NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ARTS AND SOCIAL SCIENCES

COURSE CODE: INR 451

COURSE TITLE: INTRODUCTION TO RESEARCH IN INTERNATIONAL RELATIONS

COURSE GUIDE

INR 451

Introduction to Research in International Relations

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Introduction

Welcome to INR 451: Introduction to Research in International Studies. This is a three credit unit course available for students in the undergraduate International Relations at the four hundred level. The course provides an opportunity for students to acquire a detailed knowledge and understanding of what research in the field of International Studies is, its importance, types, scope and methods of research in International Studies. Curiosity about events in the international system such causes of wars or cooperation among nations, the behaviour of organizations, and individuals in the international system are reasons why one would like undertake a research to find answers. The course, explain in details notions like Traditional ways of Knowing, which include: appeal to authority of experts; personal intuition or acute common sense; pure logic; appeal to experience; and fideism.

It also touches on scientific assumptions and scientific ways of research such as : Nature is Orderly, We can know nature, All natural phenomenon have natural causes, Knowledge is derived from the acquisition of experience. In addition, the courses treats the major components of the research, explain what is a research problem and how to select a research problem. It also treats topic selection, factors guiding topic selection and sources of topics. It goes further to look at issues such as variables, identification of variables and their place in research, as well as types of variables. It treats, as well, the question of hypothesis, testing of hypothesis and identification of characteristics of hypotheses.

This course guide provides you with the necessary information about the contents of the course and the materials you will need to be familiar with for a proper understanding of the subject matter. It is designed to help you to get the best of the course by enabling you to think productively about the principles underlying the issues you study and the projects you execute in the course of your study and thereafter. It also provides some guidance on the way to approach your tutor-marked assignments (TMA). You will of course receive on-the-spot guidance from your tutorial classes, which you are advised to approach with all seriousness.

Overall, this course guide will fill an important vacuum in the field of international studies, especially as it is interested in knowing and explaining why nations behave the way they do, as well interpreting the relationship among nation-states in terms of alliances and confrontational relationship that colour inter-states' relations in the arena of international politics.

Course Aims

The aims of this course are to:

i. Explore research methodology is, its importance, scope and focus. research methodology.
ii. Distinguish between the scientific method and others.

iii. Identify the major components of the research.
iv. Explain what is a research problem and how to select a research problem.
v. Explore what variables are, types and their place in research.
vii. Discuss data, methods of data gathering and its analysis in research.
viii. Treat literature review, identify the sources of existing literature and how to structure the review of literature.
ix. Look at research report writing, its structure and types of research report writing.

Course Objectives

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

i. Define research methodology is, its importance, scope and focus. research methodology.
ii. Explain the difference between the scientific method and others.
iii. Enumerate the major components of the research.
iv. Explain what is a research problem and how to select a research problem.
v. Define variables, identify types and their place in research.
vii. Explain Data, methods of data gathering and its analysis in research.
viii. Explain literature review, identify the sources of existing literature and how to structure the review of literature.
ix. Define research report writing, its structure and types of research report writing.

Working through the Course

It is advisable that students should carefully study each unit, beginning with this *study guide*, especially since this course provides an opportunity for you to understand the major approaches in research. It is also advisable that students should make a habit of noting down any question they might have for tutorials. In addition, students should endeavour to note some of the relevant knowledge that would help them as future Nigerian policy makers in the area of international politics.

Course Materials

1. Course guide
2. Study units
3. Textbooks
4. Assignment file
5. Presentation schedule.

Study Units

There are three modules in this course. Each module is made up of four units, except module three that is made of five units. Overall therefore, you will find a total of thirteen units in this course. Some units may be longer and/or more in depth than others, depending on the scope of the course that is in focus. The four modules in the course are as follows:

Module 1

Unit 1 Definitions of Research Methodology

Unit 2 Importance of Research Methodology

Unit 3 Scope of Research Methodology

Unit 4 Focus of Research Methodology

Module 2

Unit 1 Identification of Topics in Research

Unit 2 Selection of a Good Topic for Research

Unit 3 Development of Hypothesis for Research

Unit 4 Use of Library in Research

Module 3

Unit 1 Gathering of data in Research

Unit 2 Analysis of Data in Research

Unit 3 Literature Review in Research

Unit 4 Report Writing in Research

Unit 5 Documentation in Research

Each module is preceded with a listing of the units contained in it, and a table of contents, an introduction, a list of objectives and the main content in turn precedes each unit, including Self-Assessment Exercises (SAEs). At the end of each unit, you will find one or more Tutor-Marked Assignment (TMA) which you are expected to work on and submit for marking.

Textbooks and References

At the end of each unit there is a list of relevant reference materials which students may wish to consult as the need arises. The list is, however, not exhaustive and sacrosanct. Students are encouraged to cultivate the habit of consulting as many relevant materials as they are able to within the time available.

Assessment

Two types of assessment are involved in the course: the Self-Assessment Exercises (SAEs), and the Tutor-Marked Assessment (TMA) questions. Students' answers to the SAEs are not meant to be submitted, even though important, they are also important since they give students an opportunity to assess their own understanding of the course content. Tutor-Marked Assignments (TMA) on the other hand are to be carefully answered and kept in your assignment file for submission and marking. This will form 30% of the total score in the course.

Tutor Marked Assignment

At the end of every unit, you will find a Tutor-Marked Assignment which you should answer as instructed and put in your assignment file for submission. However, this Course Guide does not contain any Tutor-Marked Assignment question. The Tutor-Marked Assignment questions are provided from Unit 1 of Module 1 to Unit 5 of Module 4.

Final Examination and Grading

The final examination for INR 251 will take two hours and carry 70% of the total course grade. The examination questions will reflect the SAEs and TMAs that you have already worked on. It advisable for students to spend the time between their completion of the last unit and the examination in revising the entire course. They will certainly find it helpful to also review both your SAEs and TMAs before the examination.

Course Marking Scheme

The following table sets out how the actual course marking is broken down.

Assessment	Marks
Four assignments (the best four of all the assignments submitted for marking).	Four assignments, each marked out of 10%, but highest scoring three selected, thus totalling 30%
Final Examination	70% of overall course score.
Total	**100% of course score.**

Course Overview Presentation Scheme

Units	Title of Work	Week Activity	Assignment (End-of-Unit)
Course Guide			
Module 1:			
UNIT 1	Definitions of Research Methodology	Week 1	Assignment
UNIT 2	Importance of Research Methodology	Week 2	Assignment
UNIT 3	Scope of Research Methodology	Week 3	Assignment
UNIT 4	Focus of Research Methodology	Week 4	TMA 1 to be submitted
Module 2:			
Unit 1	Identification of Topics in Research	Week 5	Assignment 1
Unit 2	Selection of a Good Topic for Research	Week 6	Assignment 1
Unit 3	Development of Hypothesis for Research	Week 7	Assignment 1
Unit 4	Use of Library in Research	Week 8	TMA 2 to be submitted
Module 3			
Unit 1	Gathering of data in Research	Week 9	Assignment 1
Unit 2	Analysis of Data in Research	Week 10	Assignment 1
Unit 3	Literature Review in Research	Week 11	Assignment 1
Unit 4	Report Writing in Research	Week 12	Assignment 1
Unit 5	Documentation in Research	Week 13	TMA 3 to be submitted
	Revision	Week 14	
	Revision	Week 15	

Units	Title of Work	Week Activity	Assignment (End-of-Unit)
	Examination	Week 16	
	Examination	Week 17	
	Total	Week 17	

What You Will Learn In the Course

Research methodology provides you with the opportunity to gain an insight and an in -depth understanding of research procedure in International Studied. The first module provides you with the definitions of research methodology, its importance, scope of research methodology and Focus of research methodology. The second module will provide you with identification and selection of a good topic for research, development of hypothesis for research, as well as the use of library in research. The third Module will introduce you to procedure for gathering data and its analysis in research, the act of literature review in research, report writing in Research and documentation in research.

What You Will Need for the Course

Students would have to purchase textbooks and other materials recommended to enable them have a broader understanding of issues treated in the course. They would also need quality time in a study-friendly environment every week. For those who are computer-literate (which ideally they should be), they should be prepared to visit recommended websites. they should also cultivate the habit of visiting reputable physical libraries accessible to them.

Tutors and Tutorials

There are thirteen (13) hours of tutorials provided in support of the course. Students will be notified of the dates and location of these tutorials, together with the name and phone number of the tutor as soon as they are allocated a tutorial group. The tutor will mark and comment on students assignments, and keep a close watch on their progress. Students should ensure to send their tutor-marked assignments promptly, and feel free to contact the tutor in case of any difficulty with their self-assessment exercise, tutor-marked assignment or the grading of an assignment. In any case, it is advised that students should endeavour to attend the tutorials regularly and punctually. Always take a list of such prepared questions to the tutorials and participate actively in the discussions.

Conclusion

In conclusion, all the features of this course guide have been designed to facilitate learning in order that you achieve the aims and objectives of the course. They include the aims and objectives, course summary, course overview, Self

Assessment Exercises and study questions. Students should ensure that they make maximum use of them in their study to achieve maximum results.

Summary

INR 451: Introduction to Research in International Studies is a three credit unit course available for students in the undergraduate International Relations at four hundred level. The course provides an opportunity for students to acquire a detailed knowledge and understanding of research method in International Studies. It provides students the definitions of research methodology, its importance, scope of research methodology and the focus of research methodology. It also teaches the students how to identify and selection of a good topic for research, develop hypothesis for research, as well as the use of library in research. Lastly, the course introduces students to procedure for gathering data and its analysis in research, the act of literature review in research, report writing in Research and documentation in research.

All students are wished success with the course and it is hoped that they will find it both interesting and useful!

Module 1

Unit 1 Definitions of Research Methodology

Contents

1.0 Introduction

What may be the causes of aggression or even war between countries? Why do countries choose to trade with others but not every country? Why would the President of the United States of America visit Ghana but not Nigeria? Curiosity about questions such as these is probably the most important reasons why one would like undertake a research to find answers. Today the international system is made up of many more countries than have ever been imagined. Just recently, the Republic of South Sudan was created in Africa in 2011.

All countries as many as they are in various parts of the world are involved in the pursuit of different interests. Thus the problems that bother African countries may not be the same with Asian nations; and United States America's interest may be of importance to Portugal but not Nigeria. Research therefore is necessary and remains the most acceptable way of providing relevant information for one to explain what happen on the international scene. In this unit, students will be introduced to the concept of research methodology and why it is important in the study of the behavior of states, organizations, and individuals in the international system.

2.0 Objectives

At the end of this unit students should be able to explain

i. What research methodology is.
ii. identify the importance of research methodology.
iii. Define the scope and focus of research methodology.

3.0 MAIN CONTENT

3.1 Definitions of Research Methodology

To research is to look for knowledge. It can be said to be a scientific and systematic inquiry for valid or pertinent information on a specific topic

(Kothari, 2004:1). Research is therefore an act of scientific investigation. It is a careful investigation or inquiry through a search for new facts in any branch of knowledge. The research process is a movement from the known to the unknown. It is termed a voyage of discovering. Human beings possess the vital instinct of inquisitiveness to know when they are confronted by the unknown. The quest for knowledge induces us to prove and attain full understanding of the unknown.

The research method according to Akpa (2011:2) is seen as a tool for

> "creating knowledge, wisdom, understanding and awareness through a careful, patient, systematic and objective gathering, recording and analyzing of data pertaining to a knotty problem of interest with a view to uncovering the facts and determining the truth".

Knowledge can better be gained through a search leading to understanding and awareness. In this way research expands the frontiers of knowledge and shrinks those of ignorance. In the contemporary world of the 21st century, knowledge is power and the foremost determinant of competitive advantage of nations. Again to Akpa (2011) research is indeed the engine of societal growth and development. Contemporary scientific and technical competence of advanced societies is therefore indisputably the function of research.

The scientific research endeavour is distinguished from other methods of haphazard gathering of information by its systematic and careful planned process. It is also further distinguished by its interpretation qualities. Scientific research is termed systematic because it involves measurements that are utilized in an ordered fashion and the data collected are analyzed and interpreted in an objective manner. A research endeavour is also scientific because it involves careful planning and rigorous interpretation of analyzed data.

3.2 Types of Research

The basic types of research include

i. Descriptive or Analytical Research

Descriptive research includes surveys and fact finding enquiries of different kinds. Descriptive research is otherwise called survey research and its purpose is to describe the state of affairs as they exist. It is a survey of attitudes and feelings of individuals towards an issue at a given time. In social sciences, descriptive research is also called ex-post facto research study. The major feature of this type of research is that, the researcher has no control over the variables and hence can only report what has happened or is happening. Most ex post facto studies measure peoples preferences. They are also used by researchers to discover causes even when the researcher cannot control the variables. In analytical research, researchers rely on available information for critical analysis, interpretation and evaluation of a material or an issue.

ii. Applied or Fundamental Research

Applied research aims at finding a solution to an immediate problem confronting a society or an organization. Fundamental research is rather mainly concerned with generalizations relating to the formulation of a theory. Research exercise undertaken for the sake of generating knowledge is essentially a fundamental research. These are common in an area like mathematics. Also research concerning human behavior carried on for the purpose of generalizations about human behavior is also an example of a fundamental research. However, a research designed to arrive at conclusions or solutions to problems facing a given society is termed applied research. For instance, research aimed at identifying socio-economic or political trends that are likely to affect a particular institution or society is a good example of applied research. Applied research is concerned with finding a solution to a social, economic or political problem confronting a society.

iii. Quantitative or Qualitative

Quantitative research is based on measurement of quantity or a certain amount. This form of research is related to things that can be expressed in quantity. Qualitative research on the other hand is concerned with the quality of things. For instance, research that is interested in the reasons for human behavior in a certain direction is qualitative. This kind of research is interested in the inducing motivations using in depth interviews. It can be referred to as opinion or attitude research which is designed to find out how people feel or what they think about a particular subject. Qualitative research is particularly important in behavioural sciences which aim at discovering understanding motives of human behaviour. Using qualitative research, social scientists attempt to discover the various factors that motivate people to act in a particular way or which make people like or dislike a particular thing.

iv. Conceptual or Empirical

Conceptual research refers to or is related to some abstract ideas or theory. This is usually used by philosophers to develop new concepts or to reinterpret existing ones. Empirical research on the other hand relies on experience or observation. In other words, empirical research relies on observation and verification with the use of the five basic senses of sight, hearing, and feeling, tasting and smelling. It is a data based research with conclusions capable of being verified by observation or experiment. This experimental research requires getting at facts firsthand. Empirical research is appropriate when looking for a proof that certain variables affect others in some way.

4.0 Conclusion

Research occupies a central place in the search for knowledge and understanding of the world around us. Through knowledge gained, the frontiers understanding are expanded while that of ignorance is reduced. Research methods consist of techniques of generating information and data which when analyzed and interpreted knowledge about a given phenomenon is generated.

5.0 Summary

In this unit students have been exposed to research as a field and process of seeking for knowledge as a specific exercise of generating understanding about things around us. Students are introduced to the various types of research and where and how they are applied.

6.0 Tutor Marked Assignment

1. What do you understand by research?
2. Identify the types of research you know?

7.0 References/Further reading

Akpa, A. (2011). *Knowledge creation process: Concepts and applications in social research*, Makurdi: Aboki Publishers.

Campbell, D.T. and Stanley, J.C. (1976). *Experimental and quasi-experimental designs for research*, Chicago: Rand MacNally.

Chava, F.N. and Nachmias, D. (1996). *Research methods in the social sciences*, London: Hoddler.

Cozby, P.C. (2006). *Methods in behavioural science.* New York: McGraw Hill.

Unit 2 Importance of Research Methodology

Contents

1.0 Introduction

In the previous unit, students were introduced to research as a process of gathering knowledge, wisdom and understanding about a thing or events around us. In this unit, students will be introduced to the methodology of research and the objectives, motivation and purpose or significance of research.

2.0 Objectives

At the end of this unit, students should be able to

i. Explain what research methodology is
ii. Identify objectives of research
iii. Identify the importance of research

3.0 Main Content

3.1 Importance of Research

3.1.1 Research Methodology

Research methodology is a way to systematically solve the research problem. It is the science of studying how research is done scientifically. In research methodology, students are introduced to the various steps that are generally adopted by a researcher in studying a research problem. This is done in conjunction with the logic behind it. It is therefore important for researchers to know the research methods or techniques but to also know the methodology. The research methodology is also referred to as the research process which stipulates the steps involved in a research. These steps consist of

i. Defining the research problem
ii. Reviewing concepts and theories
iii. Formulating hypothesis/research questions/assumptions
iv. Developing a research design
v. Collecting data
vi. Analyzing data or testing hypothesis if any
vii. Interpretation and report writing

In research methodology, researchers are made to understand how to apply particular research methods or techniques. They are also expected to know which of these methods or techniques are relevant or not, and they would indicate what they mean and why they are relevant or not (Kothari, 2004). What this means is that a researcher would have to design a specific methodology for every research problem as this would differ from one research problem to the other.

The research methodology has many dimensions which the research methods are a part of. It consists of the logic behind research methods used in particular researches, the content of a research study and an explanation of why we are using particular research techniques and not others.

3.1.2 Objectives of Research Methodology

The primary objective of research is to find answers to questions through the application of the research process. The main aim of research is to find out the truth which may be hidden and has not been found out. Each research may have a particular objective but in general research objectives can be grouped along four main lines as

i. To obtain understanding and familiarity with a phenomenon or to achieve new insights.
ii. To identify particular features of a phenomenon (situation, group, society, etc.).
iii. To determine the regularity with which something happens and the interrelationship between two or more things.
iv. To test a hypothesis of a causal relationship between variables.

3.1.3 Motivation in Research

Trying to identify what motivates people to research is to answer the question why do people research. There are many motivations to research among which include

i. The desire to solve a problem facing a society or institution
ii. To satisfy an intellectual yearning of doing something creative
iii. Desire to serve society

iv. To earn respectability
v. To comply with a government directive
vi. To satisfy one's curiosity
vii. To understand a causal relationship

These motivations are by no means exhaustive and many researchers may be moved by so many reasons to undertake a particular research.

3.1.4 Significance/purpose of Research Methodology

Research fulfils many purposes. Some of these include

i. To create knowledge and understanding of the diversities around us. It is with knowledge and understanding that social phenomenon can be explained, predicted and even controlled. With knowledge, falsehood can be dispelled, truth reaffirmed and an existing way of thinking can be disapproved or altered or maintained. The creation of knowledge is indeed the primary purpose of research.
ii. Once knowledge is developed, it can be used to solve an existing social problem confronting society. Knowledge acquired through research can be used to develop skills and appropriate technology to solve society's problems.
iii. Research is important in the social sciences in studying social relationships and therefore generating answers to various social problems. Research here provides the impetus for satisfying an intellectual curiosity in seeking for knowledge which when obtained fulfils a practical utility of doing something better or in a more efficient way. According to Jahoda et al (2004)

> "this double emphasis is perhaps especially appropriate in the case of social sciences. On the one hand, its responsibility as a science is to develop a body of principles that make possible the understanding and prediction of the whole range of human interactions. On the other hand, because of its social orientation, it

is increasingly being looked to for practical guidance in solving immediate problems of human relations".

iv. In formulating public policies, governments rely on research outcomes on people's needs to give direction to policy frameworks that would address societal needs. In this sense, government attempts to use research findings so as to relate cost to available resources to meet people's needs. Through research, alternative policies can be formulated as well as examine possible consequences of alternative policies.

4.0 Conclusion

Research methodology has a wide dimension which includes research methods and techniques. It also involves decisions by researchers to choose particular research methods or techniques and to explain their relevance in particular situations and not others. A researcher needs to understand the logic behind each research method in following the established steps in a research process.

5.0 Summary

Students in this unit have been introduced to the importance of research in searching for knowledge to understand the phenomenon around us and perhaps solve societal problems. The basic research objectives and motivations have also been addressed.

6.0 Tutor-Marked Assignment

i. What is research methodology?

ii. What is the significance /purpose of research.

iii. Identify the motivations for research you know.

7.0 References/further Reading

Ackoff, R. L. (1961). *The design of social science research,* Chicago: University of Chicago Press.

Akpa, B. (2011). *Knowledge creation process: Concepts and applications in social research,* Makurdi: Aboki Publishers.

Bailey, K.D. (1978). *Methods of social research.*Chicago, Macleef

Freedman, P. (1960). *Principles of scientific research,* New York: Pergamum Press.

Kothari, C.R. (2000). *Research methodology: Methods and techniques.* New Age International Publishers

Marie Jahoda, Morton Deustch and Stuart W. Cook (1984). *Research methods in social relations,* New York: McGraw Hill.

The Encyclopedia of the Social Sciences

Unit 3 Scope of Research Methodology

Contents

1.0 Introduction

In the previous unit students were exposed to research methodology which consists of methods of research and its techniques. But beyond this, research methodology refers to the totality of resolving the research problem which involves understanding the reasons behind the choice of one research method over another and why one method cannot be used in all forms of research. In this unit, the scope of research will be explained to cover issues of the many ways of seeking knowledge and the superiority of the scientific method of research over the traditional methods.

2.0 Objectives

At the end of this unit, students are expected to

i. Identify the different ways of knowing
ii. Distinguish between the scientific method and others
iii. Understand the philosophy and assumptions of science.

3.0 Main Contents

3.1 Scope of Research Methodology

The boundaries of research methodology are set by the very essence of research which is to seek to know what has not been known. Research methodology is therefore designed to cover all known techniques for research that can lead to the discovery of knowledge. There are two main sources of knowledge: the traditional and scientific. It is a combination of these that define the scope of the research methodology.

3.1.1 Traditional ways of Knowing

There are five basic ways of knowing and have varied both in nature and validity. In general, these methods are both individually and collectively insufficient in all situations. These methods include

i. Appeal to authority of experts
ii. Personal intuition or acute common sense
iii. Pure logic

iv. Appeal to experience

v. Feideism

These methods due to their individual deficiencies have been used in conjunction, yet they leave outcomes that are only persuasive.

i. Appeal to Authority of Experts

This is knowledge obtained from testimony of others either verbally or documentary evidence. Most of what is known about the world around us is through what others have said. Humans tend to believe what is said unless there is reason to doubt it. This source of knowledge has two defects. An authority may be ill-informed or be dishonest or both. An authority may even be well informed, honest but could err in transmitting information. Given these weaknesses, knowledge obtained via this method can only be but persuasive.

ii. Personal Intuition/acute Common Sense

This is the use of common sense which occurs with a quick flash of insight, unexplained awareness of a relationship between phenomenon which can hardly be explained in any other way. Common sense is a combination of experience, instinct and imagination. An individual may be born with some common instincts which can be sharpened by the development of the mind over time. A sharp imagination can benefit from a combination of a skilled mind and experience. In this way ideas and knowledge can be gained. However this method of knowing is unreliable because its outcome cannot be tested independently unless they are referred to other methods.

iii. Pure Logic

It is also possible to generate knowledge through a form of reasoning called logic. Here attempts are made to develop reasoning based on generally accepted assumptions. This occurs in two ways: the first to generate knowledge by reasoning from a particular to the general. This is called inductive method where large samples of individual cases are observed to discover an established pattern of regularity. From an

observed pattern conclusion can be drawn. When social scientists carry out investigations by generalizing from sample evidence to a large population, then they are said to be using inductive logic.

The second method is called deductive logic which creates knowledge by reasoning from the general to the particular. This is simply put moving from the known to the unknown. The deductive method is also called rationalism. The deductive method begins from accepted principles or assumptions of general application, then move towards a solution of an individual problem.

These methods are often used independently or as a complement of the other.

iv. Experience

This method of knowing is closely associated with history and practice. It is assumed that what is done repeatedly and has always worked will be true. Therefore practicality and workability is the test of truth. Thus by experience one can learn from ones own life or learn from the lives of others. For instance, we learn to associate objects with smell or sound.

v. Skepticism

The concept of skepticism is highly related to the process of scientific research. Under this method the researcher is put on alert that perception may differ from reality or the truth. It is therefore left to the researcher to look, check and verify the truth. It is important for researchers to note that information relating a particular story may be true but it may not be the truth. It is also important to always remember that knowledge generated by man is never absolutely certain hence all avenues and ways of belief and knowledge seeking must be subjected to constant revision. It is difficult though to remain open and neutral at all times even when it is important to do so given that we are averse to uncertainty. We are often quick to take a position even when available

facts may be insufficient and would suggest that we pause to check again

The high degree of uncertainty about these traditional methods which cause us to be biased, tolerate emotions, permit personal belief and are open to prejudices, a more precise and objective method is then preferred for research known as the scientific method.

vi. Fedeism

Another source of knowledge is fideism. We accept certain things as true because of some theological or religious connotations. For instance, the belief that God is supreme does not arise out of our proven capacities. We simply have faith that "He exist why God is even referred to as "He" and not "she" we cannot explain.

3.1.2 Science

Science would mean different things to different people. Lay persons, journalists, policy makers, scholars, scientists all conceive it differently. To some people, science means a prestigious undertaking of what scientists do. To others science implies a body of true knowledge; yet to still others; science means an objective investigation of empirical phenomenon (Coughlin, 1994).

It is difficult to define science because often people confuse its methodology with science itself. Science may not have a particular subject matter and so every study of phenomena may not be viewed as science. Whenever knowledge created by any branch of study is rejected as not been factual, it is often because of methodological considerations. Science therefore refers to a distinct methodology. Thus science would mean knowledge created by a means of the scientific methodology.

3.1.3 Scientific Assumptions

Science operates on two principles of objectivity and empiricism. What the scientific method does is to ensure that bias is eliminated and the

investigation process is based on verifiability. Given these principles, science revolves around basic assumptions which include

i. Nature is Orderly

The basic assumption of the scientific method is that there is a recognizable regularity and order in the natural world. Events do not occur randomly. Scientists assume that there is a certain degree of order and regularity and structure that exist and that change is patterned which can be understood even within a rapidly changing environment. In other words, no matter how chaotic the world around us looks, there exist a definite regularity and order in the natural world. The rationalist conception of nature does not refer to supernatural forces but consist of empirically observable things, conditions or events that exist independent of human intervention including human beings as biological systems (Lewin, 1975). Nature describes what is happening rather than prescribe.

ii. We can know nature

Science assumes that we can know this nature having been part of this nature and therefore human beings can be understood and explained by the same method we study other phenomena. This assumption that we can know nature is to the extent that nature is orderly and that laws of nature do exist. It suggests that human beings are just as much part of nature as the other objects. Conditions, and events and that even though human beings possess unique characteristic, they can be studied and understood using the same scientific method. The human mind is capable of knowing itself and the minds of others. Therefore individuals and social things (events, conditions) show sufficient recurrent orderly and empirically verifiable patterns that are open to scientific investigation.

iii. All natural phenomenon have natural causes

This assumption that all natural phenomena have natural causes is at the root of the scientific revolution. Science believes that there are forces in nature that causes everything to happen and that no force

outside nature is responsible for anything. This belief challenges religious fundamentalism, spiritualism and magic. This assumption directs scientific research away from investigation of supernatural powers to discovery of empirical regularities which can serve as evidence for cause-and-effect relationship.

iv. Nothing is self evident

This means that knowledge generated by science is not self evident. Claims to truth must be demonstrated objectively. Thus, scientists do not rely on tradition, subject beliefs and common sense to verify scientific knowledge. Scientists believe that there is always room for mistakes. Therefore every claim calls for objective verification. Scientists are therefore critical and skeptical in their thinking.

v. Knowledge is derived from the acquisition of experience

Science helps us to understand the real world as an empirical method. It relies on perception, experience and observation. Perception is a basic tenet of the scientific approach and this is achieved through our senses. But knowledge is not obtained only through perception facilitated through the five senses of smell, sight, touch, taste and hearing. The point is that many events cannot be directly experienced or observed. Observation as a mental activity is not self-evident or completely removed from scientific terms, concepts or theories used by scientists.

vi. Knowledge is superior to ignorance

The assumption that we can know ourselves as much as we can know nature is closely related to the belief that knowledge is good and should be pursued for its sake and that of improving the human conditions. When scientists say knowledge is superior to ignorance they do not mean that everything about nature can and will be known. What they

mean is that knowledge is generally tentative and is always changing. What was not known before can be known now and current knowledge is subject to modification in the future. Truth in science is therefore, always tentative and relative to the evidence, methods, and the theories employed, and is always open to changes.

3.1.4 Scientific Method

No matter the subject matter, all scientists are agreed that the research process must follow certain outlines. This is to allow for verifications and objectivity. The scientific method is therefore a systematic, controlled, empirical and unbiased investigation of hypothetical propositions about presumed relationships between variables that create a particular state of affairs. The scientific method relies on explicit rules and procedures for research and it is on these rules and procedures that claim for knowledge are evaluated. The scientific method relies on empirical evidence, utilizes relevant concepts and is committed to only objective considerations. The method presupposes ethical neutrality and with results that are probabilistically predictable. The scientific method is known and can be verified for testing conclusions through replication.

4.0 Conclusion

Scope of research methodology is very broad consisting of the sources of knowledge which may be traditional or scientific. The superiority of the scientific method lies in its empiricality and objectivity. The rules and procedures established by the scientific method means that it can replicate hence claim to truth can be evaluated.

5.0 Summary

In this unit students have been exposed to the scope of research methodology with emphasis on science and its method of research. The principles of science have been identified. The basic assumptions of science underlying the scientific method have also been identified.

6.0 Tutor-Marked- Assignment

i. What are the main traditional ways of knowing?

ii. Identify the basic assumptions of science.

iii. What is the scientific method?

7.0 Reference/Further Reading

Anthony, O. (1989). *An introduction to the philosophy of science,* New York: Oxford University Press.

Franfort-Nachmias, C & Nachmias, D. (1996). *Research methods in the social sciences.* Hodder Amold.

Sjoberg, G. and Roger Nett (1978). *A methodology for social research,* New York: Oxford University Press.

Kurt, L. (1985). *Field theory in social science,* Westport: Conn Greenwood Press.

Morris R. C. and Ernest Nagel (1972). *An introduction to logic and scientific method.* Orlando, Fla Harcourt Bake Jovanovich.

Unit 4 Focus of Research Methodology

Contents

1.0 Introduction

In the previous unit, attention was focused on the scope of research methodology that addressed the core concern of research; to generate knowledge that is verifiable. This unit shall dwell on the focus of research methodology which is the research process that leads to research outcomes.

2.0 Objectives

The main objectives of this unit is for students to

i. Understand the major components of the research
ii. Explain what is the research problem
iii. Be able to select a research problem

3.0 Focus of Research Methodology

3.1.1 The research process consists of a number of sequential actions and necessary steps to carry out a research effectively. These steps or actions resonate with the notion that scientific knowledge is grounded in both reason and experience (observation). Thus scientists utilize logical validity and empirical validation to confirm claims to knowledge. From these two conditions are practical steps of research activities that constitute the research process (Green, 1989). Under this process, scientists carry out stipulated activities which outcome is analyzed and interpreted into authentic knowledge.

The research process consists of seven main stages:

1. Problem
2. Hypothesis
3. Research design
4. Measurement
5. Data collection
6. Data analysis
7. Generalization

The research problem is defined out of experience which helps in shaping its bounds. Then hypothetical (tentative) statements driving from the problem are made in order to specify information to be required. The next thing is to identify the source of needed information. Once this is done, the researcher decides on the techniques to be used for obtaining that information. Then information is collected and processed. The researcher analyze and interpret the information into formalized result from which generalization can be made.

The research process moves in a cyclical manner from the problem to generalizations to problems and on it continues.

The main stages of the research process

The research process is self correcting. Researchers test hypothetical statements about research problems logically and empirically. When generalizations are made, new hypotheses are formulated and tested. In this process of reformulation, scientists re-evaluate all the research operations since a tentative generalization may be rejected not because it is invalid but because of errors in the research operations performed. For instance, a generalization such as the search for resources leads to war between countries may be rejected if it cannot be logically validated or empirically verified. To reduce the chances of rejecting hypothesis, scientists re-evaluate each stage in the research process before formulating new generalizations. This is why the research process is said to be self correcting.

3.1.2 **The research problem**

The research problem may relate to a state of nature or to relationship between two or more variables. For example a researcher may be troubled by the regular overflow of a river causing damages to humans and property. Or one may be troubled by why countries led by dictators would always be at war. A researcher would need to be familiar with the issue or situations that can be studied. A researcher must also decide an area of interest or a particular subject matter to be studied. Once this is done, a problem may be stated broadly and also confusions and ambiguities cleared.

3.1.3 **Selecting the Problem**

In selecting the research problem, researchers are most often guided by experience or creativity (Akpa, 2011). This is quite often more applicable in the social sciences especially concerning a desire to find a solution to a social problem. One may have experienced a social problem for a long time. This may be armed robbery, cultism, trade dispute or border dispute between countries. A researcher would have familiarized himself with such a problem at a close range in terms of empirical and practical

dimensions. Through experience, therefore, a research can fairly easily select a problem for research.

A researcher may be creative in terms of critical thinking, personal initiative, ingenuity and even foresight (Akpa, 2011). A combination of experience, interest and creativity results in a wonderful research enterprise.

4.0 Conclusion

In this unit, students have been exposed to the primary concern of research which is a focus on the research problem and the research process for general knowledge. Everywhere around us is the expression of this desire for more knowledge and the application of a basic research process. The scientific process consists of seven stages that make the research process self-correcting.

5.0 Summary

Students have been introduced to the basic steps in the research problem identification and the way in which a research problem can be formulated and decided upon as a research focus. The primary factors of experience, interest and creativity necessary towards selecting a research problem have been identified.

6.0 Tutor-Marked Assignments

i. Identify the seven stages in a research process.
ii. What are the factors that count in selecting a research problem?

7.0 References/ Further Reading

Kaplan, A. (1989). *The conduct of inquiry* New York: Harper & Row.

Akpa, A. (2011). *Knowledge creation process: Concepts and applications in social research.* Makurdi: Aboki Publishers.

Scott, G. (1989). *The logic of social enquiry.* New Brunswick, N.J. Transaction Books.

Module 2

Unit 1 Identification of Topic in research

Unit 2 Variables in Research

Unit 3 Development of hypotheses for research

Unit 4 Use of Library in Research

Unit 1 Identification of Topic in Research

Contents

1.0 Introduction

To select a topic in research relates to problem identification that commands the need for a research to explain the problem and possibly find a solution to it. In selecting a problem, experience and creativity have been advised to lean on their understanding and familiarity with issues around them. When this understanding is mixed with initiative and original thoughts the creative faculties of intelligence are ignited to mix with experience which facilitates the selection of a suitable topic for a research. This unit will explore the process and sources of problem identification and topic selection in a research.

2.0 Objectives

At the end of the unit students should be able to

i. Identify factors facilitating the identification of a problem
ii. Identify factors aiding the selection of a topic
iii. Identify the sources of selecting a topic

3.0 Main Content

3.1 Identification of topic in research

3.1.1 Topic Selection

Topic selection is a very crucial part of research because there can never be a research project without a topic. In choosing a topic, students of research are expected to first attempt to formulate a general topic into a specific research problem. This is the first step in a scientific enquiry. In doing this, two steps are essential to be kept in mind and which must be followed. These include understanding the problem thoroughly and rephrasing that understanding into meaningful terms in an analytical sense. One way of understanding a problem is to discuss it with one's own colleagues or with experts or people that may have more knowledge on the issue. In academic institutions, a researcher can consult scholars with experience in research about similar issues. In an administrative set up,

one may need to discuss with policy experts on the origins of the problem and what has been done so far to address it.

3.1.2 Factors guiding topic selection

Selecting a topic has appeared to be a difficult exercise for many would be researchers. Many students spend many hours trying to select a topic or may just continue with a poorly framed topic in order to fulfill a requirement for graduation or project writing. Given the difficulty associated with topic selection, the following are provided as guiding factors for topic selection.

1. **Interest** – The research problem must be of interest to the researcher. The personal interest of the researcher is the greatest motivation of the researcher; especially when the knowledge seeker may be getting frustrated with topic selection. When a topic for research is selected based on a researchers' interest, it motivates and drives the research process to its logical conclusion.
2. **Experience** – It is advisable to always choose a topic one is familiar with and in which ones knowledge and competence can be utilized.
3. **Originality** – A topic selected must meet conditions of originality, personal initiative, ingenuity and foresight to the future. It is not appropriate to duplicate research efforts as this may be a waste of time, resources and energy.
4. **Significance** – In selecting a topic, one must be guided by the potentials of the topic in contributing to knowledge. It is rather economically irrational to spend resources and energy on a research that would not add anything in generating new knowledge.
5. **Scare Resources** – Before embarking on a research, one needs to have a fair idea about availability of resources required to complete the research. Two important resources here are time and financial support. Adequate consideration is required for determining resource availability before commencing the research process on any given issue. Many research enterprises are resource demanding and time bound. Indeed this

consideration should be made before choosing a topic and evolving a research design.

6. **Data Availability** – A research must ensure that data on an issue under research is available. Researchers are advised not to choose a topic merely because it is heard from someone without personal knowledge or interest in the area. Closely related to this is the need to consider availability and suitability of a relevant technique of data collection. A student who picks a topic without a careful thought on these issues may be forced to abandon the topic due to lack of data.

3.1.3 Sources of Topics

Would be researchers or students can lean on several options in order to generate a topic. These may include

i. **Personal Experience –** This has appeared to be the best source of topic because if a research problem arises from personal experience, it induces interest. Experience with social problems is good examples of sources of topics.

ii. **Enduring issues of the discipline –** In every discipline, there are recurring questions demanding answers. Explanations or solutions borne out of thorough research. In International relations for instance, questions about state sovereignty, what constitute units of analysis have continued to command the attention of researchers.

iii. **Suggested topics –** Many writers or researchers present topics for research in given areas of specialty. Some researchers also provide recommended topics for research at the end of their study.

iv. **Past research projects –** For many, past research projects have remained the commonest source of topics. Care must be taken to ensure that one's study is not a duplication of efforts and some level of rigour and originality is maintained.

4.0 Conclusion

To identify a research problem amounts to problem definition. Where a student is able to clearly and carefully delineate a problem for research,

it leads logically to selecting a topic that captures the concern for research. In topic selection, students are advised to look to their interest, experience and originality as veritable conditions for research.

5.0 Summary

In the previous unit, the problem definition in a research is dealt with. In this unit students are expected to the favourable conditions for research and sources of selecting a topic.

6.0 **Tutor-Marked Assignments**

i. What are the factors for selecting a research topic?

ii. Identify the sources of research topics.

7.0 **Reference/Further Reading**

Akpa, A. (2011). *Knowledge creation process: Concepts and applications in social research.* Makurdi: Aboki Publishers.

Kerlinger, F.N. (1970). *Behavioural research: A conceptual approach.* New York: Holt, Rhine hart & Winston.

UNIT 2 Variables in Research

Contents

1.0 Introduction

In this unit students will be introduced to the concept of variable which represent an empirically measurable phenomenon. Variables are derived from concepts which are considered abstracts that represent empirical phenomenon. The transformation from concepts to empiricism results into variables. When a hypothesis is formulated, it consists of variables that are measurable and testable. In translating concepts to variables, values are imputed into the concepts which give them measurable characters. With these indices, a variable can be identified and measured.

2.0 Objectives

Students are expected to

i. Define variables
ii. Identify variables and their place in research
iii. Know the types of variables

3.0 Main Content

3.1 Variables in Research

3.1.1 What are variables?

A variable is an empirical property that can take on two or more values (Frankfort-Nachmias & Nachmias, 1996:55). A property qualifies as a variable only if it can change in quantity and quality. For instance ‘income is a variable because it can change in quantity from low to high values. ‘Expectations is a variable also because it is capable of taking on two possible values of high or low. The values assigned to variables are to make them testable and measureable. Therefore every variable that can be studied must be operationally defined. The operational definition of a variable is the specific method for manipulating or measuring the variable (Cozby, 2001).

3.1.2. **Types of Variables**

There are many types of variables. These are

i. Dependent and Independent variables

ii. Control variables
iii. Continuous variables
iv. Discrete variables
v. Dichotomous variables

i. **Dependent and Independent Variable**

In a hypothesis are usually found two variables; one dependent and the other independent. Both relates in a causative manner. In other words, one variable causes change to occur in the other. The variable being explained is the dependent variable while the one being used to explain changes in the other is the independent variable. The independent variable is also called the explanatory variable. It is taken as the cause of changes in the other variable; the dependent variable which is expected to be influenced by the independent variable. For instance a researcher may want to explain while some peoples income rise while others do not; by saying the higher the level of education, (independent) the higher the level of income (dependent). Or the higher the social class (independent) the higher the level of political participation (dependent).

It is important to note that the division between dependent and independent variables is for analytical purpose because this distinction relates only to the purpose of research only. In the real world, variables are never dependent or independent; it is the researcher that assigns the roles to them based on the objective of the research. What this means is that an independent variable in one research may be a dependent variable in another conducted by the same researcher.

The complex nature of social phenomena necessitates the use of several independent variables to explain one or more dependent variables. One or two independent variables usually explain only a certain amount of

the variation in the dependent variable, and additional independent variables have to be introduced by the researcher in order to explain more of the variation. For instance when social class is used to explain the level of political participation as an independent variable, the outcome will be incomplete because, the level of political participation can also be explained by age, gender, educational attainment and a sense of political consciousness.

ii. **Control Variable**

Control variables are mostly used by scientists in an empirical research to reduce the chances of attributing explanations to independent variables that may not be responsible for the variation found in the dependent variable. Put differently, control variables are actually used to prove that an empirically observed relation between a dependent and an independent variable is false. A false or spurious relation is one that can be explained by variables other than those stated in a hypothesis. By using control variables, the causal link between the variables, as stated in the hypothesis and the observed relation is not based on an unforeseen connection with some other things (Alker, 1965). Control variables therefore serve a useful purpose in a test to prove whether or not the observed relation between dependent and independent variables is spurious.

iii. **Continuous and Discrete Variables**

Another way of describing variables is to show whether they are continuous or discrete. A continuous variable does not have a minimum size that is originally stated. A very common example of a continuous variable is length which is infinite in nature. An object may have a definite length but it can choose to be longer or shorter. So one can say one tenth, one thousandth or one millionth length.

Discrete variables on the other hand have minimum sized unit. For instance the amount of money one may have at a given point is an example of a minimum unit. It could be N10.02k. The number of children in a family is another example of discrete variable. A family can have one child, two children but not 3.6 or 4.5 children. Different amounts of money cannot differ by less than the minimum – sized unit, in this case 1 kobo.

iv. **Dichotomous Variable**

A variable that can have only two values is called a dichotomous variable.

4.0 Conclusion

A variable us a property that can take one or more values. Properties in research therefore are capable of transformation in quality or quantity. A variable is therefore an empirically measureable phenomenon which is used in testing the relationship between phenomena to ascertain causality. Variables are discrete or continuous, dependent or independent, dichotomous or controlled.

5.0 Summary

In this unit students have been introduced to variables which are empirically measurable phenomena used in verifying relationship between things.

6.0 Tutor-Marked Assignments

i. What are the types of a variable you know?

ii. Distinguish between a variable and a concept.

7.0 References/Further Reading

Alker, H. R. (1965). *Mathematics and politics.* New York: Macmillan.

UNIT 3 Development of hypothesis for Research

Contents

1.0 Introduction

In this unit, students will be introduced to a very hypothesis. It is considered a principal instrument in research. Its main functions include suggesting new experiments and observations (Kothari, 2004). In a research trying to establish causation, research hypothesis are indispensable between two or more variables, it can be established a given relation between the elements in terms of what is causing what to happen.

2.0 **Objectives**

Students will be expected to

1. Formulate hypothesis
2. Test hypothesis
3. Identify characteristics of hypotheses

3.0 **Main Content**

3.1 Development of Hypothesis for Research

3.1.1 **What is a Hypothesis?**

In ordinary context, a hypothesis simply means a mere assumption or some supposition which need to be proved or disproved. For a researcher however, a hypothesis may be defined according to Kothari (2004:184) as

> a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly in the light of established facts

A research hypothesis appears as a prediction which is capable of being tested by scientific methods. This relates variables in a causative manner. Thus, a hypothesis reflects this causative relationship and is seen as a tentative answer to a research problem; expressed in a clearly stated relation between the independent and dependent variables. Hypotheses are therefore tentative answers since they can be proved only after being empirically verified. When a hypothesis is formulated and then tested, when it is accepted or rejected. When is rejected another one may be formulated and put forward for another test. When it is accepted, it is integrated into an existing body of scientific knowledge.

3.1.2 **Characteristics of a Hypothesis**

A hypothesis like any other concept is identified by common characteristics. They are clear, specific, and amenable to empirical testing with the available research methods and value free.

1. **Hypothesis must be clear**

   To be able to test a hypothesis empirically, all the variables in the hypothesis must be defined unambiguously. Conceptual and operational definitions help to make hypothesis very clear. Variables are defined with measurable or identifiable indices that are appropriate to a given research needs.

2. **Hypothesis are Specific**

   A good hypothesis needs to point out clearly the relationship between variables and the direction of such a relationship; be it negative or positive. Besides, the conditions under which a presumed hypothetical relationship may exist also need to be pointed out. For example a relation between education and political participation can be empirically verified under a given time period, space and at individual or group level. Therefore different variables in a given hypothetical relationship for different levels of analysis require different conceptual definition; as well as operational definitions. Hypothesis must also state clearly the conditions under which the relations will be observed.

3. **Hypothesis are testable with available Research Method**

A hypothesis is not testable where there are no suitable research methods. It is therefore possible for a researcher to formulate clear, value free, and specific hypothesis and yet not testable in the absence of a suitable research method. For example, a ruler is needed to measure the comparable length of two or more objects in order to establish which is longer or the longest. Social scientists tend to be skeptical of research methods for fear of being enslaved by them. Researchers need to employ research methods dynamically by referring to the research problem so that whatever method they choose, will serve as a means and not an end in itself.

4. **Hypothesis are Value Free**

As a matter of principle, a researchers' own values, biases, and subjective preferences should have no place in the scientific approach. It is however important to note that, social science research is largely a social activity that is affected by the social environment. Therefore, the researcher must ensure that one's personal biases and values are kept out from interfering with the research process. Doing this is pretty difficult and may be nearly impossible. It is rather suggested that researchers should endeavour to state their biases and values clearly.

4.0 Conclusion

A hypothesis is the main instrument of research. It guides the research process especially data collection. This is to ensure that only relevant data is collected to facilitate aggregation and proof of a causal relationship between two or more variables. The development or formulation of hypothesis entails understanding what a hypothesis is as a tentative statement or answer to an existing problem. It presumes a causative relationship between variables; one independent and the other dependent.

5.0 Summary

In this unit, students have been introduced to research hypotheses as the major instruments of research that guides the research process. The hypothesis is defined as a tentative statement of an assumed relationship between one variable and another. Hypotheses have identifiable characteristics; must be clear, specific, testable and value-free.

6.0 **Tutor-Marked Assignments**

i. What is a hypothesis?

ii. What are characteristics of hypothesis?

8.0 References/Further Reading

Kaplan, A. (1968). *The conduct of inquiry*. New York: Harper & Row.

Healey, J. F. (1993). *Statistics: A tool for social research.* Belmont, California: Wads Worth

Runyon, R.P., Andrey, H. and Kay, A.C. (1994). *Behavioural statistics: The core.* New York: Mc GrawHill

Walsh, A. (1990). *Statistics for the social science.* San Francisco: Harper & Row.

Unit 4 Use of Library in Research

Contents

1.0 Introduction

The library is an important and nearly an indispensable place in academic research. When one is involved in empirical research or secondary research, it is important to visit a library which may be located in a university, community or children's library to learn about what others have done in any given area. In this unit, students will be introduced to the use of library in research. The library as an institution will be discussed in terms of resources available to researchers and how to access and then use them.

3.1.1 Library Research

A library is an organized collection of information resources made accessible to a definite group of people for reference or borrowing. A library provides physical or digital access to materials. It can be a physical building or room or a virtual space or both. In library resources are found information on nearly all subjects and research areas. Libraries vary in size and range from a few collections to several millions of materials in all forms of storage sources.

A library is organized for use and maintained by a public body, an institution, a corporation, or a private individual. Public and institutional collections may be intended for people who may not choose to use them, or who cannot afford to buy them, or who need a material no individual can be expected to have, or who require professional assistance with the research. Apart from providing research materials, libraries provide services rendered by librarians who are professionals and experts in looking for and organizing information and also explaining information needs. Through modern libraries, a researcher can have access to electronic resources and the internet. In modern libraries, there is unrestricted access to information in many formats and from many sources.

A research library is a collection of materials on one or more subjects. A research library supports scholarly or scientific research and will generally include primary as well as secondary sources. Research libraries are further divided into several types depending on the specific functions each performs. These include

i. Circulation or lending libraries
ii. Reference libraries

A circulating or lending library is one where materials are expected to be loaned to clients who may be individuals, institutions or other libraries.

A reference library however is one where materials are not lent out. In a reference library materials such as books and other items are not lent; instead they must be read at the library. Most university libraries are reference libraries. Modern libraries combine these functions and would have a section designated as a reference section; which would hold books such as dictionaries as a common reference material which cannot be lent out. Other reference materials include encyclopedias, newspapers and periodicals.

ii. **Types of Library Materials**

Research libraries contain a wide variety of research materials. Modern libraries in particular contain books, journals and periodicals such as newspapers, magazines, newsletters, numerous rare, valuable, or significant works. A researcher in social science may be in need of any of these materials including electronic materials. These materials can be used in review of related literature or for actual primary and secondary sources of data. Books and journals constitute primary sources of review materials while periodicals constitute secondary sources of information and data to be used in research.

For electronic resources, digital libraries provide access to electronic resources (e-resource) via the internet which has become a very popular and highly used source of materials in the 21st century. The shift to digital libraries has affected the use of physical resources as many students are no

longer enthusiastic in using or reading books taken down from library shelves. Traditional libraries are therefore losing out as many undergraduates prefer to surf the web and retrieve data from these. Students are no longer willing to read an entire book for information easily but rather prefer to retrieve information easily and quickly from the internet. Many students now claim that finding information from the internet makes more sense to them than going to the library.

iii. **Citation Index**

The social science citation index (SSCI) includes social and behavioural sciences such as Sociology, Political Science, International Relations, Psychology, Economics, Mass Communication. The index allows researchers to search through citation information such as the name of the author or article title. What is important here is to be able to use the key article method. This requires a researcher to first identify a key article in a topic, which may have been published sometime in the past but would be particularly relevant to an ongoing research. Citation index research reveals a bibliography of articles relevant to a topic which a researcher can then choose the ones to use.

iv. **Internet Research**

In the 21st century, the most widely available information is on the Internet. Various search engines such as **Yahoo, Google** and **About** allow researchers to surf through a variety of materials stored on the Internet. The Internet provides a number of websites that may be devoted to a topic or articles that scholars have made available to others, book reviews, and even online registration. One can improve on the use of the Internet for research by

i. Learning the differences in the way each service finds and store information
ii. Learn advance search rules including how to make searches more narrow and how to find exact phrases and;

iii. Learn ways to critically evaluate the quality of information that one may find.

Researchers must be careful to note and record for documentation purposes search services, search terms used, dates and exact location of websites.

v. Anatomy of Research Article

In the library, a citation index can help one to find an article in a given area. Once such an article is found, a researcher is expected to focus on five areas of the article. These are

1. **Abstract**

This is a summary of the research article which may be about 100-200 words. It contains information about the hypothesis, methodology and broad pattern of results.

2. **Introduction**

Here an outline of the research problem is presented with reference to relevant theories in explaining the problem. The expectations of the researcher are noted. The interconnection between past research and theory are presented as they point to a new research and expected results.

vi. Discussion

Here the researcher reviews the research from various perspectives. It shows the proof of hypothesis with all possible and convincing explanations and suggests why an explanation is superior over and above others. Where hypotheses are not proven, an explanation blaming methodology or the hypotheses is provided.

4.0 **Conclusion**

In this unit students have been exposed to how to use a library for research purposes. The various meanings and forms of libraries have been reviewed with emphases on the radical shift to e-library in the 21st century. While students prefer the Internet as an easy and flexible source of research material, physical books are no longer attractive for research purposes to students.

5.0 Summary

Library research is critical to research enterprises and students are expected to master the various components of a library to improve their research skills.

6.0 Tutor-Marked Assignment

i. What is a Library Research?
ii. What are the types of research materials in a research library?
iii. Explain the difference between a circulation and reference libraries.

7.0 Reference/Further Reading

Cozby, P.C. (2001). *Methods in behavioural research.* New York: Mc Graw-Hill

Cohen, D.J. (1988). *Statistical power analysis for the behavioural sciences.* Hillsdale N.J: Erlbaum

MODULE 3

Unit 1 Gathering of data in Research

1.0 Introduction

The research enterprise is about the search for knowledge through the collection of facts and information which when put together and interpreted or analyzed result into a body of new knowledge. Researchers go in search of data to be found and collected so that it can be aggregated in a manner that is amenable to interpretation. There are many ways of gathering data for research purposes in this unit therefore students shall be exposed to the scientifically accepted methods of gathering data in research. Deploying acceptable ways of gathering data is critical to the success of the research process. Each method of gathering data relates to a particular research process so that data gathered would not be invalidated by a given method used.

2.0 Objectives

At the end of the unit students are expected to

i. Be conversant with relevant data collection methods.
ii. Identity and explain sampling designs and methods
iii. Identify data collection techniques

3.0 Main Content

3.1 Gathering data in Research

3.1.1 Data Collection Methods

The collection of data begins after a research problem has been defined and the research design mapped out. It is important to note that there are two types of data: primary and secondary data. The primary data are those collected afresh and for the first time. Such data is seen to be original in character. Secondary data, on the other hand, are those which have already been collected and used by someone else for purposes of research in a different context. Perhaps a researcher must therefore decide which sort of data is needed for a given research.

In social science or behavioural research, two methods of data collection are mostly used. These are observation and interview methods. These are also used for gathering primary or original data that is to be collected for the first time. The use of these methods is supported by the fact that survey or descriptive research is more.

i. **Observation Method**

In behavioural sciences, observation method is the most commonly used. Though humans observe things around them, observation as a method is made scientific when it is formulated to fit a research purpose. In this way it is systematically planned and recorded and then subjected to checks and controls on validity and reliability (Fowler, 1989). Under observation, the researcher obtains information without asking of it from the respondents. It can be tape recorded or notes taken by the researcher. The observation method has many advantages. Its main advantage is that subjective bias is removed when observation is done accurately. Another advantage is that, information obtained is raw relating to what happen and therefore not complicated by past or future intentions or attitudes. Another advantage is that, observation method is independent of respondent's willingness to respond and as such is relatively less demanding of active cooperation on the part of respondents (Kothari, 2004).

Observation method also has several disadvantages. One major limitation is that, it is very expensive. Information provided by this method could also be limited. It is also possible that unforeseen factors may interfere with the observation. In a number of cases some people become inaccessible to direct observation and this may be a major disadvantage for this method of data collection. It is important for researchers to note that it is further necessary to determine what is to be observed, where and under what condition. How would the observation be recorded and to what extent can the accuracy of the observation be ensured.

There are different kinds of observation. These are

i. **Structured Observation** - This is observation conducted when units of observation are carefully defined, with style of observation and recording of accurate data, standard of observation clearly set out. Structured observation is most suitable in descriptive studies.

ii. **Unstructured Observation** – This is the kind of observation in which the properties of the observation are not well defined but left loose. This is most suitable in exploratory research.

iii. **Participant Observation** – This refers to a situation where the observer is more or less part of the event with an obvious or non-obvious role. Where the observer is part of the event, the experience gained is part of the general experience of the group members.

iv. **Non-participant Observation** – Here the observer is detached from what is going on and makes no attempt to experience through participation what others may feel.

v. **Disguised Observation** – Here the observer is completely detached from the event and would not be noticed by the members of the group.

In participant observation, the observer is able to record the natural unpretentious and undisguised behavior of the group and its members. The researcher is also able to gather information that may not have been possible if one were a disinterested observer. The observer is also able to verify the truth of information received through questionnaires. The major limitations of participant observations are that an observer by participating may become emotionally involved and lose objectivity as well as fail to resolve the problem of controlled observation.

vi. **Controlled Observation** – Here the observation takes place in the natural setting. For instance the attitude of mourners at a burial ceremony or a date a deceased is to be laid to rest.

vii. **Uncontrolled Observation** – here the observation occurs in an improved place that is not natural and uses non-precise materials.

Another method of data collection is interviews which involves oral communication that elicits a verbal reply from respondents. This method could be personal interviews or telephone interview.

a. **Personal Interview**

This requires a person conducting the interview known as the interviewer asking questions in a face-to-face contact with the respondent known as the interviewer. This method is good for intensive investigation which requires obtaining direct information from the interviewer. The person being interviewed is taken to be very knowledgeable or experienced in an area. Such a person may be an expert.

Personal interviews may be structured or non-structured. Structured interviews involve the use of a set of predetermined questions which are highly standardized and use high techniques of recording. The interviewer follows an established non flexible procedure in which questions are asked from an ordered prescribed form. Unstructured interviews on the other hand involve questions that are flexible and non structure. Such interviews do not follow a predetermined format neither do they have a standard form of recording. Here the interviewer has greater flexibility to ask more questions as the need arise. In recording, there is also freedom in recording whatever the interviewer chooses hence some aspects may be ignored. Here demand is very high on the skills and broader knowledge of the interviewer. It is suitable for exploratory research while structured interview is most suitable for descriptive research and amenable to generalizations.

Another form of interview is focused interview which direct attention on the given experience of the respondents and the screening effects of such experience on respondents as well. Here, the interviewer has wide discretion and freedom to determine the manner and sequence of questions including the possibility of exploring the reasons and motives of respondents. Interviewers have a huge responsibility in ensuring that the interview is kept within the bounds of issues that are being discussed.

b. **Telephone Interview**

This consists of collecting information by contacting respondents on phone. This is not a very common method as it is expensive and not readily accessible to many people.

3.1.2 Sampling and Sample Designs

Sampling is an act of taking a limited number from a large population in order to study the population's characteristics and use the findings as a basis of drawing conclusions and drawing generalizations (Akpa, 2011). Most survey research involves sampling participants from a population of interests. This population consists of individuals or items of interest to the researcher. Studying an entire population may be difficult hence a sample from the population of interest can suffice. In sampling, a researcher must ensure that the sample taken must be obtained through randomization in order to guarantee representativeness. Samples are random when the method employed in drawing them provides for every member of the population to be given a chance of being included in the sample. A sample is also representative of a population only when it has the characteristics of the population. These major elements in a sample are important in sampling to ensure that bias is controlled and confidence and credibility of results is enhanced.

Sampling design refers to a definite plan for obtaining a sample from a given population (Kothari, 2004). It consists of a technique to be adopted in selecting items in a sample. A sample design lay out the number of items to be included in the sample (the size of the sample).

a. **Steps in Sample Design**

In developing a sample design, a researcher must bear these steps in mind. They are

i. **Population** – the first thing to do is to clearly determine the population which consist of objects, events, individuals etc. For instance, this may be the population of a city, workers in a factory, clients of a shop, or patients in a given hospital. It could be number of fire incidents, guerilla wars, armed robbery incidents, party conventions etc.

ii. **Sampling Unit** – A researcher should also determine the sampling unit which may be a specified geographical area like a state, district, wards,

village, a house, a filing station etc. From these the researcher can decide which to select.

iii. **Sample Frame** – This refers to the list of population members used to select a sample. This list need not contain all the members of the population. A researcher need to specify the procedure to be followed in randomly selecting a sample unit.

iv. **Sample Size** – Determining the sample has often been a problem to social scientists. How and what constitute the sample size be it 5, 10, or 15 of the population has remained problematic. But this should be optimum that will be representative, efficient, reliable and flexible.

3.1.3 Sample Techniques

There are broadly two kinds of sampling techniques used in drawing samples from a population: probability sampling and non-probability sampling. Probability sampling techniques ensures that each member of the population stands an equal chance of being selected. Probability sampling is very important when a researcher wants to be precise in generalizations from a survey. Non-probability sampling techniques however do not guarantee equal chances of members of a population to be selected. This may not be complex and accurate as the former. It is commonly used and appears handy in many circumstances.

3.1.3.1 Probability Sampling Methods

Probability sampling is also known as random sampling. Some even refer to it as chance sampling. Here every item of the population has an equal chance of being selected in the sample. The random mechanism ensures that the result of a research is assured by the probability. To take a random sample, items in the population can be labeled on a piece of paper and then juggled in form of a lottery and then randomly selected. Probability sampling methods use vigorous procedures that are precise and which permit no arbitrariness in selecting a sample. There are several methods that fall under this probability sampling category. These are simple

random sampling, systematic sampling, stratified sampling, cluster sampling and area sampling.

a. **Sample Random Sampling**

The simple random sampling allows every member of the population an equal chance or probability of being selected in the sample. For instance, for a population of 500, the method gives equal chance to every member to be chosen. A study of students in a class would require the listing of the students, after determining a representative percentage the sample would then be randomly selected.

b. **Systematic Sampling**

This is a complicated and highly vigorous form of the simple random sampling. This involves the selection of the *n*th item on the list. All items in a population are listed and some randomness is introduced by randomly selecting the first item and then the rest selected at fixed intervals.

c. **Stratified Sampling**

Here a population is divided into sub-groups or strata and then random sampling techniques are applied to select the sample from each stratum. A population can be divided into various strata. But care must be taken to ensure that the strata represent the context of the issues under study. For instance, a study on sexual attitudes would have a population divided into age, sex, and educational qualification.

A study on the flow of foreign Direct Investment would use a stratification that divides countries along size of economies, nature and technological improvement. Stratified sampling has the advantage of built in assurances that every strata will be adequately represented. This is proven when small groups that make up a population constitute a small percentage of the universe. Stratified sampling is mostly used when a population is not homogenous.

d. **Cluster Sampling**

When an area of coverage for a research is large with a relatively huge population, the best way of sampling it is to divide the area in smaller non-

overlapping areas called clusters. These clusters are then randomly selected and the population there is also randomly selected for the sample. In cluster sampling, the total population is divided into a number of relatively small subdivisions which are clusters of small units and then some of these clusters are randomly selected for inclusion in the total sample.

e. **Area Sampling**

When clusters constitute some geographical subdivisions, the cluster sampling can better be called area sampling. The geographical clusters become primary sampling units and are designated as area sampling.

3.1.3.2 Non-Probability Sampling

This is an arbitrary sampling procedure as it does not give equal chances to members of a population to be included in the sample. It is known variously as convenient quota, purposive or judgmental sampling (Singleton et al 1998). Here the items to be sampled are selected deliberately by the researcher and the decision is considered sacrosanct. Non probability sampling techniques purposively select particular items in the universe as representative of the population. In doing this, the judgment of the researcher is given prime attention. Non probability sampling techniques are cheap and convenient. Here, three of these techniques shall be considered.

i. Purposive Sampling

Here particular items are selected on the basis of predetermined criteria. The purpose is to ensure that people selected fit into predetermined characteristics that satisfy the research concerns. Under purposive sampling, are two methods: quota and judgmental sampling techniques.

a. **Quota sampling**- is similar to stratified sampling especially in splitting a population into sub-groups; on the basis of some criteria such as age, sex, ethnicity, educational qualifications etc. But once this is done, the researcher purposively chooses what he considers as the percentage that constitute a quota representative of the population.

b. **Judgmental sampling**- often called purposive sampling uses a deliberate effort to draw samples on the basis of predetermined criteria which the researcher believes essential. The researcher may

rely on an expert's judgment that prescribes what is necessary as a criteria in picking the sample units. For instance, in a study on teacher- student relationship, a researcher may choose only those who have taught for 30 years even when those selected may only have been working in schools as administrators and not teachers.

ii. Convenience Sampling

This is a typical opportunistic sampling procedure. It is a "take them where you find them" method of obtaining participants in a research. It is also called haphazard sampling technique. For instance, in a study on students' attitude to demonstrations, the researcher may choose to interview any student on sight or wherever and whenever a student is seen and is willing to participate in the interview.

All these methods- quota, judgment and convenience sampling methods have a strong tendency to introduce bias into the sample and hence results may not be generalizing enough for the intended population (Cozby, 2001).

3.1.3 Questionnaire Construction

In survey research, the questionnaire is a common instrument used in collecting data. A questionnaire consists of a number of questions written in a definite order. Respondents are expected to read and understand the questions and then provide the answers. The questionnaires are a translation of research objectives into questions to elicit information that can be used to explain reality. Questions are expected to motivate and not scare or threaten respondents. In constructive questionnaire, attention should be paid to content, structure, format and sequence.

a. Content

Survey questions are usually concerned with facts, opinions, attitudes, respondents' motivation and level of respondent's familiarity with a given issue (Bailey, 1987). Broadly, questions are in two forms: factual and subjective. Factual questions are background questions to assist in classifying respondents'. There address issues of gender, age, marital status, education, income, ethnic group, religion, place of residence, nationality etc. Factual questions also deal with information about respondents' social background, eg. How do you relax? Subjective questions on the other hand verify respondents' beliefs, attitudes, feelings and opinions (Singleton Jr. et al, 1988). Attitudes are expressed through speech or behavior when respondents perceive the object of the attitude. Attitudes about abortion for or against abortion can be expressed when a respondent confront an issue to it or when asked about it. Attitudes can be described by their contents. That is what it is about. It is also expressed in a given direction be it positive, negative or neutral. Attitudes may also be intensive. Measuring attitudes is very important because they indicate the inclination of the respondents.

b. **Types of Questions**

Moving from the content of the questions, a researcher immediately must consider the structure of questions and the format of responses that would accompany them. There are broadly three types of questions: closed-ended questions, open-ended questions and contingency questions.

i. **Closed-ended-** questions offer respondents a set of answers and require them to choose the most that closely represents their views. Eg. Choose which number that represents your level of satisfaction with the conduct of Nigeria's foreign policy.

1. A great deal
2. Quite a bit

3. A little
4. Very little
5. None

Close-ended questions are easy to frame and quick to answer as they need no writing from respondents. They are also easy to analyze.

ii. **Open-ended**- questions are however not formulated with specified choices and the respondents are free to provide answers in writing. They are at liberty to exercise discretion. Respondents are not restricted to a set of answers. Eg. What do you consider to be the major problems for the federal government in Nigeria?

iii. **Contingency Questions**-In a survey, not all questions would apply to every respondent. Some questions may apply to a sub-group and would be relevant only to such a group. A contingency is a filter question and belong to the close-ended kind of questions. A contingency question is determined after asking a filter question to all respondents eg. Do you follow the news on the local radio station? The contingency question would then be "what is the latest event you heard about? This question is contingent on respondents that answered 'yes' in the filter question.

c. **Question Format**

There are several techniques used by researchers in structuring responses to close-ended questions. In general, respondents are expected to choose one answer from many possible answers. The researcher must give direction to respondents to circle, underline or tick answers.

One of the most common formats is the rating scale. This is to test the intensity of attitudes or feelings or opinion of respondents eg. Countries should be allowed to try their citizens leaving abroad for any offence they may commit in the country of residence.

1. Agree strongly
2. Agree

3. Neutral
4. Disagree
5. Strongly disagree

Researchers also use matrix questions that are close-ended which are a large set of rating questions that have the same response categories eg. I consider Nigerian government very corrupt.

1. Strongly agree
2. Agree
3. Depends
4. Disagree
5. Strongly disagree

Researchers also use questions that establish differential by measuring respondents' reaction to some object or issue. The response on a bipolar continuum with contrasting adjectives looks like this.

Very fairly slightly neither slightly fairly very good ---------- bad

In assessing the priority of respondents in relation to attitudes towards particular events, objects or issues, researchers also use ranking. This is important as it brings some relative order in judgment. This is important because many of the things social scientists try to measure can hardly be given precise numerical value (Heise, 1970). These issues include "quality of life" "status" "satisfaction" etc.

d. **Sequence**

Having been done with the format the questions may take, the next thing to determine is the order of questions as they appear on the questionnaire. They are two forms of sequence: funnel and inverted funnel sequence.

In the funnel question, each successive question derives from the previous question with a progressively narrow scope (Gorden, 1980). For instance surveys on views about economy, politics and social

problems targets sources of information of respondents (eg newspapers). Thus the sequence of questions would begin from general perception of what constitute problems, level and importance of the problem, how much information is available to respondents on the topic etc. e.g.

1. What do you consider to be the major problems facing Nigeria?
2. Which of all these problems is most important?
3. Where do you get your information?
4. Do you read the Sun newspaper?

In the inverted funnel sequence, questions begin from the narrow to the broader. In this way the curiosity of respondents may by roused as they move from smaller questions to bigger or broader ones eg.

1. Have you heard about the plane crash in Lagos?
2. How many people were killed?
3. How many are in hospital?
4. What was the cause of the crash?

3.1.4 **Things to avoid in constructing a questionnaire**

i. **Wording** – Questions should be such that can be read and understood by respondents. The wording of questions must avoid high sounding words. Questions should be such that would convey the same meaning to all respondents

ii. **Response Set** – This is a tendency to answer all questions in a specific direction irrespective of the content (Bailey, 1987). This is possible when a set of questions is presented together with the same response format, especially when the questions all refer to the same topic. On a question like child marriage, response categories like “strongly agree” “strongly disagree” may be taken by respondents to mean the same thing. The question format can be changed by varying response categories for each question or by distributing questions on a topic throughout the questionnaire instead of placing them all together.

iii. **Leading Question-** A leading question is structured to suggest that the researcher expects a certain answer e.g Would you say you oppose same sex marriage? A general and open question should be "Do you favour or oppose same sex marriage"?

iv. **Threatening Questions** – These are questions on social norms or habits not discussed in public. They ask about gambling habits, sexual orientation, sexual preferences, drinking etc.

v. **Double-barreled Questions** – this is a situation where two or more questions are combined in one. E.g. money laundering and corruption are the most serious problems facing Nigeria. Some may agree with the former but disagree with the latter. Each item can take its own question.

4.0 Conclusion

In this unit, the process and procedure of collecting data in a research is considered under the research design concept. Researchers work out a detailed plan for research which defines the process, methods and techniques to be deployed in collecting data. This involves determining the research population and ensuring that an appropriate method and technique is adopted to draw data. This phase of the research process is critical to the results as it may undermine the integrity of the results if not handled properly. Thus every aspect of the data collection process must be carefully checked to ensure that it enhances the credibility of the result.

5.0 Summary

Attention of students has been drawn to the rationale behind evolving a sound and detailed research design. This involves the methods and techniques of collecting accurate data to be analyzed and interpreted in proof or otherwise of hypotheses set before the research. In a survey research used by social scientists, the interview and questionnaire techniques mostly used by researchers have been carefully dealt with.

6.0 Tutor-Marked Assignments

i. mention the methods of data collection.

ii. What are types of probability sampling methods?

iii. What are the things to avoid in constructing a questionnaire?

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Unit 2 Analysis of Data in Research

Content

1.0 Introduction

It has become common in social science to use statistics as an expressive way of interpreting relations between social phenomena. Dating to the 1950s, the use of statistics has grown rapidly in the field (Frankfort-Nachmias and Nachmias, 1996). Statistics is very helpful in demonstrating patterns and regularities in social phenomena studied. Statistics methods are used to organize data, display information in a meaningful way, and to vividly describe and interpret observation in such a manner that assumptions and hypotheses can be explained. In this unit, students will be introduced to basic means of organizing, interpreting, displaying information and analyzing data that explain presumed relations between phenomena. Attention shall be placed on the role of statistics, expressed in central tendencies, percentages, and graphs to describe distributions.

2.0 Objective

In this unit students are expected to

i. Learn the statistical measures in describing distributions
ii. Learn how to differentiate comparative results.
iii. Identify the three ways of describing results.

3.0 Main Content

3.1 Analyzing data in Research

3.1.1 **Role of statistics in Research**

According to Frankfort-Nachmais and Nachmais (1996:355) "Statistics involves methods for describing and analyzing data and for making decision and inferences about phenomena represented by data". In social sciences, there are two forms of statistics used: **descriptive and inference statistics**.

Descriptive statistics help the researcher to organize data in a summary manner that is more effective and meaningful. Its tools are used to describe data put together through observation and it is in turn used to reduce information to an understandable manner.

Inferential statistics help the researcher to take informed decision and draw inferences from interpretation of data patterns. Through inferential statistics a researcher can determine whether an assumed pattern in theory is realistic.

3.1.2 **Frequency Distribution**

When a researcher collects data, it is coded. Thereafter, it can be analyzed. In analyzing results, it is important to first start by developing a frequency distribution of the data. A frequency distribution simply indicates the number of individuals that receive each possible score on a variable. For example, for a single variable like religion (univariate variable) respondents can be identified as Jews, Christians, Muslims, Buddists, Catholics and Protestants etc.

The order in which categories of a variable are listed on the frequency distribution table depends on the level that the data were measured. There are four levels of measuring data: **nominal, ordinal, interval and ratio**. At each of these levels, the category must be exhaustive and mutually exclusive. At the nominal level, the category is simply names without implying any ranking. These may be ethnicity, gender, religious affiliation etc. for ordinal level the category may be ranked from highest to lowest or vice versa without reflecting how much greater or lesser one level is from another. At the interval and ratio level, the category reflects the rank and the magnitude of the difference between categories. Eg. Child abuse.

There is also frequency distribution with the number of category to use and the cutting point between them. This is to ensure that the distinction between categories is not arbitrary. For example, age and income can be categorized in a number of ways. The point to note is that the interval should be of equal width eg. 1`-5 years, 6-10 years.

a. Frequency (univariate) distribution

Category	**Frequency (f)**
Adult	4
Children	6
Total	**10**

b. Distribution of Child Abuse

Category	**Frequency (f)**
Physical abuse	27
Sexual abuse	14
Neglect	10
Total	**51**

c. A Frequency Distribution of family size

Age in years	**Frequency (f)**
1-5	6
6-10	7
11-15	15
16-20	9
Total	**37**

An absolute frequency is meaningless in itself unless compared to other frequencies. For instance 500 registered voters who are members of one party are meaningless unless compared to registered voters who are members of a rival party in a given community. To facilitate this comparison, researchers convert frequencies to proportions or percentages. A proportion is obtained by dividing the frequency of a category by the

total number of responses in the distribution. When multiplied by 100, a proportion becomes a percentage.

$$\frac{F}{N} \times 100$$

d. Social Class Distribution

Social class	**Frequency (f)**	**Percentage**
Upper class	25	5
Middle class	221	48
Working class	201	43
Lower class	16	4
Total (N)	**463**	**100**

3.1.3 Graphs in Describing distribution

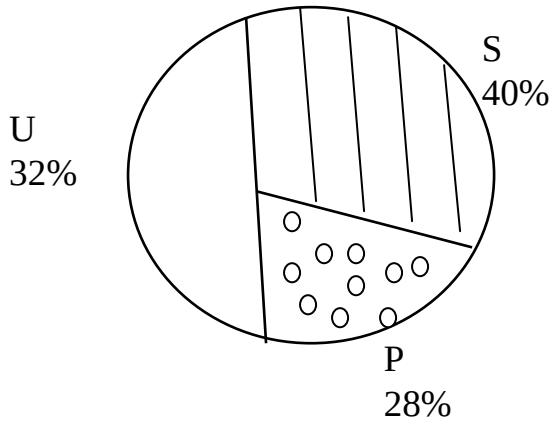
Graphs represent an alternative way of communicating information about data hence it may not be presented in obvious numerical terms. A frequency distribution using graphs appeals to the visual impression of people about data and in this way, researchers can communicate information more effectively. Researchers in social science commonly use pie chart, bar chart and histogram as techniques in frequency distribution. The pie chart and the bar chart are used to present data measured at nominal level while the histogram is convenient for interval or ratio levels of measurement.

i. Pie Chart

A pie chart is a circle divided into parts showing differences in categories of a variable in percentages. The frequency distribution sum up to 100 percent.

For example, government expenditure on Education: University, secondary and primary.

e. A pie chart showing government expenditure on education

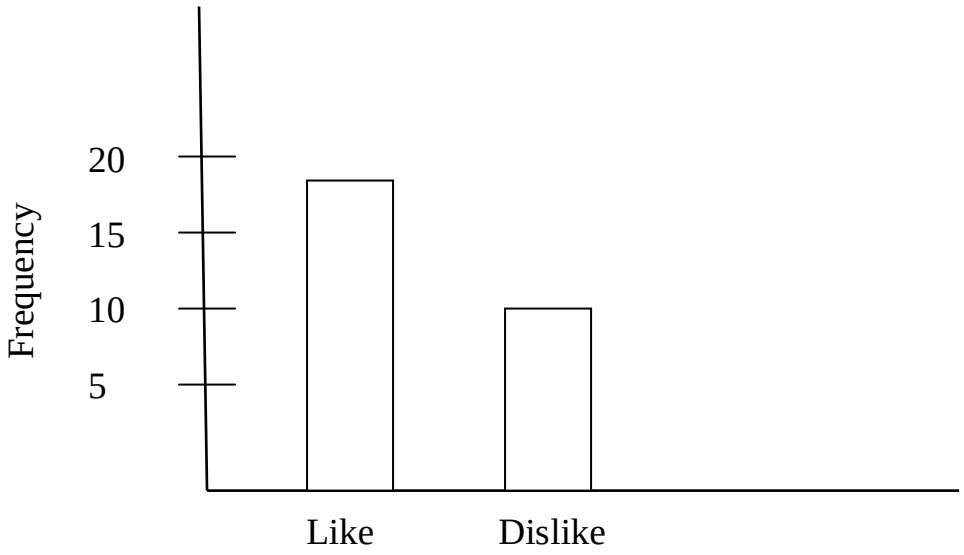


A pie chart is used to display frequency distribution of nominal or ordinal variables.

ii. The Bar Chart

The bar chart also provides the tool for displaying nominal or ordinal data. It uses separate and distinct bars for each piece of information. It contains the x horizontal axis with two possible responses while the y vertical axis shows the number that chose each response with the corresponding length of the bar.

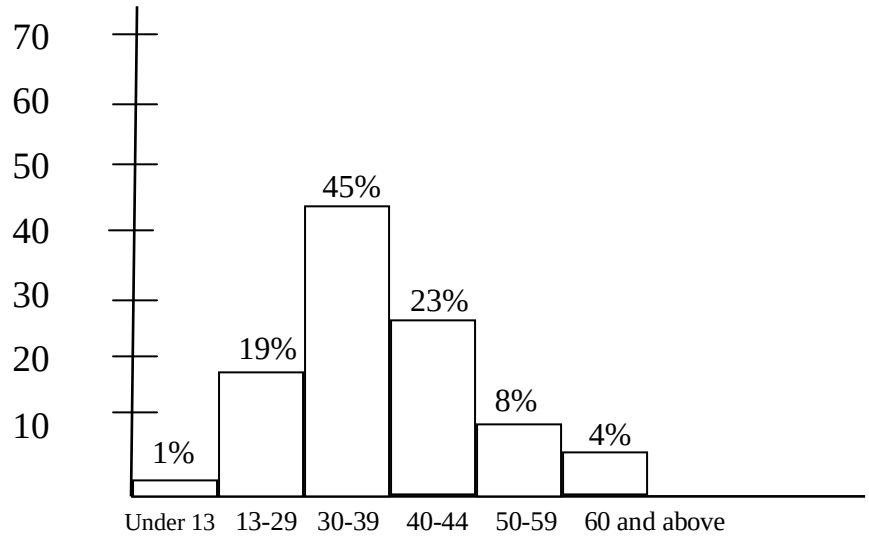
f. Bar graph showing frequency distribution of those who like or dislike of the President travelling regularly abroad.



iii. Histogram

This is used to show frequency distribution of interval or ratio level data (Cozby, 2001). The histogram looks like a bar chart but it shows no distinction between the bars or rectangles which are displayed contiguously showing that the variable is continuous. Intervals are displayed across the horizontal axis indicating that they are not discrete categories.

g. Distribution of Unemployment by Age



3.1.4 **Measurement of Central Tendency**

Due to the tendency of many variables under investigation to revolve around a central or average value, researchers have opted to show frequency distributions that are called measures of central tendency. These variables may be income or age. The average income of workers in a factory or state can be determined while the average of a given population in school or community can also be determined. The three measures mostly used by social scientists are the **mode, the median and the mean.**

i. Mode

This is the most frequent score. It is the response or observation that appears most frequently in the distribution. It is used to measure for nominal variables. eg from a class of 15 students, the following represent their scores in a mathematics test

6 4 6 7 8 6 5 6 10 12 6 9 7 4

Here 6 is the mode as more students scored 6 marks. Also from religious group distribution below:

Protestant	70
Jews	40

Muslim	90
Buddist	45
	235

The mode is 90 as Muslims appear as the dominant group.

ii. The Median

This is a central tendency that divided the distribution into two equal halves. This is an observation that is marked between the largest and the smallest in the distribution. The median is calculated for observations that are ranked according to size. Where the distribution is that of odd cases the median is the middle case as 1, 3, 4, 6, 7. The median is 4. Where the cases are even the two middle cases are summed and divided by 2 eg 1, 3, 4, 5, 6, 8, 9.

$$\frac{5+6}{2} = 5.5$$

iii. Mean

This is the most frequently used central tendency. This is what is mostly considered the actual average even though the mode and the median are also so used. Average scores age in a population and height of athletes or income of workers is actually the mean.

The mean is defined as

$$\overline{X} = \frac{\sum u}{N}$$

Where $\overline{X}$ = mean

$\sum x$ = the sum total observations

N = the number of observations

Thus:- 6,7,12,11,10,3,4,1 is

$$\frac{54}{8} = 6.75$$

4.0 Conclusion

Analyzing data in research is a critical stage because it is at the point that the researcher is able to communicate information to the public in a meaningful and understandable manner. The various techniques and methods of data analysis to be deployed are designed to summarize complex data into manageable and meaningful sense. In this context various frequency distribution techniques have been introduced to students. These are tools common in social survey research.

5.0 Summary

In this unit, students have been introduced to the very important stage of data analysis in research. It is here that the research enterprise finds meaningful expression as data collected to establish a relationship between variables are given realistic interpretation. In analyzing and interpreting data, researchers in social sciences must avail themselves of these tools.

6.0 Tutor-marked Assignments

i. What is descriptive statistics?

ii. Identify the four levels of measuring data.

Iii.What are the measures of central tendency?

7.0 References/Further Readings

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Unit 3 Literature Review in Research

Content

1.0 Introduction

The research process is geared towards creating new knowledge and understanding about the world or things around us. This search for knowledge should begin from existing knowledge. This is documented or is kept with people in their memories who may be willing to share if approached by a researcher. Literature review is therefore the systematic identification, location and analysis of documents with information related to the research question. In all fields of study, there exist information that can be accessed if look for properly and diligently. As one proceeds with a research, one is expected to acquaint one with existing knowledge in a given area in order to be able to situate one's study.

It is important to thoroughly review literature in a given area to avoid repetition that may not be called for. Students are fond of complaining that an area of research is new indicating that nothing in existence in literature is available. This is a clear case of laziness and the lack of capacity for

research. Where sufficient literature review is undertaken, one would discover that so much may have already been covered and a research question would no longer be relevant.

2.0 Objectives

In this unit, students are expected to

i. Understand the purpose of literature review
ii. Identify the sources of existing literature
iii. Learn how to structure the review of literature

3.0 Main Content

3.1 Literature Review in Research

3.1.1 Purpose of literature review

To review literature on a given research question in a field is to look for existing knowledge on an issue in existing published works or even those not yet published. In such works lies huge knowledge hidden in volumes of literature. In reviewing existing works, a researcher becomes familiar with relevant and current information in a given area. With this update, a researcher can identify gaps in knowledge in a given field in existing literature and therefore situate a research question.

The review of literature is a painstaking and tedious exercise. It requires careful search for the sifting through to elicit relevant information and knowledge stored in existing works. Through a thorough search for literature in a field, one would discover that there is really no area that has not been touched in terms of research. Existing literature can never be found placed or stored in one place hence researchers would have to identify where likely literature on a given issue would be found.

3.1.2 Purpose of Literature Review

It is important to review existing literature that relates to ones current research for a number of reasons. These reasons constitute the purpose of

review of literature in general. In detail the purpose of literature review include the following:

i. Review of literature helps the researcher to assess the grounds already covered and on that basis decide whether there is something still left to be done. Reviewing literature affords a researcher the opportunity to come to terms with the history of the problem, what procedures and methods had been utilized in investigating the problem and results achieved. From here the researcher can decide what needs to be done.
ii. The review of literature enables the researcher to avoid duplication of work, thereby saving time and efforts. Through a detailed review, a researcher may realize that so much ground has been covered very well and hence any attempt may be a mere repetition which would simply mean a waste of efforts.
iii. A review enables the researcher to situate a current research problem in an appropriate theoretical framework. A review suggests ways in which a current research question relates to existing concepts and theories and easily suggest which theoretical frameworks are relevant to a study.
iv. The review enables the researcher to build his research for new knowledge on the basis of previously acquired knowledge.
v. The review allows the researcher to highlight the contributions of previous researchers, indicating their strengths and weaknesses

3.1.3 **Sources of Literature**

It is obligatory for every researcher to review existing literature that relates to a study. Laying hands on this has not been easy. A researcher would have to work very hard in search of literature that may be scattered around. The review of literature is the search for existing knowledge and information which may be in published books, journals, magazines, newsletters, newspapers, published

reports or governmental documents. Information can be stored in films, tapes, compact Disc etc.

The most dependable source of literature is the library which may belong to an institution, organization, individual or school. It could also be a private one. Public libraries maintained by government constitute a veritable source of literature. One can also ask friends about works in an area they may have in their private libraries.

The Internet constitute another source of literature where volumes of work can be found.

3.1.4 **Structure of Literature Review**

The review of literature is a chapter of its own in a research work. What this means is that, the chapter needs to be properly structured to have a systematic flow. Important sub sections of the chapter on literature review are;

i. **Introduction**

This introductory section outlines the central focus of the study. It also states the purpose of the review with the highlight of the issues to be guiding the review as they relate to the study. These issues are further presented in a sequential order.

ii. **Conceptual Review**

In a study may be found key concepts that would be central to the study. These concepts may be words or a combination of two or more which would have definite meanings within a given field. Such concepts may have uniquely varied meanings which can be contextualized. Such concepts are usually reviewed to show the trends and the issues that have spurred the instability in the meaning of a given concept over time. For example, concepts like

democracy, liberal democracy, terrorism, war on terror etc. would need a conceptual review to account for the evolving changes in the meaning of the concepts over a given period of time.

After a conceptual review, a researcher reviews issues in a thematic or

historic context. For instance, a sub-section such as "Liberal democracy. A historical overview" would entail a historical review of the trends and dimensions of liberal democracy dating back to a particular period in time. On a thematic basis, one would consider for example a section such as "democracy and political participation in developing countries". Here a researcher would review the level of political participation and the form of that participation in the context of developing countries social and political cum economic conditions.

iii. **Theoretical Review**

Theories constitute accumulated knowledge that has been established as truth. Any new search for new knowledge in a field is predicated on existing knowledge that is beyond reproach. This framework set the parameters for new research. It determines the procedure of data collection and related methodologies as well as analysis. Being a network of ideas and current thinking in an area, it forms the foundation of new knowledge search.

In reviewing literature, a researcher is to note that only original works are to be used. Secondary sources or other reviews are to be avoided in order to reduce the possibility of misinformation (Akpa, 2011). Again, researchers are expected to note the age of existing literature by using those not more than ten years old except seminal works in an area.

4.0 Conclusion

In this unit, students have been introduced to the review of literature as an integral part of research. This is essential for a researcher to be updated on existing knowledge in an area. By acquainting with existing knowledge in books, journals and other materials, a researcher is enabled to situate a current research question, and determine the procedure to follow as well as reduce the possibility of wasting time and efforts through an unnecessary duplication.

5.0 Summary

The unit stressed the importance of review of literature as well as identified the library, internet and friends or colleagues as possible sources of literature. It also dealt with the structure of literature review being a chapter of its own in a research work.

6.0 Tutor-Marked Assignment

i. Explain the purpose of literature review.

ii. What are the sources of literature?

7.0 References/Further Reading

Akpa, B. (2011). *Knowledge Creation Process: Concepts and Application in Social Research.* Makurdi, Aboki.

Kothaic, C. R. (2004). *Research Methodology: Methods and Techniques, N*ew Delhi, New Age International Publishers.

Unit 4 Report writing in Research

Content

1.0 Introduction

The research report is a very important aspect of the research process and until it is written or presented, the research process is not complete yet. The research report contains the research results, conclusion and generalization which are presented in a manner to be understood by the public or even the scientific community. It is in this that lies the significance of writing a research report. Writing a research report is considered the last part of the research study. Doing this requires a set of skills that maybe a bit different from that of research itself.

2.1 Objectives

To introduce students to report writing and are expected to

i. Learn the steps in writing report

ii. Learn the structure of report writing

iii. Learn the types of report writing

2.0 Main Content

3.1 Report Writing in Research

3.1.1 Research Report

A research report is a channel of conveying the research findings to the reading public. A research process is not complete until it has been reported in an effective and efficient manner. In preparing a report, a researcher must note that it should be long enough to cover the subject of the research but short enough to maintain a reading interest. The report should avoid unnecessary technical language and therefore be brief to the point. The report should use charts, graphs and relevant statistical tables to summarize results. The report must present logical analysis of the subject matter. This means a research report should reflect a well coordinated presentation of findings.

3.1.2 Layout of the Report

The layout of the report is designed to ensure that it conveys the entire research process especially the findings to the public. To this end, the report consists of the preliminary pages, the main body and a conclusion.

i. **Preliminary Pages** – The preliminary pages of a report contain a title page, relevant acknowledgements, and a preface or 'forward'. Thereafter, is followed a table of contents stating in summary sub-titles in the report. The follow up pages contain a list of tables and illustrations.

ii. **Main Body** – The main body of the report deals with an introduction, a statement of findings and recommendations, the results, the implications drawn from the results and a summary.

a. **Introduction** – This is a statement about a background to the research as well as the objective of the research. The introduction provides a justification for the research endeavour leading to a hypothesis formulation. Also in the introduction is an explanation of the methodology and its procedures used in the research. This methodology is explained in detail in terms of study population, sample frame and techniques for data collection.

b. Statement of Findings and recommendations

The statement of findings and recommendations is presented in a simple unambiguous language for the reading public. This is important to ensure that the attention of the reader is kept sustained and exact meaning of the findings is conveyed.

c. **Results** – Here a detailed presentation of the results is made with relevant supporting data in charts, graphs or tables. The result is presented in logical sequence that may stretch across several pages and chapters.

d. **Implications of Results** – the result of any study may mean much or little to as many readers as possible depending on how they understand the implications of the results. It is therefore important to spell out the consequences of a result on a wide range of or specific issues for the attention of the reader.

3.1.3 **Types of Research Report**

There are two kinds of research: Technical and popular reports

i. **Technical Report**

The emphasis in a technical report include

a. The methods of gathering data used
b. Assumptions or hypothesis used
c. Detailed presentation of results/findings including limitation and supporting data.

Summary of Results: This is a brief review of the main findings in a few pages.

Nature of Study: This is the description of the general objectives of study and the formulation of operational terms. The hypothesis used and method of data collected and analysis made is also presented.

Methods employed: Here the specific methods of data collection and analysis are presented. This involves a detailed description of sample design; sample size, sample frame etc.

Data: this involve discussing actual data collected, its sources and suitability to the problem under study.

Analysis of data and presentation of finding: The report present analysis of data collected and demonstrated research findings.

Conclusion: this is a summary and generalizations about research findings with possible implications.

Appendices: here questionnaires, interview schedules and special technical/mathematical formulae used are appendixed.

This is a general order which may vary from report to report.

ii. Popular Report

A popular report emphasizes simplicity and attractiveness as special qualities. Simplicity is defined by a clear language, which uses minimum technicalities which may include a few simple mathematical formulas (Barley, 1978). It also deploys elaborately charts and other diagrams. A popular report also deploys many sub-headings, a large font size and detail discussions of policy implications. A popular report also include the following

i. Findings and their implications

The findings in a popular report are elaborately discussed with emphasis on their policy implications.

ii. Recommendations

A section on recommendations for adoption for implementation in respect of policy implications

iii. **Methods employed -** A brief non-technical description of the method and procedure of data collected is presented.

iv. **Results** - This is the main body of the research report where the results are presented. In simple clear language deploying elaborate charts and other diagrams (Berenson & Colton, 1971).

4.0 Conclusion

This unit has laid bare what a research report is as a chronicle of the research process which highlights all the research is about emphasizing the results of the research and their policy implications. A research process is incomplete without a research report. In writing a research report, a research must note the style, language and presentation format in order to maintain a reading interest and enthusiasm of those reading public.

5.0 Summary

Students have been introduced to the rudiments of research report writing which is the last stage of a research process a researcher needs to grasp: The various styles, language and types of research reports to be able to present an effective and efficient report that deals with all its important facets.

6.0 Tutor Marked- Assignment

i. What are the three main components of a research report?
ii. Identify the types of a research report.
iii. Why is report writing for a research significant?

7.0 References/further Reading

Kothari, C.R. (2000). *Research Methodology: Methods and Techniques.*

Bailey, K.D. (1978). *Methods of Social Research.* New York.

Berenson, C. and Colton, R. (1971). *Research and Report Writing for Business and Economics*, New York, Random House.

Unit 5 Documentation in Research

Content

1.0 Introduction

Documentation in research is the art of accounting for every source of information used in the research report. This is important to and is designed to acknowledge authors whose ideas have been consulted and referred to in a given research work. Acknowledgement of authors of ideas is an important aspect of research. All sources of ideas and information used must be acknowledged. In the social sciences are two popularly used documentation methods: the American Psychological Association (APA) or Harvard Style.

2.0 **Objective**

Students are expected to

1. Learn the essence of documentation in research
2. Identify the two styles of documentation in social science research.

3.0 Main Content

3.1 Documentation in Research

3.1.1. Documentation Styles

There are two major documentation styles used in social science research. These are APA style and the Harvard style.

i. APA Style

a. One Author

In the body of the work, when an author is part of the narrative, the date of publication is included in parentheses soon after the name of the author. Eg. Esiediuoh (2010) found that parties in Nigeria mobilize support along tribal lines.

When the authors' name is not part of the narrative, the name and date are cited in parentheses at the end of a phrase or at the end of the sentence. E.g State sovereignty restrains countries from interfering in internal affairs of other countries (Anyam, 2001).

b. Two Authors

When a work has two authors who are part of a narrative, the names are mentioned and date in parentheses. The difference between narrative and parenthetical citations is in the use of the conjunction "and" and the amperstand "&" to connect the authors. When the citation is in complete parentheses use "&" to connect the authors' names (Cozby, 2007). Eg.

Anyam and Hama (1991) have shown that contemporary international system is unipolar. When authors are not part of the narrative, this suffices, Contemporary international system is unipolar (Anyam & Hama, 1991).

c. Three authors

When a report has three or more authors all of them are cited the first time they are mentioned but subsequently only the first followed by abbreviation et al.

Eg. First citation

Mnena, Musa, Eru and Amina (1996) support the claim that the US is the policeman of the world.

Subsequent citation

Eg. Research suggests that smoking among teenagers is an indication of low self esteem (Mnena et al, 1996).

2. Harvard Style

a. Citation in the body of the work

When the author is part of the narrative cite the date in parentheses e.g According to Bond (1999) the post world war II international system was bipolar.

When author is not part of the narrative, author and date are in parentheses not separated by a comma e.g Bipolarity characterized the cold era in international system (Bond 1991).

Where it is direct quote pagination is cited

Eg. "Private ownership allows wealth to be distributed unequally "(Bond 1991, p.225).

b. **Citing a range of pages**

Bond 1991, pp. 56-75.

c. Citing where the authors' name is mentioned in the text

According to Bond (1991, p. 235) productivity had improved throughout the factory.

d. Citing a work with two authors

(Bond & Wash 1993).

e. Three or more authors

(Bond, Small & Novman 1991)

f. Where there are more than three authors

(Bond et al. 1992)

3.1.2 **Bibliography/References**

References are listed in alphabetical order with the first authors' last name. All references are not categorized by type (ie. Books journals, articles etc.)

1. APA Style

a. Eg. Journal Articles

Davis, J.G. (2001). Attitude alignment in close relationship and social psychology. *Journal of personality and social psychology* 81, 65-67.

The first line of each reference is typed flush to the left margin; subsequent lines are indented. This is called a "hanging indent" (Cozby, 2007: 307). The title of the journal is italicized.

b. Book Format

When a book is cited, the title of the book is italicized. Only the first word of the book is capitalized; however, proper nouns and the first word after a colon or question mark are also capitalized.

i. One Author Book

Igba, T.I. (1996). *Introduction to international relations.* New York: The Goodford Press.

One author book second or later edition

Mama, J.P. (1996). *Children in poverty : Child Development* (2nd ed.). New York: Polity Press

Edited book

Huston, B. J. (ed.) (1992). *Children in poverty*. New York: Barns Press.

Articles or book chapter in edited books eg

Brown, E.L. & Campione, J.C. (2004). Child Development. In K. Macnally (ed). *Classroom situation*. Cambridge: MIT Press

Magazine

Begley, S. (1996, March 15). Gray Matters. *Newsweek*, 48-64.

2. **Harvard Style**

Any item that has a citation in the text of a work must be listed in the reference at the end of a chapter or paper. The references must be listed by their author alphabetically or by title if there is no author.

Books

Single Author

Holt, D.H. 1996, *Management principles and Practices,* Prentice Hall, Syndry.

Hodgson, A. 1998, *Accounting Theory*, John Witey, Brisbare.

Multiple Author

Mama, J.D. William, P.J. & Pascal, S.G. 1998. *Basic Sciences,* Irwin, New York.

Edited work

James, B.D. (ed.) 1998, *Business Series*, Irwin, London.

Book chapter or article in an edited work

The chapter or article title is enclosed in quotation marks and that only the first word and any words that normally bear capitals are capitalized e.g

Mikman, R. 1998, "The New World". In *Work places of the future*, eds P. Thompson & C. Warlit, Macmillan Press London, pp. 22-46.

Journal Articles eg.

Ryan, M.D. 1998, 'The Third World in transition, *Journal of Politics* (Zaria), 24 January, pp.27-64.

4.0 **Conclusion**

In this unit, students have been introduced to the basics of documentation in social science research. Its essence has been emphasized as acknowledge sources of information and ideas used.

5.0 Summary

Various forms of documentation styles used in social sciences: APA and Harvard style have been treated with relevant examples.

6.0 Tutor Marked-Assignment

i. Using APA style, arrange this reference material

Family Violence, 4th ed. James C.S. New York, Macmillan 2007.

ii. Cite this author as part of a narrative

2007, to Berger given the nature of our infrastructure, business is difficult.

7.0 Reference/Further Reading

Cozby, P.O (2007). *Methods in Behavioural Research.* (9th ed.). New York, McGraw Hill

Kothari, C.R. (2000). *Research Methodology: Methods & Techniques*, New Delhi, New Age International Publishers.