have his/her scholarship withdrawn.
- Depending on the extent of plagiarism, one may face criminal or civil charges for copyright infringement.

SESSION 3: CITATION/REFERENCING

In this session, we will focus on the importance of citation or referencing in academia. The session will highlight the various citation styles. Specifically, we will focus on the APA citation style. Furthermore, we will study the two forms of citation (i.e., in-text and reference list).

Learning outcomes

By the end of this session, the student will be able to:

- Identify the two forms of citation
- Demonstrate the two ways of citing in-text
- Demonstrate how to cite books and journal articles using the APA style

Meaning of Citation/Referencing

Referencing or citation (used interchangeably) is the acknowledgement writers give an author(s) for including his/her ideas and words in their work. Through citation, authors are able to communicate to their readers the sources from which a particular piece of information was obtained. Referencing or citation demonstrates that an author has read relevant background literature about a particularly topic by providing the information necessary to finding those cited sources.

According to Masic (2014; p144) citation is important because, through citation authors are able to:

- demonstrate the foundation upon which their studies rest
- demonstrate how different the current study is from previous work.
- demonstrate how the current study is embedded firmly in existing literature.
- demonstrate clearly the contribution of the current study to the ongoing discourse.
- acknowledge the contribution of others
- enable our readers track down the sources cited
- avoid being found guilty of plagiarism

Citation Styles

There is a general consensus across all academic disciplines on the need for authors to acknowledge their sources of information. However, there are variations in the way such acknowledgements are done. This is largely due to the different needs of the various academic disciplines. Citation styles are the set of rules on how sources are cited in a particular academic discipline. It dictates the information necessary for a citation and how the information is ordered, as well as punctuation and other formatting. The most common citation styles are the American Psychological Association (APA) and Modern Languages Association (MLA). APA citation style is most commonly used to cite sources in social sciences while MLA is widely used in the humanities especially in writings on languages and literature. Other types of citation styles are the Chicago or Turabian, Harvard, American Anthropological Association (AAA), American Chemical Society (ACS), American Medical Association (AMA), American Political Science Association (APSA), American Sociological Association (ASA), etc.

Forms of Citation

There are two main forms of citation namely the in-text citation and the out-text citation or reference list. The in-text citation is the acknowledgement that is given to other authors within the body of the work. This acknowledgement is inserted in the text or body of the work to briefly document the sources of information cited. The out-text citation or reference list is the acknowledgement given to authors at the end of the work. The reference list contains more detailed information on how a reader can identify, locate and retrieve the works cited in the text.

The next sub-heading demonstrates how to write an in-text citation or reference list using the 7th edition of APA citation style.

In-text Citation

The acknowledgment in the body of the work can be done in two main ways. It can be done in the form of signal phrase/narrative or parenthesis.

Signal Phrase: This occurs when a writer wants to cite an author by beginning the statement with the author(s) name(s).

Example

In the view of Amoah and Mensah (2020), the eclipse of the sun is a magnificent spectacle but rarely occurs.

Parenthesis: This occurs when a writer wants to cite an author after quoting or paraphrasing the statement made by the author. However, unlike the signal phrase the word “and” is replaced with the ampersand (&) sign in the parenthesis.

Example

The eclipse of the sun is a magnificent spectacle but rarely occurs (Amoah & Mensah, 2020)

Number of Authors	Signal Phrase/Narrative Citation		Parenthetical Citation	
	First Citation	Subsequent citations	First Citation	Subsequent citations
Work by 1 author	Nkrumah (2018)	Nkrumah (2018)	(Nkrumah, 2018)	(Nkrumah, 2018)
Work by 2 authors	Adjapong and Mensah (2012)	Adjapong and Mensah (2012)	(Adjapong & Mensah, 2012)	(Adjapong & Mensah, 2012)
Work by 3+ authors	Ampofo et al., (2015)	Ampofo et al. (2015)	(Ampofo et al., 2015)	(Ampofo et al., 2015)

REFERENCE LIST

The rules for writing the out-text citation or reference list are dependent on the type of document or work (i.e., books, periodicals, electronic resources, etc.). Despite the variations, an out-text citation or reference list is made up of four basic elements regardless of the type of work;

- **Author(s):** the individual(s), organization or institution responsible for the work
- **Date of publication:** the date of publication can be year only; year, month and day (exact date); year and month; year and season; or a range of dates (e.g., range of years).
- **Title of the work:** There are two categories of titles: works that stand alone (e.g., reports, full-text books, and webpages), and works that are part of a greater whole (e.g., edited book chapters, magazines and journal articles).
- **The source:** this provide details about how the work can be found or retrieved. This usually provide information such as the publisher of the work, a web address/URL to the work or both.

BASIC FORMAT FOR A BOOK

Authors' last name, First Initial(s). (Year). *Book title: Subtitle* (Edition). Publisher.

Book with One Author

Amakye, T. (2010). *Domestic debt exchange programme: A panacea to Ghana's economic woes*. Asempa Press.

Book with Two Authors

Kakrabah, T. E., & Obeng, J. H. (2015). *Promoting ecotourism in Ghana: Experiences from the Coast*. Jossey-Bass.

Book with Three to five Authors

Amoah, Y. A. et al. (2003). *Beyond appearance: A stereotype of the Ghanaian woman*. American Psychological Association.

Edited Book

Smith, J. A. (Ed.). (2008). *Qualitative psychology: A practical guide to research methods*. Sage.

Book chapter in an edited book

Dillard, J. P. (2020). Currents in the study of persuasion. In M. B. Oliver, A. A. Raney, & J. Bryant (Eds.), *Media effects: Advances in theory and research* (4th ed., pp. 115–129). Routledge

BASIC FORMAT FOR AN EBOOK:

Author's Last name, First Initial. (Year). *Book title* [format of book]. Publisher. URL

Example

Dadzie, S. A., & Ibrahim, S. (2014). *Communication in autistic children* [eBook edition]. Sage Publishing Company. <https://doi.org/10.1007/978-1-4757-4806-2>

BASIC FORMAT FOR A PRINT ARTICLE

Last name, First Initial. (Year, Month, Day). Article title. *Magazine/journal/ Newspaper Title*, *Volume number* (Issue number), Page numbers of the entire article.

Magazine Article

Owusu, E. (2006, April). Act of obedience and disobedience in an Akan society. *African Watch Magazine*, 312(1871), 31-40.

Journal Article

Moreh, S., & O'lawrence, H. (2016). Common risk factors associated with adolescent and young adult depression. *Journal of Health and Human Services Administration*, 39(2), 283–310.

Newspaper Article:

Agbenorsi, J (2023, January 24). Former MASLOC boss trial: Court orders Alex Mould, Gavivina to pay GH¢5m bail bond to state. *Daily Graphic*, p. 7.

Note: For newspaper articles, *p.* or *pp.* precedes page numbers for a newspaper reference in APA style. Single page takes *p.*, e.g., *p. 2*; multiple pages take *pp.*, e.g., *pp. 2, 4* or *pp. 1-4*.

BASIC FORMAT FOR AN ONLINE ARTICLE

Author's Last Name, First Initial. (Year). Article title. *Magazine/Journal/Newspaper Title*, *Volume number* (Issue number), Page numbers. doi or URL of publication home page

Online Journal Article with DOI Assigned

Basic Format

Author, A. A., & Author, B. B. (Year). Title of article. *Title of Journal*, volume number (issue number), page range. <https://doi.org/10.0000/0000>

Example

Nolen-Hoeksema, S. (2001). Gender differences in depression. *Current Directions in Psychological Science*, 10(5), 173–176. <https://doi.org/10.04500/20182732>

Online Journal Article with no DOI Assigned

Basic Format

Author, A. A., & Author, B. B. (Year). Title of article. *Title of Journal*, volume number (issue number). <http://www.journalhomepage.com/full/url/>

Example

Wagner-Pacifci, R., & Hall, M. (2012). Resolution of social conflict. *Annual Review of Sociology*, 38, 181–199. <http://www.jstor.org/stable/23254592>

