3.1.2 Information

In the paragraphs above, we considered the processing of data. We found that having done such processing, we were able to make some statements on the situations or events on which the data were obtained. Such statements could be used to guide our future response or action. This is the function of information: to guide a person on what to do, how and when to do it. Consequently, information may be defined as a fact or set of facts that can influence a person's response in a given situation. Ideally, information reduces or even eliminates a person's sense of uncertainty. We could also define information as the outcome of data processing.

Information is a vital resource. It would be impossible to live a normal life without having adequate information. Just imagine waking up one morning to find that you are alone in the house. Not even one other person is around in your house, in your compound, and in the neighbourhood. A thousand questions are racing through your mind, but there is not a soul around to answer you. You decide to move down some distance but still there is not a single person anywhere. What would you do? For how long would you be able to endure that experience?

In order to embark on tertiary education, you needed information to decide what programme to choose. After completing your application for admission, you waited with some anxiety for, information on whether you have been given admission or not. You did not know what else to do until you got that information. A businessman would need up-to-date information on the market situation, and changes in government policies that may affect his business. He would normally consult on a regular basis with his colleagues and share information with them. Today, people are realising more and more the value of information and so a science has developed around it. Information science is the science that deals with the generation, acquisition, organisation, storage, retrieval, dissemination and use of information, its characteristics as well as its impact at the individual, corporate and societal level.

Information plays a key role in every sphere of life. Information is at the core of success of both individuals and corporate bodies in commercial and business enterprises. Information confers competitive advantage on those who have it against their counterparts who do not have it. Information gives power. The countries that have the capacity to acquire or generate and manage information use it to improve their socio-economic status and advance ahead of other nations that do not have such capacity.

Countries in the Third World do not seem to fully appreciate the value of information. In many of these countries, most people in the civil service and in government seem to regard information as what government wants the citizenry to hear, the kind of releases made by the minister or ministry of information, or the news one hears on radio and television or reads in the newspaper. That is information quite alright; but it is "soft" information. The kind of information that confers power in our age, include, scientific, technological, economic and developmental information.

The crucial importance of information has also dictated that both organisations and national governments take appropriate measures to put in place the infrastructure necessary for managing and possibly for controlling it. More and more investment is being made in the establishment of information systems. National, regional and global computer and telecommunication networks have been developed for the management and communication of information. The countries in the Third World have been talking of a new information order. That is a reaction against the domination by the Western and industrialised countries of the global information industry.

3.2 Value of Information

The value of information is enhanced by its accuracy, relevance, timeliness, source, up-to-dateness, as well as the packaging format. If you have any reason to doubt the accuracy of a piece of information, you would not like to act on it. As a matter of fact, inaccurate information could be more disastrous than no information. If it becomes necessary to verify information coming from a particular channel, the cost of such information will be higher, and that may discourage the use of it.

It is quite, important that information be relevant to the purpose for which it is needed. If you would like to read something about the industrial revolution and a library staff gives you a book on the colonisation of Africa, would you be pleased? You may accept the book if you think you might have time to read it, but your need for information on the industrial revolution has not yet been satisfied. You may in fact reject the book. The book is still important and will be useful to someone else but not to you at that point in time.

The other consideration is timeliness. For information to be useful, it must be received in good time to make a difference in what the person who receives it is actually doing. If you wanted the information on industrial revolution in the course of preparing for an examination and

you could not get it until after that examination you would no longer attach much importance to it.

The source of information could be very important. The source could have a high level of credibility so that the person using the information could do so with much confidence. Otherwise it could have some qualified level of credibility. Certainly you would be more assured of the authenticity of information when you hear that it has come from an impeccable source.

It must be noted that information has to be presented in a way that makes it easy to use. A brief summary may be enough and much better for a business executive than a voluminous report. Graphic representation may carry more impression than pages of a statistical report. A video presentation could be better appreciated than a written version on a particular subject. The reverse may be the case in another situation.

SELF-ASSESSMENT EXERCISE

What are the functions of information? Name six factors that determine the value of information.

4.0 CONCLUSION

In this unit you were introduced to the basic concepts of data and information. You should now be able to explain the meaning of data, data processing and information. You can now better appreciate the value of information and the factors that determine the usefulness of information.

5.0 SUMMARY

In this unit, you have learnt what data is and a number of ways of handling data in what is referred to as data processing. You also learnt what information is, the importance of information, and the factors that dictate the usefulness of information. In the next unit, you will learn to distinguish between information and document and you will study the processes of documentation.

6.0 TUTOR-MARKED ASSIGNMENT

Write an essay on "Data and Information". Your write-up should be between six and eight pages of typed A4 double-spaced, 12 points Times Roman. You should include the following:

i. Definition of data
ii. Ways of recording
iii. Data processing
iv. Definition of information
v. Importance of information
vi. Government and corporate roles in information management.

7.0 REFERENCE/FURTHER READING

Susan, A. (1972). *An Introduction to Computers in Information Science*. Metuchen, N.J.: Scarecrow.

UNIT 2 DOCUMENT AND DOCUMENTATION

CONTENTS

1.0 INTRODUCTION

In the last unit you learnt the basic concepts of data, data processing, and information. Now you are about to learn the difference between information and document and to be introduced into the whole process of documentation. You will see that documentation is the essence of research.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- distinguish between information and document
- describe the characteristics of documents
- explain the principles and history of documentation
- explain how research contributes to the growth of information and creation of knowledge
- explain the concept of bibliographic control.

3.0 MAIN CONTENT

3.1 Information and Document

A document is a source of information, and it is as useful as the information in it. A letter from your, uncle is a document. So also is every other letter you receive. Your birthday certificate is a document. It says something about your birth. Every book you buy and add to your

collection is a document. The minutes of the meetings of your club are documents. Your photo albums and your photographs are more examples of document. Your diary is another document. We can add to the list such documents as an issue of a newspaper or a magazine, an audio tape with music or speech, a video recording of any event, a film strip of a local festival, directories, sales promotion brochure and leaflets, painting and maps. Now you can see that when we use the term "document" we are actually referring to a wide range of information sources. A document is therefore the vehicle conveying information.

SELF-ASSESSMENT EXERCISE

Examine the following list and identify the items that are not documents.

- Identity card
- Course guide
- Unused note book
- Video of "Things Fall Apart"
- Uncompleted application form
- Map of Nigeria.

3.2 Characteristics of Documents

We shall now examine some of the characteristic of a document. The first fact to note is that every document must originate from somewhere. In many cases, there is one individual or more persons who created the document. A person who created a document is the author. If the document is a book, the author did all the work of writing it. This course material you are reading now was written by somebody who is the author. A book may have one author or multiple authors. Sometimes, a number of authors contribute sections or chapters of a book while one of them or someone else compiles these contributions and edits them to produce the book. The latter is the editor. On the front back of such a book you will find something like

Democracy in Nigeria

Edited by O.O. Galu

Sometimes the originator of a document may not be just an individual or some individuals but rather an organisation, for example the National Universities Commission, the Ministry of Information, UNESCO, and so forth. That is a case of co-operative authorship. Even though somebody in the organisation wrote the material, it was written in the name of the organisation. Later in this course you will see the importance of author in locating information.

Another feature, of a document is the place of publication. When a document has been produced in a large quantity for sale or distribution, it is said to be published. The place where the work of preparing the document was done is the place publication. Usually, the place of publication is the place where the publisher has its main office. However, a publisher may publish a document in more than one place. Take any book and inspect the title page or the reverse of the title page and you will find where the book was published. There you will also find the publisher. There are a number of well-known publishers in Nigeria. There are also many little-known publishers.

After the author, the title of the document follows in a bibliographic record. The title is the name that the author gives to the document. The title could be in two parts: the main title followed by a sub-title, for example: "Computer Concepts: A User Perspective." Besides identifying a document, the title could also give a glimpse into what the document is about. The title above suggests that the book is about computers. It must be noted that this is not always the case. If you see a document with the title, "An Enterprise in Futility" would you be able to guess what it is all about?

Another feature that may identify a document is the edition. A new edition comes out when a document is revised. Revision is usually necessary for the purpose of correcting errors in a document, enhancing aspects of the document, supplying new information, expanding the scope of coverage and so forth. Some documents go through many revisions, which generate successive editions. Two different editions of the same document are actually regarded as two different documents.

The date of publication is no less important. The date of publication says how recent the document is. In some subject field publications become quickly out of date.

Lastly, we should mention the unique identification number that every book should have. It is called the ISBN (International Standard Book Number). It is a 13 digit number, for instance 978-1-846-14792-0. ISBN not only identifies the book, but also the publisher and the country of publication. Serial publications such as journals and magazines also have a unique identification number called ISSN (International Standard Serial Number).

You may wonder if every document has all the features described above. Not every document has them. A document that has not been published cannot have a publisher or place and date of publication. We may classify information source as published or unpublished. The value of an information source does not depend as much on whether or not it has

been published as to the novelty and potential usefulness of the information it contains.

SELF-ASSESSMENT EXERCISE

- Name seven particulars of documents.

3.3 Documentation

Here is a question to thrash out, "How do documents come into existence?" Earlier we said that they are originated by someone or an organisation, especially in the case of textual documents. In the mind of anyone who creates document, the intention is to have a more-or-less permanent record of an event or phenomenon or ideas.

A major requirement for documentation is a language. People express their thoughts and expressions in a language they have learnt in whatever way. The language serves also as a medium for documenting their thoughts and expressions. Every ethnic community evolves its language and culture, which influence the worldview of its members. In other words, a language serves for the purpose of communication and documenting information. For instance, the language helps to typify an observation and assign it to an appropriate category.

In a country like Nigeria where oral culture still has a dominant role, documentation of oral information is very important. Festivals and cultural shows are better captured by video techniques. Efforts to reach the rural dwellers in Nigeria with information will be largely unsuccessful unless the information content is transmitted in a way that is compatible with their oral culture.

While we recognise the information needs of rural dwellers, we are going to pay more attention in this course to the information issues that are more pertinent to the literate segment of the society, especially because of the urgency of their needs and expected impact on national issues. A greater proportion of the information that will be stored or retrieved for their benefit is in textual form. We should begin by reviewing the historical development of documentation in textual form.

SELF-ASSESSMENT EXERCISE

What is the most important requirement for documentation?

3.4 History of Documentation

The earliest form of documentation was found in caves; and the format was pictorial. Then came the cuneiform and later the hieroglyphics of the Sumerians/Assyrians and Egyptians respectively. Their symbols as well as those of the Chinese were basically pictograms. Much later, the use of standardised characters was introduced in various parts of the world. This allowed the early civilisations to benefit from a well-developed means of literary communication. Documentation was done on various materials, which are unknown to our generation, including papyrus, codex, parchment, and velum.

The development of the book was boosted by the invention of the printing press, which occurred between 1353 and 1355. In the early years, only the Bible was printed and distributed in printed form. Later, the transactions of learned societies were printed. Other publications followed and the growth of publications took a dramatic turn, leading to the information explosion of the second half of the twentieth century. Beside the rapid growth of publications, the printing press facilitated the availability of documents, which in turn encouraged education, increase in literacy level, and a reading culture. Furthermore, libraries increased in number and their function both as custodians of documents and intermediaries to users grew in significance.

The printing press played a crucial role in documentation and remained unchallenged for several centuries. By mid-19th century advances in optical technology ushered in photography, which, in documentation, became a complement to the printing press. Photography was followed by radio transmission and telephony. Alongside these developments was the success in sound recording in phono discs. One technology became a springboard for another. So, before the end of the 19th century motion pictures became possible and cinema houses sprang up. From the 1930s, television began broadcasting news and educational and entertainment programmes to millions of homes. Finally, the computer came out as the central piece in information processing, storage and dissemination. Now computer networks have become the primary vehicle for conveying information all over the world.

SELF-ASSESSMENT EXERCISE

Name the most significant inventions that have facilitated documentation.

3.5 Creation of Knowledge

A major contribution to the information explosion phenomenon has come from research and scholarly communication. A scholar always wants to engage in research and to publish the findings of the research. He has to document the output of his research to establish his claim to his findings as well as to communicate or make them available to other scholars in a form that can be preserved for future generations. The cycle of activities that generate the information to publish is presented in Figure 1.

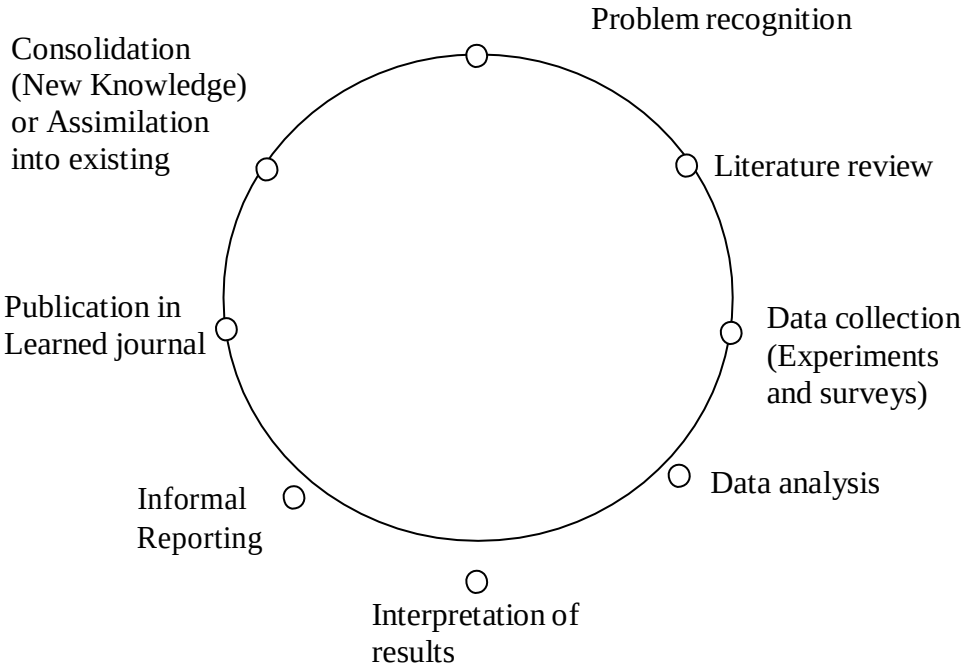

Fig. 1: Information Generation Cycle

There is the tendency to publicise the research findings in various informal outlets such as reports and conference proceedings; but ultimately the findings are published in a referred journal. This is the preferred outlet of communicating research results. Such outlets are called primary sources of information because they are the very first media that report new information coming directly from research efforts. Having being published, the research findings are subjected to years of use, critical assessment, and incorporation into existing body of knowledge and possibly to extend the frontiers of knowledge.

After the primary information sources are the secondary sources that draw the attention of information users to the primary publications. They include indexes and abstracts, bibliographies, guides, and so forth. The tertiary sources, for example textbooks, compile and integrate the

scattered information in the primary and (sources with the aid of the secondary sources).

3.6 Bibliographic Control

As far back as the 19th century, the large amount of information resources available made it impossible for people to sift through and select only what was relevant to them. Some form of aid had to be devised when things were getting out of hand. Then publications intended to inform people of what information was available in various disciplines or that was published within national boundaries began to emerge. They came under such names as "bibliography", "indexes", "guide to the literature", and "directory". The term "bibliographic control" points to the fact that a specific service provides an information user with a comprehensive list of bibliographic records of the information sources that have come into existence within the period covered.

A bibliographic record for a book consists of the name of the author (or names of the authors), the title of the publication, the place of publication, the publisher and the year of publication. A record for a journal article consists of the name of the author (or names of the authors), the title of the article, the journal in which it was published, the issue of that journal and the pages taken up by the article.

The bibliographic record of a book will be written like:
O.O. Galu. *Democracy in Nigeria*. Lagos: Home Press, 2001.

The bibliographic record of a journal article will be written like:
C. P. Mogaji. “Life Cycle of Fleas.” *Top Journal of Zoology*, 34 (3), 1987, 56-89.

4.0 CONCLUSION

In this unit, you have learnt the concepts of information and document, the characteristics of documents, and the principles and history of documentation. You should now be able to explain howl research contributes to the growth of information and creation of knowledge.

5.0 SUMMARY

In this unit, you have learnt the basic concepts of information, document and documentation. These are fundamental to the whole business of information storage and retrieval. In the next unit you will be introduced to the organisation of information.

6.0 TUTOR-MARKED ASSIGNMENT

Write an essay on "Documentation and Growth of Information." Your write-up should be between six and eight pages of A4, typed with double spacing and 12 points Times Roman.

7.0 REFERENCE/FURTHER READING

Susan, A. (1972). *An Introduction to Computers in Information Science*. Metuchen, N.J.: Scarecrow.

UNIT 3 CLASSIFICATION

CONTENTS

1.0 INTRODUCTION

In the last unit, you learnt the basic concepts of information, document and documentation. Now you know what we store and retrieve in an information system. In this unit, you will be introduced to the organisation of information.

2.0 OBJECTIVES

At the end this unit, you should be able to:

- explain the meaning and purpose of classification
- describe several approaches to the creation of categories
- distinguish between natural and artificial classification
- describe the nature of hierarchical classification
- classify documents using a number of different classification schemes.

3.0 MAIN CONTENT

3.1 Need for Order

One of the capabilities of man is his ability to organise and see things in order. When you walk into a super-market you will see that the items there are displayed in sections. The items of the same are in the same section. Can you think of why that is so? You would have realised that it is much easier to locate the items. You would not be looking for shoes in a section with the label "household ware". When you go into the market, you do not go on roaming all over the place. You know exactly which area to go because you know what you need and you know which section of the market sells, things of that type. Perhaps the best example of organisation of materials you have noticed or may notice is in the library. We shall soon talk more about how such elaborate organisation is done.

First of all how do you arrange your books? It is very likely you do not arrange or organise, them in any particular order; and certainly you do not have any problem with that. You can pick out any book you want from the heap without any difficulty just because the books are not very many. Now imagine a room with piles and piles of books on the floor and almost reaching the ceiling. The whole room has been taken up by books. How easy would it be to locate a book from that room? Sure enough, nobody would like the unpleasant task of bringing books from there for people who come to ask for them.

In order to deal with this difficulty, various ways have been evolved to organise knowledge to classes representing subject fields. Each class is divided into subclasses dealing with recognisable segments of that field. The subclass is also divided into smaller units representing well-defined subject matter within the segments in a subclass. Information resources or documents are then arranged in classes, subclasses, and units within subclasses. Every document that is stored in the library is represented by a record in a collection of files, which is made available to those who come o seek for information.

3.2 What is Classification?

Classification is the act of grouping things together. Classification portrays the relationships between things, and between their classes. In fact, classification is a way of imposing order on creation. Since it is easier to think in terms of classes than individual things in creation, classification allows us to generalise. 1t would be difficult if not impossible to reason if human beings did not have the power of classifying and creating categories. What we know as knowledge is the

outcome of grouping, dividing and registering thoughts, things and ideas in an unlimited number of ways.

For consistent classification, there must be a classification scheme. A classification scheme is simply an orderly arrangement of categories of classes, a class being any group of entities sharing the same characteristics. A characteristic is an attribute by which concepts may be separated into groups or further subdivided by subject. Thus, the purpose of classification is to bring together (or form classes of) entities that share common characteristics and to separate entities that do not share common characteristics.

3.3 Aristotle's Categories

According to Aristotle, all scientific knowledge consists of the arrangement of particulars under class concepts or universals, and in the combination of these concepts into a system. He saw the goal of science as being to define and explain the nature of a subject by its essential properties and by its differentiating properties, which set it apart from other groups. In other words, the goal of science is a complete classification of objects of knowledge into classes with the characteristic similarities within groups and differences between groups. Aristotle further stated that the definition of a term or a class concept must be a complete statement of:

(a) the essential attributes of the class
(b) the peculiar attributes of the class
(c) the next higher genus
(d) the properties which differentiate it from others
(e) accidents (that is, properties that are not part of the definition but common to the class and other classes).

In his attempt to classify universal knowledge, Aristotle created ten classes or categories of models of being. They are as follows:

1 Substance
2. Quantity
3. Quality
4. Relation
5. Place
6. Time
7. Situation or position
8. Possession or acquired character
9. Activity
10. Passivity.

3.4 Emmanuel Kant's Categories

The German Philosopher, Emmanuel Kant further elaborated Aristotle's ideas and defined four categories, which he regarded as the fundamental and universal forms of thinking objects and their relations. He pointed out that through the use of these categories, the mind builds up the material of sense perception into a systemised or orderly whole of intelligible experience. Kant's categories are as follows:

1. Categories of quantity
   Unity
   Plurality
   Totality
2. Categories of quantity
   Reality
   Negation
   Limitation
3. Categories of relation
   Inherence and subsistence, or substance
   Causality and dependence
   Community, or reciprocity of causal influence
4. Categories of modality
   Possibility - Impossibility
   Existence - Non-existence
   Necessity – Contingency.

3.5 Natural and Artificial Classification

Here we may wish to distinguish between natural and artificial classification. A natural classification exhibits the inherent properties of things being classified. It is based on the natural properties that occur regularly and cannot be separated from the things being classified. Such classification, which is said to conform to the order of nature, is also referred to as philosophical classification. Artificial classification, on the contrary, is based only on some accidental property of things. It is usually a case of grouping things for specific purposes on the basis of arbitrary selection of an accidental trait in the objects being classified.

There are different types of natural classification, which may be identified by the internal structure of the class classification. For instance, we may distinguish between hierarchical and referential classification. The latter is a pragmatic approach to classification using a single trait or property irrespective of other characteristics. The same thing may be classified differently depending on the property used. Here we are more interested in hierarchical classification.