



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**SCHOOL OF ARTS AND SOCIAL SCIENCES**

**COURSE CODE: PCR 312**

**COURSE TITLE: Peace Research Methods**

Course Code        PCR 312  
Course Title        Peace Research Methods

Course Team        Durojaye Oyedolapo B. (Developer/Writer) - NOUN  
                          (Programme Leader) - NOUN  
                          (Coordinator) - NOUN



## **NATIONAL OPEN UNIVERSITY OF NIGERIA**

National Open University of Nigeria  
Headquarters  
14/16 Ahmadu Bello Way  
Victoria Island  
Lagos

Abuja Office  
No. 5 Dar es Salaam Street  
Off Aminu Kano Crescent  
Wuse II, Abuja  
Nigeria

e-mail: [centralinfo@nou.edu.ng](mailto:centralinfo@nou.edu.ng)  
URL: [www.nou.edu.ng](http://www.nou.edu.ng)

Published By:  
National Open University of Nigeria

National Open University of Nigeria

First Printed 2012

ISBN:

All Rights Reserved

Printed by:

<b>CONTENTS</b>		<b>PAGE</b>
<b>Module 1</b>	<b>Research Foundation .....</b>	<b>1</b>
Unit 1	Introduction to Research .....	1
Unit 2	Science and Research .....	11
Unit 3	Basic Foundation of Social Research.....	18
Unit 4	Processes or Methods of Social Research.....	27
Unit 5	Research Proposal and Research Project Report .....	44
<b>Module 2</b>	<b>Data and Data Collection Instruments .....</b>	<b>53</b>
Unit 1	Meaning and Components of Data .....	53
Unit 2	Questionnaire as Research Tool.....	62
Unit 3	Interview as Research Tool.....	71
Unit 4	Focus Group Discussion (FGD) .....	78
Unit 5	Observation and Indirect Research Tools.....	86
<b>Module 3</b>	<b>Sources of Research Data/Information .....</b>	<b>93</b>
Unit 1	Library and Research.....	93
Unit 2	Use of Internet Resource for Research Purpose.....	102
Unit 3	Research Ethics.....	112
Unit 4	Referencing Styles in Academics Works I .....	123
Unit 5	Referencing Styles in Academic Works 2.....	132
<b>Module 4</b>	<b>Components of a Good Research.....</b>	<b>141</b>
Unit 1	Sample and Sampling Methods.....	141
Unit 2	Research Measurement and Scaling.....	153
Unit 3	Validity and Reliability.....	166
Unit 4	Importance of the use of Statistics in Research .....	175
<b>Module 5</b>	<b>Types of Research and Data Analysis .....</b>	<b>185</b>
Unit 1	Qualitative Research.....	185
Unit 2	Quantitative Research .....	200

Unit 3	Qualitative Data Collation and Analysis.....	209
Unit 4	Quantitative Data Analysis.....	217
Unit 5	Conflict Analysis .....	226

## **MODULE 1 RESEARCH FOUNDATION**

### **UNIT 1 INTRODUCTION TO RESEARCH**

#### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Research
  - 3.2 Types of Research
  - 3.3 Importance of Research
  - 3.4 Characteristics of Research
  - 3.5 Types of Research Studies/Designs
  - 3.6 Differences between Quantitative and Qualitative Research Approaches
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

#### **1.0 INTRODUCTION**

Human being, as a social animal with well developed brain has been encountering various difficulties, problems and challenges from the time immemorial in the cause of interacting with his/her immediate environment in order to survive, adjust, adapt and improve the living conditions. In the course of surmounting the arrays of challenges confronting human existence, it thus becomes imperative to carry out a worthwhile investigation about the nature of environment because to a large extent; human chance of survival is the product of the amount of knowledge acquired from the environment and the extent to which we can subdue it.

Social research is a process of producing knowledge generating new knowledge or establishing the veracity of the existing ones about the social world. In order to achieve the desired goals and objectives, find answers to pressing questions and proffer solutions to existing problems, man can therefore adopt various methods, different style, traditions or approaches of collecting data or information.

#### **2.0 OBJECTIVES**

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

- Define or explain what research is all about
- Explain social research

- Differentiate between types of researches
- Advance reasons for carrying out research
- Discuss different types of research studies
- Enumerate similarities and differences between the major research studies.

### **3.0 MAIN CONTENT**

#### **3.1 Meaning/Definition of Research**

- Research is an organized and systematic way of finding answers to questions.
- Research is an attempt to investigate or examine a phenomenon, event or an object (etc) carefully with a view to improve understanding of the phenomenon or event.
- It is a process of conducting a study or making an enquiry in order to unravel (or discover) new facts or confirm already established facts.
- It seeks to understand given situations like natural or social phenomenon through observation or experimentation and to explain them.
- It is a method of thinking in an orderly sequence.
- Is an organized study: methodical investigation into a subject in order to discover facts, to establish or revise a theory, or to develop a plan of action based on the facts discovered.
- Research is the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations principles, or theories, resulting in prediction and possibly ultimate control of events

The major terms that are embedded in then above definitions could be further explained thus:

**Systematic:** Research is said to be systematic because there is a definite set of procedures and steps which must be followed. There exist certain things in the research process which are always carried out in order to get the most accurate results.

**Organized** in the sense that there is a structure or method in going about carrying out research. It is a planned procedure, not a spontaneous one. It is focused and limited to a specific scope.

**Finding Answers** is the end of all research. It could be answer to a hypothesis or even a simple question, research is considered successful when we find answers to no, but it is still an answer.

**Questions** are central to research. If there is no question raised, then the answer is of no use. Research is therefore focused on relevant, useful and important questions. Without a question, research has no focus, purpose or drive.

#### **3.2 Types of Research**

There are various types of research. However, three (3) types are commonplace: these include basic (or theoretical), applied and practical research which are distinguished below.

**Basic Research:** Is concerned with knowledge for the sake of theory. Its design is not controlled by the practical usefulness of the findings.

**Applied Research:** Is concerned with showing how the findings can be applied or summarized unto some types of teaching methodology.

**Practical Research:** Practical research goes one step further and applies the findings of research to a specific “practical” teaching situation.

Each of the three different types of research contributes to the other in helping revise and frame the research from category.

For example, practical research may be based on theory that came from previously done basic research or a theory may be generated by the combination of results from various practical research project. The same bidirectional relationship exists between applied research and basic research or practical research.

There exist interrelationships among the three types of research.

According to Henrichsen et al (1997), /research is like a plant that grows and grows and grows and grows..... when it is grown it throws off seeds of all types (basic, applied and practical), which turn sprout and create more research projects. The process continues with all of the new plants throwing off seed, creating additional, related research projects of various types..... soon there is a body of basic, applied and practical projects related to similar topics. And the process goes on and on..... the importance of this fact is that in this ever changing world there will forever be research projects and committed researchers will always be busy.

### **3.3 Importance of Research**

Research is very vital to our day to day activities as well as to our everyday decision making. Research therefore enables us to:

- Solve or find answers the particular existing problems through investigation
- Enhance knowledge of social phenomenon
- Determine the accuracy or otherwise of popular belief, by submitting them to systematic scrutiny
- Generate new concepts and explanation
- Modify (or refine) theory and methodology
- Evaluate the findings of other researches/studies
- Other information and advice to policy (or decision) makers.
- Improve the quality of social life.

### **SELF-ASSESSMENT EXERCISE**



- (i) How can distinguish between researches?
- (ii) Of what relevance is research to humanity?

### **3.4 Characteristics of Research**

Before better understanding of the meaning of research could be achieved, we should first examine the various characteristics of research and research process propounded by (Best, 1985; and Tuckman, 1978)

- Research is directed toward the solution of a problem. It is concerned about finding the truth about an event or object.
- Research involves a careful collection, organization and articulation of what is already known about the problems and what is yet to be known.
- Research involves the quest for answers to unsolved problems that lead to high degree of originality.
- Research entails logical and plausible explanation of the finding if the study or investigation.
- Research is a structured process which follows a systematic order or rule of execution.
- Research is based upon observable experience or empirical evidence; thus rejecting revelation and dogma as method of establishing knowledge
- Research is a painstaking activity that demands a lot of courage and perseverance from the researcher.
- Research is an expensive endeavour in terms of time, money resources and energy.
- It demands accurate observation and description.
- It demands a carefully and concisely recorded and reported procedure.
- It is characterize by carefully designed procedures that apply rigorous analysis. It entails a careful statement of how the steps for data collection are followed; the subjects or objects studied; how the instruments were administered or the observations made and recorded, how the data analysed.
- Research involves gathering new data from primary or firsthand sources or using existing data for new purpose.
- Research requires the operational definition of terms.

- Research is objective and not based on beliefs
- Research is factual not impressionistic, not taking a strong stand but flexible according to evidence.
- Research involves tests of hypotheses or answering of questions.
- Research requires a plan including isolation the isolation of the population, sample, variables, questions or hypotheses and test of data collection.

### **3.5 Types of Research Studies/Designs**

Designing research involves deciding on a general approach as well as planning how various research elements will work together to achieve the desired goals, objectives and results.

There exist many possible formats, methods or plans of carrying out research, which can be subsumed into two (2) major categories or classes namely the qualitative and quantitative research approaches. Both the qualitative and quantitative approaches to the classification of research activities classify all research studies into one of the following categories.

#### **1. Qualitative Approach:**

The qualitative approach involves the collection of extensive narrative data in order to gain insights into phenomena of interest; data analysis includes the coding of the data and production of a verbal synthesis (inductive process)

- 1) Historical research
- 2) Qualitative research

#### **2. Quantitative Approach:**

The quantitative approaches involve collection of numerical data in order to explain, predict, and/or control phenomena of interest; data analysis is mainly statistical (deductive process)

- 3) Descriptive research
- 4) Correlational research
- 5) Causal-comparative research
- 6) Experimental research.

### **Qualitative Research Approaches**

Historical Research and qualitative research are the two types of research classified as qualitative research approaches.

Historical Research is involved with the study of relationship between events, persons, time and places with the intention to gain an understanding and explanation of past events.

Below are the examples of historical research studies mentioned by Gay

- Factors leading to the development and growth of cooperative learning
- Trends in reading instruction, 1940-1945

Qualitative Research is also referred to as ethnographic research. It is involved in the study of current events rather than events. It involves the collection of extensive narrative data (non-numerical data) on many variables over an extended period of time in a naturalistic setting. Participant observation, where the researcher lives with the subjects being observed is frequently used in qualitative research.

Gay also mentioned some of the following examples of qualitative studies

- A case study of parental involvement at a magnet school
- The teacher as researcher. Improving students writing skills
- A multi-case study of students who excel despite non-facilitating environment.

### **Quantitative Research Approaches**

Descriptive Research involves collecting data in order to test hypotheses or answer questions regarding the subject of the study. In contrast with the qualitative approach the data are numerical. The data are typically collected through a questionnaire, an interview, or through observation.

In descriptive research, the investigator reports for one or more variables on the subjects of study.

Examples of descriptive research studies

How would citizens of Nigeria vote in 2001 election?

Would ethnic or religious factors be considered?

How do primary and secondary teachers spend their times after official closing hours?

#### **1. Correlational Research:**

This approach attempts to determine whether and to what degree or extent a relationship exists between two or more quantifiable (numerical) variables.

However, it is important to remember that just because there is a significant relationship between two variables, it does not follow that one variable causes the other. When two variables are correlated you can use the relationship to predict the value on one variable for a subject if you know the subject's value on the other variable. Correlation implies prediction but not causation. The investigator frequently uses the correlational research.

- i. The relationship between intelligence and self-esteem
- ii. The relationship between anxiety and achievement
- iii. The use of an aptitude test to predict success in an algebra course.

#### **2. Causal-comparative Research**

This research attempts to establish cause-effect relationships among the variables of the study. The attempts are to establish that values of the independent variable have significant effect on the dependent variable. Thus type of research usually involves group comparisons. The groups in the study make up the values of the independent variable, for example gender (male versus female) preschool attendance versus no preschool attendance, of children with a working mother versus children without a working mother. These could be the independent variables for the sample studies listed below. However, in causal comparative research the independent variable is not under the experimenters control, that is, the experimenter can't randomly assign the subjects to a gender classification (male or female but has to take the values of the independent variable as they come. The dependent variable in a study is the outcome variables.

- a) The effect of preschool attendance on social maturity at the end of the first grade.
- b) The effect of having a working mother on school absenteeism.
- c) The effect of sex (gender) on algebra achievement.

### 3. Experimental Research:

Like causal-Comparative research, it attempts to establish cause-effect relationship among the groups of subjects that make up the independent variable of the study, but in the case of experimental research, the cause (the independent variable) is under the control of the experimenter. That is, the experimental can randomly assign subjects to the group that make up the independent variable in the study. In the typical experimenter research design the experimenter randomly assigns subjects to the groups or conditions that constitute the independent variable of the study and then measures the effect this group membership has on another variable. i.e. the dependent variable of the study.

1. The comparative effectiveness of personalized instruction versus traditional instruction on computational skill.
2. The effect of self-paced instruction on self-concept.
3. The effect of positive reinforcement on attitude toward school.

### 3.6 Comparison of Quantitative and Qualitative Research Approaches

What are the basic differences between quantitative and qualitative research methods? Quantitative and qualitative research methods differ primarily in:

- Their analytical objectives
- The types of data collection instruments they use
- The forms of data they produce
- The degree of flexibility built into study design.

S/No	Areas of Differences	Quantitative Research Approaches	Qualitative Research Approaches
1	General framework	Seek to confirm hypotheses about phenomena instruments	Seek to explore phenomena instruments use more flexible,

		use more rigid style of eliciting and categorizing responses to questions.  Use highly structured methods such as questionnaires, survey and structured observation.	iterative style of eliciting and categorizing responses to questions.  Use semi-structured methods such as in-depth interviews, focus groups and participant observation.
2	Analytical objectives	To quantify variation To predict causal relationship  To describe characteristics of a population	To describe variation To describe and explain relationship To describe group norms.
3	Question format	Close-ended	Open-ended
4	Data format	Numerical (obtained by assigning numerical values to responses)	Textual (obtained from audiotapes, videotapes and field notes)
5	Flexibility in study Design	Study design is stable from beginning to end study design is subject to statistical assumption and conditions  Participant responses do not influence or determine how and which questions researchers ask next.	Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions) Participant responses affect how and which questions researchers ask next. Study design is iterative that is, data collection and research questions are adjusted according to what is learned.

The key difference between quantitative and qualitative methods is their flexibility. Generally, quantitative methods are fairly flexible. With quantitative methods such as surveys and questionnaires, for examples, researcher asks all participants identical questions in the same order. The response categories from which participants may choose are “close-ended” or fixed it allows for meaningful comparison of responses across participants and study sites. However, it requires a thorough understanding of the important questions to ask, the best way to ask them and the range of possible responses.

Qualitative methods are typical more flexible – that is they allow greater spontaneity and adaptation of the interaction between the researcher and the study participant. For example, qualitative methods ask mostly “open-ended” questions that are not necessarily worded in exactly the same way with each participant. With open-ended questions, participants are free to respond in their own words and these responses tend to be more complex than simply “yes” or “no”.

Also, in qualitative methods, the relationship between the researcher and the participant is often less formal than in quantitative research. Participants have the opportunity to respond more elaborately and in greater detail than is typically the case with quantitative methods. In turn researchers have the opportunity to respond immediately to what participants say by tailoring subsequent questions, questions to information the participant has provided. However, there exist a range of flexibility among methods used that flexibility is not an indication of how scientifically rigorous a methods is. The degree of flexibility reflects the kind of understanding of the problem that is being pursued using the method.

### **3.7 Triangulation**

This is the process of combining both qualitative and quantitative research approaches in single studies. In reality, the degree to which quantitative and qualitative approaches are different has been exaggerated Bryman points out that “Most researchers rely primarily on a method associated with one of the two with a method associated with the other tradition:

1. Qualitative and quantitative data can be used to check on the accuracy of the conclusion reached on the basis of each.
2. Qualitative research can be used to produce hypothesis which can then be checked using quantitative methods
3. The two approaches can be used together so that a more complete picture of the social group being studied is produced.
4. Qualitative research variables are statistically correlated

#### **Examples**

- Participant observation, questionnaires and in-depth interview can be used jointly for primary data
- Interviews, observation and historical and contemporary documents can also be applied in a study of secondary data.

Bryman believed that both qualitative and quantitative research have own advantages. Neither can produce totally valid and completely reliable data, but both can provide useful insights into social life. He argues that each has its own place, and they can be most usefully combined.

Generally, quantitative data tends to produce rather static pictures, but it can allow researchers to examine and discover overall patterns and structures in society as a whole. Qualitative data is less useful for discovering overall patterns and structures, but it does allow a richer and deeper understanding of the process of change in social life.

### **4.0 CONCLUSION**

This unit simply does a brief overview of what research is all about and revealed the importance of the development and application of critical and systematic method of enquiry in proffering solution or finding answers to perplexing questions.

Such that better understanding and advancement of knowledge could be accomplished through the application of scientific method of investigating social phenomenon, event, or social problem.

## **5.0 SUMMARY**

In this unit, several meanings or definitions of research were stated from different perspectives or views of scholars coupled with the explanation of different types of research. The importance and characteristics of research were also stated, while various types of research studies were explained and differences between quantitative and qualitative research approaches were itemized.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. State the qualities of a good research
- ii. What is a research and of what significant importance is it to social or human life?
- iii. Compare and contrast qualitative and quantitative research approaches.
- iv. Briefly explain the various types of research know to you.

## **7.0 REFERENCES/FURTHER READING**

- Ary, D., Jacobs, L.C., and Razavieh, A. (1990). Introduction to Research in Education. Philadelphia , P.A: Hold, Rinehart, and Winston, Inc.
- Best, J.W., and Kalm, J. V. (1993). Research in Education (7<sup>th</sup> ed.) san Francisco: Jossey – Bass Publishers.
- Creswell, J. W. (1994). Research Design. Qualitative and Quantitative Approaches. Thousands Oaks, CA: Sage Publications.
- Fraekel J.R and Wallen, N.E. (1996). How to Design and Evaluate Research in Education New York Mc Graw-Hill Inc.
- Marriam, S.B. (1998). Qualitative Research and case study Applications in Education. San Francisco: Jossey-Bass publishers.
- Nachmias, F and Nachmias, D (1996) Research Methods in Social Sciences 5<sup>th</sup> Edition New York, St. Martin Press.

Tuckman, B.W. (1972). Conducting Educational Research. Harcourt Brace Jovanovich Inc, New York, USA402 pd.

## **UNIT 2 SCIENCE AND RESEARCH**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main content
  - 3.1 Descriptions of Science and Research
  - 3.2 Identify five sources of Knowledge
  - 3.3 Types of error in human inquiry
  - 3.4 Characteristics of the science method
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

### **2.0 OBJECTIVES**

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

- Describe the scientific approach to social research
- Identify sources of knowledge
- Explain the types of error in human inquiry

### **3.0 Main Content**

Science is a familiar word commonly used by everyone yet it has different meaning to different people. Some people consider science as mathematics for other it is what coats and laboratories. Sometimes it often confused with technology or equated with difficult colleges courses.

Science is a process of inquiry – a way of learning and knowing things about the world around us using logic, observation and theory. Science has some special characteristics. Scientific thinking makes sense (is logical) has a reference (observed evidence) and gives an explanation (item) for what we observed.

Science is sometimes characterized as logico-empirical. This ugly term carries an important message. The two pillars of science are (i) logic or rationality and (ii)



Observation. A scientific understanding of the world must make sense and correspond with what we observed.

The word research is made up two syllables re and search. Dictionaries define 're' as a prefix meaning again and search as a verb meaning to look for something. Together, the syllables form a noun which means 'to look at again'. (Collins et al 2000) according to Webster's New International Dictionary defines research as a "careful or critical inquiry or examinations in seeking facts or principles, diligent investigation in order to ascertain something" Critical inquiry or examination and diligent investigation are the key words in the definition. They imply a certain systematic procedure and certain logic appropriate to be followed in the search for facts or principles or for the purpose of ascertaining something. This method of research is known as the scientific method.

The term research used in connection with scientific exploration both in the field of the physical and the social science implies, as the encyclopedia of social science point out, the manipulation of things concept or symbols, for the purpose of generalizing to the extend, correct or verify knowledge, whether that knowledge aid in the construction of a theory or in the practice of an art. (Offiongodon 1999)

## **SELF-ASSESSMENT EXERCISE**

What is a science?

### **3.1 SOURCES OF GENERAL KNOWLEDGE**

According to Rubin and Babbie (1997), there are two realities in the world we live in. part of what you know could be called your experiential reality (the things you know as a function of your direct experience). Another part of what we know is agreement reality that is, things you consider real because you've been told they are real and everyone else seems to agree they are real. The first is a product of your own experience; the second is a product of what people have told you. The problem is that both seem very real.

The question that boards mind is that how can you really know what is real? People have grappled with the question for thousands of years.

For clarity of both experiential and agreement reality, for example, as a peace and conflict resolution expert you participated in a peacemaking or peace building activities, hence the incidents on the field are personal experience while incidents that took place in the office will be an agreement reality because you were not there but it was reported to you.

The following are sources of general knowledge.

1. **Tradition:** Each group of individuals in a society has a culture. Culture is defined as the values, beliefs, behaviour and material objective that constitute a people's way of life. We learn from others the ways of life. We equally accept what other people know and tell us. By doing this, we spare the enormous task of starting from scratch on the search for understanding knowledge is cumulative that is, it builds on itself and an inherited body of information therefore helps us obtain further information. For example, that encouragement and affirmation lead to cooperation between people, why we should disregard this and begin our own experiments of finding out what leads to cooperation.

Tradition may be detrimental to human inquiry. This is because of most of time we don't question tradition. If something appears to be understood and obvious it usually does not occur to us to seek a different understanding on meaning. More so, if a person seek a fresh and different understanding of something that everybody knows and always understood, you may be marked the fool for your efforts.

2. **Authority.** This mode of knowledge is sought by socially or politically looked upon people as having knowledge specially trainings, expertise and credentials. The mode of knowledge depends on the status of the person who discovered the truth. A person in a position of authority is likely, to have earned that authority by his or her experience and may therefore be able to offer us reliable knowledge. In Greek society, people look up to societies, Aristotle as authority. In Nigeria, people like Professor Wole Soyinka, late Obafemi Awolowo, late Sultan of Sokoto etc are considered as authorities.

The problem with authority as source of knowledge is that it depends on reputation rather than realities inquiry is also hindered when we depend on the authority of expertise speaking outside their realm of expertise. For example, consider the political or religious leader lacking in any medical science expertise who declares abortion medically dangerous.

3. **Mystification.** Here, it is belief that knowledge to found in a supernatural source. People with this knowledge claim to have the power to receive and decode supernatural messages. These powers and this knowledge are not accessible to ordinary people. For instance gods, prophets, future tellers are examples of mystical knowledge. This type of knowledge depends on our irrational feeling by using rituals, ceremonies, emotionally loaded situation and strange sounding language.

It is not stable source of knowledge because confidence on mystical power can diminish sometimes, desperation can make people to believe in it.

4. **Common sense.** Neuman (1997) describes common sense as ordinary reasoning. It is regarded as a regular mode of problem solving which are taken for granted. People tend to learn more after the facts. It is valuable in everyday life since it helps people to reach decisions and solve daily problems. It also helps communication between people in general, because it covers topics that everyone knows about.

Common sense is not a reliable source of knowledge because it contains a great deal of illogical reasoning and often originates in tradition.

5. **Scientific knowledge or rational mode.** It has to do with systematic investigation of knowledge acquire through scientific inquiry. Scientific knowledge is based on rationalistic mode of reasoning.

Rationalism is a school of thought or philosophy that holds that totality of knowledge can be acquired by strict adherence to the forms and rules of logic.

The assumption of Rationalism

1. Human mind can understand the word independent of observable phenomena
2. That forms of knowledge exist that are prior to our experiences.

6. **Media Myths.** Mass Media has turn the world to global village. The mass media such as television films, newspaper, magazine and the internet have a powerful

influence on knowledge. We have opportunity to learn about the world and develop their concept of social reality according to what they see, hear and read in the mass media.

### **SELF-ASSESSMENT EXERCISE**

List and explain sources of knowledge.

### **3.2 Errors in Human Inquiry**

Rubbin and Babble (1997) list the following types of errors and the ways in which science provides safe guards against those errors.

**Inaccurate Observation:** The keystone of inquiry is observation. Before we understand the way things work, we have to have something to understand. In other words, we need to know what before can explain the why. But people tend to be careless when it comes to observing everyday events. On the whole, however you and I are pretty sloppy even unconscious, observers of the flow of events in life. We fail observe things right in front of us and mistakenly observe things that aren't so.

In contrast to our ordinary inquires, scientific observation is a conscious activity. In science we observe events deliberately. Also there are both simple and complex measurement devices to help prevent us making inaccurate observations.

**Overgeneralization:** When observer events or people, we reach conclusion or past general comments. Sometimes, we use few, similar events to arrive at a conclusion where we overgeneralized. There is tendency for us to overgeneralize especially underpressure to arrive at a conclusion. Yet it also occurs casually in the absence of pressure. Anytime we overgeneralize, it impedes or misdirects inquiry. For example, if a researcher conducted inquiry on reasons for student demonstration in the university. Then he concluded his inquiry by sampling only the Christian union on the campus. Scientists guard against overgeneralization by committing themselves in advance to a sufficiently large sample of observations. The replication of inquiry provides another safeguard. Replication means repeating a study, checking to see if the same results are obtained. If the same results are obtained, you can feel more confident about generalizing your findings. If, however, replication gives different results, it has helped prevent you from overgeneralizing and coming to incorrect conclusion.

**Selective observation:-** Overgeneralization may lead to selective observation. Once the decision is made that events are following a particular pattern and you think you know why, you will tend to pay attention mainly to future situations that correspond with the pattern. You tend to over look the situations that conflict with the pattern, for example, In Nigeria some Ibo traders sell inferior and substandard goods. It will be wrong to assume that all Ibo traders are dishonest but then one will ignore the honest, enterprising, industrious and hard working majority Ibo traders.

Science guards against selective observation by using a research design which specifies the number and kind of observations we need before we can make a conclusion. Conclusions

are based on analysis of all observations detailed in the research design not only on some selected observations. (Collins et al 2000).

Made up Information:- After you have reached general conclusion, if there is contradiction, what would you do? Suppose, for example, you had decided that all the Ibo traders were dishonest and then you came across one that are honest. What would you do? In our casual, day to day handling of such matters, we often make up information that would resolve the contradiction. May be the Ibo trader isn't brought up in Igbo land after all.

Scientist also engaged in ways of explaining away confusion like day to day inquiries. When our scientific observations and analyses don't turn out the way we expect, we often think up reasons to explain away the surprise.

### Ego Involvement in Understanding

The search for regularities and generalized understanding is both personal and intellectual. Our understanding of events and conditions is often of special psychological significance to us. In countless ways, we link our understanding of how things are to the image of ourselves that we present to others. Because of this link, any disproof of this understanding tends to make us look gullible, stupid and general not okay.

Scientific norms guards ego involvement. For example, testing of hypothesis in a systematic manner, rigorous ways of collection of information, making the research work public in form of a report which also allows other scientist to evaluate the research etc thereby exposing any personal bias or ego involvement brought to work.

### The premature closure of Inquiry

The listed errors above; overgeneralization, selection observation, matheiy's information, ego involvement in understanding lead to what is known as a premature closure of inquiry. The danger of these brings a stop to attempts to under events and issues before that understanding is complete. For example, in society, the line of understanding of society has been a gradual process and up til today is a continuous process.

Science guards against the premature closure of inquiry by a though review of the literature on the topic being researched. The review reveals the complexity of a subject and presents a wide range of information. Which tends to prevent the researcher ending his or her inquiry before he or she has thoroughly explored all options? At its base, science is an open-ended enterprise in which we constantly modified our conclusions. Experienced scientists expect established theories to be overturned eventually and new conclusions to be reached as research projects progress.

## **3.3 Characteristics of the Scientific Method**

Collins et al 2000 in their book titled "Research in Social Sciences" discussed characteristics of the scientific method as follows.

### **1. Empirical Inquiry**

The scientific method has its procedures such as observation and measurement. In research, the researcher chooses its subject or objects of study, observe and measure it. In other

words, the scientific method means that we work independently of external influence or personal position. We come to conclusions based on evidence which we can demonstrate to others and which they can also observe and measure.

## **2. Language of Science**

In scientific inquiry, there are certain accepted languages being used. It has become a convention to use certain terms (terminology) in explaining in scientific inquiry. Scientific concepts such as theories and hypothesis, research design and data analysis are used as language of science. You make use of scientific language in your research work.

## **3. Assumptions in Science**

Science is logical and rational. It has its own assumptions which it uses to explain world realities. These assumptions are often hidden and they have the power to influence our understanding of reality. It is important to know and state your basic assumptions when you are investigating a topic because these assumptions will influence your research design, the type of measurement you use, your interpretation of findings and even the kind of questions you formulate in research.

## **4. Perceptibility (Understandability)**

Perceptibility is a key in scientific research. It is only when scientific research is understandable that the impact can be felt. It means that only when it is understandable that it will be accepted and included in the body of knowledge. Some reliable theories based on empirical evidence such as Karl Marx's conflict theory were included in the body of theories because they are understandable.

## **Limitations**

Scientific investigation is subjected to certain limitations. The following are the limitations in scientific studies.

- a.. The rights of people who are the subject of the study should be protected by research ethics
- b. Time is a limitation in research work
- c. Communication can be a limitation between the researcher and the scientific community

A good scientific practice demands that we acknowledge the limitations of our investigation and that we make these limitations clear in our research report.

## **4.0 Conclusion**

The importance and relationship between research and science are numerous such that man can hardly survive in this present day era without depending directly or indirectly on science. For instance, it should be realized that we use research in solving problems and challenges confronting human beings or being encountered on a daily basis. In fact we achieve rapid growth and development almost in all areas of human endeavours with the help of research and science.

## **5.0 Summary**

In this unit, we have been able to explain the meaning of science and research and also identify and discuss various sources of knowledge. Characteristics of scientific methods of enquiry were also discussed coupled with different types of errors being faced or that could be encountered in human inquiry.

## **6.0 TUTOR-MARKED ASSIGNMENT**

Identify the sources of knowledge

## **7.0 REFERENCES/FURTHER READING**

Babie .E (1995) : **The Practice of Social Research**, *California Wordsworth Publishing Company*

Collins et al (2000): **Research in the Social Sciences** *Pretoria, University of South Africa*

## **UNIT 3 BASIC FOUNDATION OF SOCIAL RESEARCH**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning of Concepts
  - 3.2 Model
  - 3.3 Variables
  - 3.4 Theory
  - 3.5 Hypothesis
  - 3.6 Law
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Social science research is made up of some basic essential ingredients used in laying a solid foundation for a research through various forms of terms/terminologies and concepts. It is very essential for you to have a clear knowledge and understanding of these concepts whenever you come in contact with them. In addition, having been exposed to the meaning of such concepts, it would also go a long way assisting you in using them appropriately and adequately in your research (project/thesis) study.

### **2.0 OBJECTIVES**

By the end of this unit, and relevant readings, you should be able to:

- Enumerate common concepts of term associated with social research
- Understand the meaning of those concepts
- Make use (apply) the concepts correctly in you work
- State differences in the use of those terms or concepts in social research.

### **3.0 MAIN CONTENT**

#### **3.1 Meaning of Concepts**

A concept is an image or symbolic representation of an abstract idea. It is a miniature “system of meaning” symbolized by a word, phrase or label that enables us to perceive a phenomenon in a certain way. It is a mental construct that represents some part of the world inevitably in a simplified form. It is a tool by which one can share meanings. Chin and Kramer (1999) define a concept as a “complex mental formulation of experience”. Concepts are the major components of theory and convey the abstract ideas within a theory”. They are abstractions used as building blocks for the development of hypothesis propositions and theories but concepts themselves do not explain, predict or state relationship. Concepts are vital to the development of social research. It is a useful tool used by the researchers to visualize the inter-relationship between concepts. In peace studies and conflict resolution rape, war crimes, crime against humanity, abuse, infringement on fundamental human rights, killing, assault etc are concepts and when they came to mind, it means something based on experience. The experiential meaning who had just been subjected to child labour (conscripted to rebel force or guerilla war fare), or a married lady (woman) being regularly beaten/assaulted by the husband or a lady who was raped during crisis/war. These definitions and associated metal images of the concept of pain incorporated different experiential and knowledge components... all with the same label, pain. Therefore, it is important to know the meaning of the concept for the person. In the case of the critique, it is important to know the meaning that researcher gives to the concepts in a research study.

When a set of concepts are interrelated to describe and classify phenomena, the concepts are generally referred to as a conceptual framework, which might be referred to as cluster of interrelated concepts for viewing a phenomenon and for describing and classifying its part.

A conceptual definition is much like a dictionary definition, conveying the general meaning of the concept. However, the conceptual definition goes beyond the general language meaning found in the dictionary by defining the concept as rooted in the theoretical literature. The operational definition specifies how the concept will be measured, what instruments will be used to capture the variables.

A concept is described by the chambers 20<sup>th</sup> century dictionary as a general notion or an idea. Again, different disciplines have developed concepts on different phenomena. In research parlance a concept:

- Provides specificity and direction for construct to guide development of a research study
- Must be clear and defined
- Should be defined generally and/or specifically within the context of the specific problem. It is expected that relationships should emerge a concept is assessed.

A concept that is operationalised or measurable is referred to as a variable.

Several variables may however, be used to represent one concept. Concept operationalisation involves:



- Identifying variables that represent concepts in a framework
- Identifying how the variables is to be measured (operational definition)
- Ensuring that methods of measurement or observation is consistent with how the variable is conceptually defined.

A group of interrelated concepts that fit together because of their relevance to a common theme or matrix is known as a conceptual model.

### 3.2 Model

A model is a symbolic representation of a set of concepts, which is created to depict relationships.

Model in research is a symbol representation of the interrelation exhibited by a phenomenon within a system or a process.

According to the Merriam Webster Dictionary, model is being a miniature representation of something or an example for imitation or emulation etc.” Model is narrower than a theory but broader than a hypothesis (Rosnow and Resenthal 1996). The model is presented as a conceptual framework or a theory that explain a system or phenomena and allows predictions to be made without individuals or a process.

### 3.3 Variables

A variable is a measurable characteristic that varies or that can change or differ. It may change from group to group, person to person, from place to place or even within one person over time.

A variable is an event or condition that researcher observes or measure or plan to investigate and that is liable to variation (or change). (Rosnow and Rosenthal 1996). It is something which can change either quantitatively or qualitatively or a property that takes on different values. For examples, age, sex, intelligence, wages/salary, religious affiliation etc.

There are six common variable types namely:

#### i) **Dependent Variables:**

It is defined as a variable that show the effect of manipulation or introducing the independent variables. For example, if the independent variable is the use of non-use of violence or to agitate or demand for ones group’s or community’s needs or right, from government than the dependent variable might be the achievement or accomplishment of their desire or provision of their needs by the government. In other words, the variation in the dependent variable depends on the variation in the independent variable.

The dependent variable is the variable predicted to, whereas the independent variable is predicted from. It is also referred to as the criterion because it is the very thing with which the investigator/researcher is ultimately concerned. It is observed for variation as a result of variation in the independent variable. It predicting from X (the independent variables) to Y (the dependent variable), we can take any value of x we wish, while the value of y we predict to is “dependent on” the value of x we have selected.

**ii) Independent Variables:**

There are variables that may involve manipulating existing variables (e.g.; modifying existing methods of instruction) or introducing new variable. (e.g. adopting a totally new method for some sections of a class) in the research setting. Whatever the case may be, the researcher expects that the independent variable(s) will have some effect on (or relationship with) the dependent variables.

It is that factor which is measured, manipulated or selected by the researcher to determine its relationship to an observed phenomenon. The independent variable is the variable that is manipulated or changed to cause a change in some other variable. It is referred to as independent because the research in interested only in how it affects another variable, not in what affects it.

**iii) Intervening Variables:**

Refer to abstract processes that are not directly observable but that link the independent and dependent variables. In language learning and teaching, they are usually inside the subjects’ heads, including various language learning processes which the researcher cannot observe. For example, if the use of a particular teaching technique is the independent variable and mastery of the objectives is the dependent variable, then the language learning processes used by the subjects are the intervening variables.

It is also described as that factor which theoretically affects the observed phenomenon, but cannot be seen, measured or manipulated; its effects is inferred from the effects of the independent and moderator variables on the observed phenomenon (dependent variable)

**iv) Moderator Variables:**

These variables affect the relationship variables by modifying the effect of the intervening variable(s). Unlike extraneous variables, moderator variables are measured and taken into consideration Typical moderator variables in TESL and Language acquisition research.

**v) Control variables:**

They are variables that are not measured in a particular study that must be held constant, neutralized/balanced or eliminated, so they will not have a biasing effect on the other variables. Variable that have been controlled in this way are called control variables.

Control variables are those variables which are capable of moderating the relationship between the independent and the dependent variables, but which are not significant enough to be studied as moderator variables. The effect of the variables must be eliminated or neutralized to ensure that they do not pollute the relationship between the independent and dependent variables.

**vi) Extraneous Variables:**

These are factors in the research environments which may have an effect on dependent variable(s) but which are not controlled. Extraneous variables are dangerous and may damage a study's validity, by making it impossible to know whether the effects were caused by the independent and moderator variables or some extraneous variables must at least be taken into consideration when interpreting results.

### **3.4 Theory**

A theory can be referred to as an assumption, a conjecture, a hypothesis, a postulation, a principle, or a speculation. Different academic fields or disciplines have different theories, developed over time, to explain observations of different phenomena. There is a form of research that addresses the development of new concepts based on established or proven scientific merit which is referred to as Theoretical Research.

It adds to the body of knowledge from which practical applications can later be drawn. It is also important to note that 'the basic purpose of theory is to understand reality and the basic purpose of theoretical research is to produce theory'.

- Theory is a set of interrelated concept, which structures a systematic view of phenomena for the purpose of explaining or predicting. A theory is like a blueprint, a guide for modeling a structure. A blueprint depicts the elements of a structure and the relation of each element to the other, just as a theory depicts the concepts, which compose it and the relation of concepts with each other.

Chin and Kramer (1999) define a theory as an "expression of knowledge... a creative and rigorous structuring of idea that projects a tentative, purposeful, and systematic view of phenomena".

Marriam (1998) described theory as growing from speculation of qualitative data and of value in research only as it provides theoretical grounded explanations of phenomena observed in a holistic context. Theory is perceived from this perspective or point of view, as providing explanation, not in mathematical sense or as an analog model intended to predict future results, but rather in a contextual sense. Explanation and prediction are therefore viewed from a contextual perspective.

Kerlinger (1979) also provided a perspective of 'theory' appropriate for a quantitative researcher. He defined theory as 'a set of interrelated constructs (variables), definitions, and propositions that present a systematic view of

phenomena by specifying relations among variable, with the purpose of explaining natural phenomena’.

Ary, Jacobs and Rasavieh (1990) described theory derived in this manner as a model that as built upon a ‘conceptual analog, generally of a physical or mathematical nature, which is used to suggest empirical research’.

Creswell (1994), espandiated on Kerlinger’s definition by noting that the relationships among variables are typically stated in terms of magnitude and direction. He called this a systematic view of theory. He metaphorically used rainbow to explain this meaning of theory, by explaining that theory provides a bridge between the independent and dependent variables or constructs in any given study. The bridge ties together the variables, this providing an ‘overarching explanation for how and why one would expect the independent variable to explain or predict the dependent variable’

Creswell (1994),further posited that theories could be grouped into three types based on the degree of the theory’s generality and specificity which are as follows:

- Grand theories are used to explain major categories of phenomena and are more common in the natural sciences.
- Middle – range theories which fall somewhere between the working hypotheses of everyday life and grand theories
- Substantive theories that offer explanations in a restricted setting and are limited in scope, often being expressed propositions or hypotheses.

### **Characteristics of Theory**

Ary et.al (1990) also observed and stated four (4) criteria that a theory must meet. First and foremost, it must add to our understanding of observed phenomena by explaining them in the simplest form possible. This characteristic is referred to as the principle of parsimony. It should fit properly with observed facts and with established principles. It should be inherently testable and verifiable. Last but not the least, it should imply further investigations and predict new discoveries. In summary, a good theory must be:

- Logical, relatively simply and generalisable;
- Composed of concepts and propositions;
- Able to interrelate concepts to create a specific way of looking at a particular phenomenon.
- Capable of forming the basis for testable hypotheses;
- Consistent with other validated theories, laws, and principles yet leave open unanswered questions for investigation; and
- Contribute to and assist in increasing the general body of knowledge through research implemented to validate them.

### **Importance of Theory in Research**

- i) In as much as the fundamental purpose of research is to create theoretical explanations of reality. Theory therefore, provides the conceptual basis for all research.
- ii) Best and Kahn (1993) observed that theory establish a ‘cause and effect relationship between variables with purpose of explaining and predicting phenomena.
- iii) It enables researcher generate hypotheses as a means of prescribing methodology and analysis.

### **3.5 Hypothesis**

Kerlinger (1973) defined hypothesis as a conjectural statement of the relation between two or more variables. A hypothesis states the researcher’s expectations concerning the relationship between the variables in the research problem.

Best and Kahn (1993), defined hypothesis as ‘a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables’. This presume a mathematical relationship among variables and provides that the ultimate goal of the research is to determine whether the hypothesis is supported by the data.

A hypothesis can also be defined as a tentative explanation for certain behavior, phenomena or events that have occurred or will occur. It states the researchers expectation concerning the relationship between the variables in the research problem; it is the most specific statement of a problem. It is a tentative answer to a question. It is an educated guess or hunch, generally based on prior research and (or theory, to the subjected to the process of verification or disconfirmation. The researcher does not then set out to ‘prove’ his or her hypothesis, but rather collects data that either support the hypothesis or do not support it.

It is before data or information is gathered because it creates unbiased investigation. It is formulated following the review literature since it is based on the implication of previous research. Some elements or relationships in hypothesis are known or established facts and others are concepts of researcher’s imagination.

These hypotheses include facts (usually obtained through existing studies in the area) and transcend the known facts to give plausible explanation to unknown conditions.

For example, if it was observed that large number of student failed a particular PCR course in the E-examination conducted. If you hypothesize that they failed because of the technical problems or logistic itches with the computer, such a hypothesis would not reveal reasonable explanation. A reasonable hypothesis might be that they failed because then were not facilitate properly or they did not devote much time to study their course materials or were unable to study because of the pressure from their places of work coupled with home/domestic challenges.

## **Characteristics of Hypotheses**

It is important to have lucid understanding of the features or characteristics of hypothesis before we can formulate good/high quality hypothesis that will conform to certain general principles guiding our search for answer/solution to problem. They include the following according to best and Kahn (2006)

- 1) It should be reasonable
- 2) It should have direct bearing on the problems that answers are being sourced for.
- 3) It should be stated in such way that it can be tested and found to be probably true or probably false.
- 4) It should state the relationship between or more variables.
- 5) It should be state in the simplest possible terms.
- 6) It should state the relationship between or more variables.

## **Sources of Hypothesis**

The following are the sources of research hypothesis that are also similar to those of research problems:

- i) Personal experience: this has to do with individual or researcher wealth of knowledge attitudes and values as well as one's imagination helps in formulating hypothesis and finding answers to research questions/problems
- ii) Literature Review: It enables intending researcher to know or to be familiar with previous studies conducted in the area he/she is delving into such that the information would provide ideas towards improving the quality of the hypothesis.
- iii) Theory: Theories relevant to the researcher's area of study could serve as basis for generating hypothesis or a theory-based hypothesis can be derived from theory-based problem.
- iv) Logic: In as much as logic is the art of reasoning by means of deductive or inductive methods, hypothesis therefore can be generated by either methods if the problem being studied is to determine the relationship between X and Y.

## **Functions of Hypothesis**

The use of hypothesis in research study (social) cannot be under estimated because of the immense derivation benefits which are as follows:

- i) It gives researcher logical basis for the explanation of research results.
- ii) It enables researcher to be focused by paying direct and serious attention to the research problems.
- iii) it promotes advancement of knowledge through collection of information objectively from one's environment that are or can be tested, confirmed and revalidated by further research or replication of studies.
- iv) Hypothesis enables researcher to be objective, and also reduces bias because the researcher is not out to prove his/her hypothesis, but rather collects data which either support or do not support the hypothesis.

- v) It provides the framework for deciding on appropriate research design especially the tools and techniques for data collection and analysis.
- vi) It delimits and directs the search for evidence pertinent to the solution of the research problem(s)

### **3.6 Law**

Here are several definitions or meanings of the concept law depending on the perspective or angle at which it is being viewed, but within this context, it is referred to as a hypothesis that is assumed to be universally true and accepted.

A law has good predictive power, allowing a scientist (researcher) to model a physical system and predict what will happen under various conditions: A scientific law according to Lindbergh (1938) is a generalized and verifiable statement, within a measurable degree of accuracy, of how certain events occur under stated conditions. A law could also be said to be a group of verbal or mathematical symbols, designating an unlimited numbers of defined events in terms of a limited number or reactions so that the performance of the specific operations always yield predictable result within measurable limits.

### **4.0 CONCLUSION**

It is very important for a would be student researcher to have a deep knowledge of the above discussed basic terms in order to be able to carry out a research study with robust outcome. And to be aware or conversant with basic terms that are relevant to the understanding of social research.

### **5.0 SUMMARY**

In this unit, you have been introduced to some basic terms in social research. You have learned about the meaning of concept, variables, theory, hypothesis, law, and model as well as the uniqueness of each term and their relevance to research study.

### **6.0 TUTOR-MARKED ASSIGNMENT**

- i. State and discuss any three (3) basic foundational terms of social research.
- ii. What is a theory? Mention three (3) characteristics of theory and three (3) importance of theory to research.
- iii. Differentiate between law and theory
- iv. Define hypothesis and enumerate four characteristics of hypothesis.

### **7.0 REFERENCES/FURTHER READING**

Best, J.W. and Kahn, J.V. (2006). Research in Education. Baston, Pearson Educational Inc.

Fraenkel, J.R. and Wallen, W.E. (1996). How to Design and Evaluate Research in Education. New York, McGraw-Hill Inc.

Rosnow, R.L. and Rosenthal, R. (1996). Beginning Behavioural Research. A Conceptual Primer, New Jersey Prentice Hall.

## **UNIT 4 PROCESSES OR METHODS OF SOCIAL RESEARCH**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Research Design
  - 3.2 Choosing a Research Topic
  - 3.3 Research Project Layout
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

This unit deals with the procedure, process or method of research (project/thesis) layout which is an important aspect of academic work in which a researcher (student) is expected to display or show more initiative, originality and creativity by applying or putting into practice some of his/her past acquired knowledge. The research (project) procedure entails looking for a reasonable and researchable topic, designing a research, stating hypothesis, enumerating the research objectives, constructing instruments, collecting data, organizing data, analyzing data and making inferences.

Great care must therefore be taken to presenting in an acceptable form the results of an investigation which must not doubt have required enormous outlay of time, energy and financial resources.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Explain the procedure of carrying out social research
- Understand how to choose a researchable topic and formulate research problems or hypothesis
- Develop the aims and objectives of the research
- Identify the most appropriate research instrument(s) for the work and how to collect data.
- Organize and analyse data and;
- Interpret data, make inference, adequately and accurately, write good recommendation and conclusion.



## **3.0 MAIN CONTENT**

### **3.1 Research Design**

The design of the study refers to the plan, structure, and strategy the researcher or investigator (student) wants to adopt in order to obtain answers to research questions and probably test hypotheses formulated for the study.

Aworh et al (2006) observed that research design is different from design of conceptual framework. It is also not the same as experimental design; the latter may however be a subset of research design. Research design is the plan containing the structure and strategy of investigation that are conceived in order to obtain answers to research questions, and to control variance (Kerlinger, 1973). As the plan of research, it provides the general scheme to be followed in a research study. It entails an outline of what the investigator (researcher) will do, beginning from the statement of the hypothesis of the study to their operational implications and the analysis of data. A research design encompasses both the structure and strategy for conducting a study. As a structure, the research design provides a specific outline, scheme and paradigm of operation of the variables.

A typical research starts with reason and experience (observe of a particular problem). Scientists employ the criteria of logical validity and empirical validation to evaluate claims for knowledge. Research is a cyclical process. It starts with a problem and ends with a tentative empirical generalization. The generalization ending one cycle is the beginning of the next cycle. The cyclic process continues indefinitely reflecting the progress of a scientific discipline (Nachmias and Nachmias 1996).

In some cases diagrams are drawn that outline the variables and their relationship. As a strategy, the research design also provides more specifically, the methods to be used in gathering and analyzing data. In other words, it indicates how the research objectives will be accomplished and how the problems encountered in the research will be tackled. Invariably, the starting point of any research is the identification and articulation of the problem or question that the research is to address (Aworh et al., 2006)

### **3.2 Choosing a Research Topic**

Students usually find it difficult choosing a research topic, a beginner is likely to select a topic that is not researchable or that is too broad in scope such that it cannot be accomplished within a short time. This may not be farfetched from their lack of proper understanding of the nature of research and systematic problem – solving activity. It could also be due to their enthusiastic but naive desire to quickly start a research (project).

Research topics come from either practical or intellectual curiosity (Selltiz et.al 1976). Topics of practical concern stem from day to day experiences. A topic that evolves from

practical concerns tends to be quite focused and specific. Intellectually motivated topics lead to broader more conceptual questions that deal with general rather than specific classes or phenomena. The researcher who chooses such a topic may end-up exploring areas which very little is currently known (Merriam and Simpson 1984).

An important consideration in selecting the research topic is the part that values play in the process (Selltiz et. al 1976). The topic of researcher select is dictated, to a large extent, by what one considers worth pursuing. It must not be allowed to influence the outcome of the research. It is defined as “porlexes and challenges the mind” (Guba 1978).

A researcher should be attured to the multitude of sources from which idea can be generated such as current journals, class work, dissertation record booklet, newspaper, conversations, media events or research agenda. Keeping an ongoing list of tentative topics from various sources provides a starting point when the time comes to decide upon one topic.

Whatever the source of the research topic at least three criteria need to be applied to the final selection:

- The interest of the researcher in the problem
- The feasibility of actually carrying out the study; and
- The significance of the problem itself.

The process of identifying a researchable problem begins with being interested in a particular topic of area of interest is easy. The difficult step is to perceive a problem within the area of interest that is significantly approachable. Once a problem has been identified, it must be shaped in order to guide the study.

Shaping is done by delineating its relationship to theory and previous research by defining terms and concepts and by developing the research questions or hypothesis.

### **3.3 Research Project Layout**

Part I. (The Preliminary Section)

The preliminary section of a research report comes before the actual body of the work and is paged in Roman numerals. The area in order of occurrence is as follows:

#### **Title Page**

Apart from presentation of the title on the front page, the title is repeated with elaborate information in the title page.

The title page comes after the fly leaf and is paged (1) in the preliminaries. The fly leaf is the leaf after the cover and has no print. The content on title cover are the title of the work, the author’s name and his/her matriculation number the department and the institution and the date of completion of programme.

### **Approval and certification page**

Either Approval page or Certification page is used depending on the institution (university) requirement.

### **Acknowledgements**

The acknowledgement usually contains expression of appreciation to persons, body or organization that gave unusual assistance to the researcher in course of carrying out the research (project) work.

It is usually reported in third person singular.

### **Dedication**

This is optional. It could be included of the candidate (student) wishes

### **Abstract**

All project report, dissertation and thesis require an abstract. An abstract is a brief summary of the content and purpose of the dissertation/thesis. The main purpose of an abstract is to help the reader to comprehend the content of the work quickly. The student should guide against the inclusion of any information that does not appear in the main body of the study. The abstract should, therefore, be very brief but self-contained and fully intelligible.

A good abstract should be made up of the following components: (statement of problem (very brief) methodology, the findings and the conclusion.

### **Table of contents**

It provides an outline of the content and sub-content areas of the report and the pages where they appear. The content should reveal the chapter titles as well as the major sub-headings within each chapter. Only major/headings within the titles should be included in order to avoid clustered or too long content. The preliminary pages are written in Roman numerals and the main body in Arabic.

Part 2 (the main Body)

Project/Thesis Layout

Chapter one. (Introduction)

Background of the study.

Study Area

Statement of the Problems

Objectives of study

Significance/Justification of the study

Research Questions

Research Hypothesis

Definition of Terms

Chapter Two/Literature Review  
Conceptual Framework  
Theoretical framework

Chapter Three (Research Methodology)  
Research Assumption  
Research Design  
Sample Design  
Research Instrument

Chapter four (Data Presentation and Analyses)

Chapter five (Discussion of findings)  
(Recommendations and conclusion)

## **Chapter 1 Introduction**

### **Background of the study**

It is an introductory section of the whole work which describes the general intellectual or historical setting within which the investigation takes place. It reveals what really spurred the researcher into carrying out the study (that is, it provides insights into the ferment that informs the research). It is an indication of the source of the problem which skillfully begins to anticipate the problem and helps to establish that a problem exists.

### **Study Area**

This section introduces the area where the research took place. It provides in-depth information such as geographical location, ethnic composition, socio-demographic characteristics, sociopolitical organization and economy of the area in which the researcher carried out his/her study.

### **Statement of problem**

The statement of problem of a research work could either be interrogative or declarative in nature and should clearly indicate the issue being investigated. The most constant requirement of a good statement of problem is that it must be brief and to the point such that it reveals your mastery over the subject matter. The clarity of statement of problem will make both the conduct of the research and reading the completed product a pleasure rather than a chore, Guard against making this section of the report read either like a statement of objective or the literature review.

As you already know, research is a systematic and organized problem-solving activity. It is very important to take cognizance of this because your report of the research will have to be systematic also. In other words, all features of your study are oriented toward solving the problem(s) that the research set for itself, or providing answers to the questions that have agitated you the researcher. It is therefore customary to identify the nature of the problem under investigation in such a way that the problem's manifestations in the real world are obvious to practitioner and non-practitioner alike. You should bear in mind that

all disciplines homocentric in some way, meaning that they all place the human being at the center of their activity. This is true regardless of whether the science in question is “social”, “natural”, “physical”, “environmental” or “pure”.

Problem can be divided into two namely, the **general problem** and the **specific problem**. It should therefore be pointed out that this **general problem** is the real **problem** instigating the research, and so it must be stated prior to the statement of the specific problem which is largely the researcher’s own problem so to speak.

### **Characteristics of Research problem.**

- 1) A research problem must be empirically grounded such that data could be collected concerning that problem for analysis.
- 2) It must be clear and specifically articulated. It must not be ambiguous, that is landing itself to many interpretations.
- 3) The problem must be of interest to the researcher and also to likely arouse the curiosity of other researcher.
- 4) Research problem should be that which is likely to answer a specific problem or contribute to a body of knowledge in an area or combination of cogent areas.
- 5) It should be such that could be executed completed within the limit of available time and resources for the project
- 6) It must be a fresh topic or original as much as possible. But if it has been studied before, there must be justification for further studies.

### **Objective/Purpose of Study**

Research objectives are like a bridge between statement of problem and how to resolve methodically, the problems identified. The objectives of research are usually three: the general, specific, and ultimate objectives.

The general objective is quite often a restatement of the project title, as a possible means of keeping it in view or a short statement of development goal being pursued by the researcher. It is sometimes deployed as a stylistic device for keeping the main object of the investigation in view for the mutual benefit of both the researcher and the reader.

The specific objectives are derived from the specific gaps indicated in the statement of problem. Specific objectives are more succinct in the activities to be pursued to address various aspects of the study or research. Smith and Morrow (1991:18) suggest that “in the specific objectives a quantitative statement should be made regarding the effect of an intervention that a study is designed to detect and the precision with which the effect will be measured”. Certainly, these authors were speaking with special reference to field trials in epidemiology, but the character of specific objectives, which they draw attention to is fairly universal.

In general terms, the researcher may assess specific objectives by the acronym SMART, as follows:

Is the objective Specific and Simple?

Is the objective Measurable?  
Is the objective Achievable?  
Is the objective Researchable or Realistic?  
Is the objective Time-bound?

It is important that the researcher answer “Yes” to each and every question when posed to each and every objective. A single “No” could lead to expensive frustration later on. In order to facilitate “Yes” answers, objectives usually start with the word “to...” This is what may be described as the “give-away ‘to’ and is a useful device for ensuring that your statement of problem does not stray into stating objectives. This is very familiar tendency among young researchers arising from an unclear distinction between the two categories.

The ultimate objective re-links the study with its policy-orientation by stating what influence its conclusions are likely to have on the general phenomenal problems.

### **Significance/Justification of the Study**

Significance of study is also known or referred to as justification of study; his part of the report specifies the importance of the work. This may be in terms of its contribution to the existing state of theory, its policy implications, or nature of data it will supply and the prospects that exists for their use. The researcher should indicate the value or potential significance of the problem area and hypothesized findings to educational practices and theory. She/he should put up a argument on why the study is important. The argument should be based on philosophical as well as practical evidence. It addresses the problem under investigation by focusing on the Research Questions/Hypotheses and their possible answers or finding

### **Research Questions**

Finding a research Question is probably the most important task in the research process because the question becomes the driving force behind the research – from beginning to end. Researcher questions are questions posed by the researchers, answers to which would lead to the solution of the problems. They are related to the purposes of the study in that they are purposes of the study transformed into questions. Immediately the purpose of the study has been established, they are turned into questions.

In stating research questions, the researcher must narrow the topic down to a more specific research question on which data can be collected. The topic should be refund into researchable questions when he/she can phrase the question in terms of the relationship between two questionably definable variables

### **Characteristics of a Good research question**

- It must be well grounded in the current knowledge base. The problem must have a basis in theory prior research or practice: unless the question is anchored in what is already known, we cannot judge how much it can add to the knowledge base.
- The language of the research questions should be clear and unambiguous

- It must not be too broad or general (although you will focus it even more later on in the process).
- It shouldn't have already been answered by previous research (although replication with variation is certainly acceptable).
- It ought to be a question that needs to be answered (i.e., the answer will be useful to people).
- It must be a question that can be answered through empirical means.
- It determines what data to collect and how and where to collect them.
- They should always be related to the problem at hand and represent significance and critical issues in the study.

## Hypothesis

Hypothesis is a focused statement which predicts an answers to research problems. They are stated in form of a relationship between independent and dependent variable is an empirical property that takes two or more variables. e.g. social class, age, sex, expectations. A dependent variable is that which the researcher wishes to explain while independent variable is that which is expected to explain change in the independent variable. It is either explanatory variable and also called predictor variable. Mathematically, dependent variable is on the left of an equation while independent variable is on the right:

Dependent  $Y = f(x)$  independent that is, changes in the value of  $x$  causes changes in the value of  $Y$ . Hypothesis is tentative because its true values can only be evaluated after empirical. The hypotheses that is rejected after an empirical text, gives way to an alternative hypothesis. Hypothesis that is accepted or failed to be rejected may be incorporated into scientific body of knowledge.

It is based on the findings of previous research (gained from your review of the literature) and perhaps your previous experience with the subject.

The alternate objective of deductive research is to decide whether to accept or reject the hypothesis as stated. When formulating research methods (subjects, data collection instruments etc), wise researchers are guided by their hypotheses. In this way, the hypotheses give direction and focus to the research.

Sometimes researchers choose to state their hypothesis in "null" form. This may seem to run counter to what the researchers really expect, but it is a caution way to operate. When (and only when) this null hypothesis is disproved or falsified the researcher may them accept a logically "alternate" hypothesis.

For example a null hypothesis ( $H_0$ ) may be stated thus:

$H_0$ : most conflicts in Nigeria are not religious and ethnic based.

There may not be any need to state an alternative hypothesis ( $H_A$ ) thus:  
Most conflicts in Nigeria are religious and ethnic based.

This is because from the Null hypothesis can be implied the Alternative hypothesis. This could be likened to a criminal proceeding in the law court where a person accused of a crime is not found guilty, then it is concluded that the accused is innocent.

The sources of hypothesis are theories, observation, intuition, literature, previous findings.

### **Characteristics of Effective Hypothesis**

- i) it must be conceptually clear
- ii) it must be specific
- iii) it must be testable
- iv) it must state expected relationship between variables
- v) it must be consistent with the existing body of knowledge.

For example:

There is no significance difference between the rate of kidnapping before the federal government amnesty and after the amnesty

### **Definition of Terms**

These are brief explanations or definitions of terms used in a research study in order to guide against or avoid any ambiguity.

## **Chapter 2 Literature Review**

Literature Review is a survey of important articles, books and other source pertaining to your research topic. This review of the professional literature contextualizes, or frame, your research and will also give readers the necessary background to understand your research. The main purpose of literature review is to clarify some fundamental concepts involved in the study, to find out what other scholar or professionals have gaps to be filled up.

Literature Review must be distinguished from “literature over view”. The latter may be summary or uncritical presentation, of all that has been done in the field before your investigation. A review, however, has an obligation to be critical, to view again. Here the statement of problem resurfaces in its importance. The literature to be review may be evaluated in terms of the specific problems already identified. The review may be organized either thematically or chronologically, or in a style that combines both. The thematic approach groups key phenomena together and attempts to link them in a logical manner that can withstand epistemological scrutiny. One major advantage of this is that the literature review then constitutes a review of part works as they relate to our objectives of study! The thematic approach used in this way is therefore effective and promotes the internal cohesion and consistency of your work. The chronological method on the other hand, has to do with building up the review of literature in terms of the **historical development** of an idea or a theme.



In a review of the literature, you do not merely summarize the research findings that other have reported but you must ensure that you evaluate and comment on each study's worth and validity. If you discover that some published research is not valid or runs counter to your hypothesis, you may critique it in your review and not just ignore it, but took a way your research will overcome the flaws and even better. Studies that are most relevant and most important should be chosen with proper consideration, given to your research question. Therefore, the review should be concluded with a statement of your hypothesis, or focused research question. It is only when this is accomplished that you can now proceed to part three (chapter three) of your research, in which you explain the methods you will use in achieving your desired goals and objective of the study.

### **Functions of literature Review**

- 1) It helps to introduce the researcher to varieties of works done in the area of study and the current state of knowledge that are very relevant or jamaine to the study.
- 2) It facilitates identification of problems, refinement of ideas, specification of research procedure, clarity of measurement and understanding of results.
- 3) It reveals to consume or beneficiary of research new, important, believable and useful findings or information on their discipline.
- 4) It promotes justification and motivation of additional information/investigation or replication of a research.
- 5) It allows or enable researcher to delve into new area or investigate new research with the knowledge acquired from previous work and structure the review so as to extend knowledge.
- 6) It enhances theoretical linkage when one is familiar with and builds on the past research work
- 7) Carefully executed literature review facilitates arriving at a complex analytic understanding of a research area.
- 8) It gives room accuracy in citation, completeness in references and detailed technical information essential for preparation of academic work.

### **Useful Information Required in Writing a Literature Review**

- 1) Read generally for an overview of the problem area before defining the topic precisely.
- 2) Define the limits of the review as too broad a search will overwhelm you with material (information) while a too narrow topic might make you overlook related work or not find enough material.

- 3) Through indexes and abstracts, locate a reasonable number of sources and begin reading those sources.
- 4) Establish criteria for selecting materials that will be included in the review.
- 5) Continue searching until the resources are saturated and you feel you are an expert on the topic.
- 6) Copy the material to be reviewed and carefully obtain full bibliographic data.
- 7) Arrange the materials reviewed categorically.
- 8) Structure the review into three parts: introductory section, the body of the review and a concluding section.
- 9) Each paragraph should be organized around a topic.
- 10) When some authors made the same point, they should be usually grouped together in a single reference.
- 11) Definitions of all important technical terms should be explicitly provided.
- 12) Use transitional terms and phrases (e.g. however, indeed, in consequence) within a paragraph to help readers understand the organization of the paragraph.
- 13) Follow a particular manual style for citing references carefully and consistently.
- 14) Direct quotation should be used sparingly because they break the flow of presentation. They should be used only for presenting definitions and presentation of important points made by notable individuals and clarifying differences of opinion in the literature when seeing the differences in wording (such as the wordings of theories) might help the readers understand the issue involved.

### **Conceptual and Theoretical Framework**

Theory has been defined as an indispensable guide for good research. It is also explained as a set of inter-related abstract propositions about human affairs and the social world that explain their regularities and relationship between things (Brewer 2000, Dens Combe 1998).

The terms ‘conceptual framework’ and ‘theoretical framework’ are often used interchangeably. Conceptual framework can be regarded as the adoption of a set of broad ideas and principles, taken from relevant fields of enquiry and used as a basis for the rational study/explanation of a phenomenon. The conceptual framework could be likened to ‘a road map’ for planning a research study as well as ‘a compass’ for monitoring the direction of the work and conceptualizing the overall goals of the research. When clearly articulated, it assists the researcher in making meaning of subsequent findings (Reichel and Ramey, 1987; Guba and Lincoln, 1989).

A broad conceptual framework serves as a tool for designing studies and analyzing research findings. It also forms part of the agenda for negotiation to be scrutinized and tested reviewed and reformed as a result of investigation (Guba and Lincoln, 1989). The conceptual framework often becomes the heart of the study as the research gains momentum. It increasingly scaffolds, strengthens and keeps the research on. It also provides reference points to the literature, assists and provides structured approach to communicating research findings.

Since conceptual frameworks are based on assumptions which are themselves, based on ideas. Scholar therefore needs to build upon his/her own experiences and the works of other researchers in the relevant research area by concultivating literature if he/she wants to develop a tangible conceptual framework. It should provide clear links from the literature to the research goals and questions, serve as a basis for formulating the research design, provide reference points for discussion of literature, methodology and analysis of data, and contribute to the trustworthiness of the study (Goetz and Le Compte, 1984).

Theoretical framework, on the other hand, can be described as a collection of interrelated concepts, like a theory but not necessarily so well worked out. It is also referred to as an explanatory device which explains either graphical or in narrative form the main things to be studied – the key factors, constructs or variables - and the presumed relationship among them. It is an efficient mechanism for drawing together and summarizing accumulated facts.... which makes the body of accumulated knowledge more accessible and useful both to practitioners who seeks to implement findings and to researchers who seek to extend the knowledge base. Theoretical framework is the use of relevant existing theories as a platform for investigating and /or explaining a phenomenon under study. The theoretical framework of a study is really the researcher's pre-conceived conceptual perspective. It is 'the lens' through which the researcher views the world. The researcher's disciplinary orientation leads to the topics that will be studied and the questions that will be asked (Merriam, 1998). A theoretical framework guides the whole research, determining what things to be measured, and what statistical relationships to look for.

Theoretical framework and conceptual framework are synonymous terms t a large extent. Conceptual framework can be regarded as a systematic ordering of ideas about the phenomena being investigated, while theoretical framework could be seen as a systematic account of the relations among a set of variables (Kerlinger, 1979). Both the theoretical framework and conceptual framework are methods of focusing research design and analysis procedures as well as providing 'structure and meaning to the interpretation of findings' (Warmbrod, 1986).

### **Chapter 3 Methodology**

The design and method section the research supplies the logic, procedures and processes for acquisition of data and processing of information. It is a system of explicit rules and procedure upon which a research is based and against claims and knowledge is evaluated. It is an avenue where you explain to your reader how you will (or did) carry out your research. You should describe the subjects, the instruments to be use or used, the condition under which the tests will be (or were) given, how the test will be (were) scored, how the results will be (or was) analysed, it. This section should be very explicit such that others could replicate all the important points of your research. Make sure you are honest and forthright in this section by reporting or acknowledging any problems or challenges with validity so that others can take them into account when they interpret if (and avoid them if they try to replicate it). Methodology entails the following:

Design of study

Study Area  
Study population  
Sample and sampling Technique  
Instrument for data collection  
Validity of the instrument  
Reliability of the instrument  
Administration of the instrument  
Scoring of the instrument  
Methods of Data Analysis

**a) Study Design:**

Refer to the plan, structure, and strategy the researcher wants to adopt in finding answers to research questions and probably test hypothesis formulated for the study. For examples, survey, experimental, descriptive, observational, quasi-experimental, ex-post-facto, historical, correlational causal – comparative, evaluative and so on.

**b) Study Area:**

The researcher might have to describe briefly the area where the study was (is to be) conducted. It might also be necessary to justify the use of the area for the study. The justification should be such that would enhance the validity and reliability of the study. The map of the area could also be provided by the researcher/investigator in the appendix.

**c) Study Population:**

A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. Population of study addresses the question: who will be or were the subject of the study that will provide accurate and reliable information for the study? It is very important for the researcher to identify the population of his/her study and state clearly the subjects that he/she collected or will collect data from.

**d) Sample of the Study:**

A sample is referred to as the proportion of a population selected for observation and analysis with a view to making inferences about the population. In selecting a sample, the researcher must ensure that he/she is not biased, so sample should be large and representative of the population in order to help the researcher make valid generalization of the finding. The researcher must also clearly state the sampling technique(s) he/she has employed or will be employed.

**e) Methods of Data Collection:**

The researcher is expected to specify the method or instrument used or that will be used for data collection. In as much as each and every research requires a research instrument in collecting, recording and measuring data, effort must be geared toward avoiding faulty research instrument for data collection. This is so, because data is required to provide answers to research questions or test hypothesis. It is advisable to describe the instrument(s) one used or will use for data collection and to arrange sections according to research questions.

**f) Validation of Instrument**

The instrument designed for data collection should be validated in order to ensure that it measures what it is designed to measure. After the validation of the instrument, it should be pilot-tested on a similar but smaller sample in order to find out how the respondents will react to the instrument. Researcher must report how he/she validated and pilot-tested the instrument.

**g) Reliability of Instrument**

The researcher must report in details how he established the reliability of the instrument. The reliability of an instrument or a test is the degree to which a test or an instrument is consistent in measuring whatever it purports to measure that is , the degree at which the test or the instrument measures the same thing time after time and term after item. The index of reliability is usually expressed as a coefficient reflecting the extent to which a test is free of error variance.

**h) Administration of Instrument**

The researcher is expected to describe briefly how the instrument was (will be) administered on the respondents whether personally or by mail. The researcher should state the number of copies distributed or administered and the number returned in the case of questionnaire. The instrument could also be interview (face-to-face or telephone), mail, observation or any other research instrument.

**i) Scoring of the Instrument:**

The section has to do with how that collected data was or will be organized such that the frequencies of the responses were worked out and the percentages calculated. The section could be integrated into the next chapter of the research study (method of data analysis). The researcher should indicate the rating where rating scales are used. e.g. Likert scale.

## **Chapter 4 Data Analysis**

The researcher or investigator should state or specify the statistical tools he/she employed or will employ for data analysis. According to Shamoo and Resnic (2003), various analytical procedures “provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data he/she must ensure that appropriate statistical tools are employed in order to get valid results. There are two types of statistics at the disposal of the researcher for data analysis – the descriptive statistics and the inferential statistics. If the researcher is concerned with answering research questions he/she should use descriptive statistics such as percentages/proportions, mode, mean, median standard deviation and several procedures to graphically illustrate the composition of a group such as charts, bar graphs, histograms and frequency polygons. On the other hand, if the researcher is concerned with testing hypothesis, he/she should use inferential statistics such as chi-square ( $\chi^2$ ), analysis of variance (ANOVA), analysis of covariance and t-test. The choice of the type of data collected.

The results of data analysed should be or are presented in tables, figures, graphs, charts to charity the results of the study. The data should also be presented according to the research questions and hypothesis.

## **Chapter 5 Discussion of findings, Recommendations and Conclusion**

This section of research project has to do with the discussion of findings of the study, the recommendations based on the findings, the conclusion draw from the study, the implications of the study and suggestion for further research.

### **Discussion of Findings**

This is the section that reveals the product of your research efforts that requires good communication skills. Good communication skills is very important in any research report because excellently executed research may be marred by poor presentation, while a 'well packaged' 'smartly' presented but poorly executed research work may likely escape the hammer much easier than a well executed research, poorly presented. Therefore the results and discussion of a research output should be lucidly presented. The researcher should analytically discuss the major findings of the study in accordance with the research questions and hypothesis. Discussion of findings entails making appropriate or emphasizing some pertinent features and factual information in relation to the study, making appropriate references to the tables and systematically and objectively linking the findings with other findings and theory.

### **Recommendations**

Researcher should endeavor to make recommendations based on the findings of the study. The recommendation should start with an opening statement as: based on the findings of the study, the following recommendations are made. They should be itemized using they will be beneficial to the individuals, groups or the society at large.

### **Limitations of the Study:**

This has to do with shortcomings observed or associated with the study, which could emanate from the procedure adopted in carrying out the study in terms of method of data collection and analysis, sample of the study being either non-random or purposive method of data analysis etc. the researcher should therefore state clearly the challenges or problems encountered in the course of carrying out the study and then explain how the problems could be eradicated or reduced to the bearest minimal. Lack of fund could also be a challenge.

### **Suggestions for Further Study/Research**

At the tail end of a study, the researcher normally makes some suggestions on how to improve on the study briefly and then conclude.

#### **4.0 CONCLUSION**

With a brief overview of process of making social inquiry or research was intensively discussed with the major aim of being able to accomplish the stated or outlined objectives and to test the enumerated hypothesis. Efforts should therefore be geared towards ensuring validity and reliability of the research study by following the stipulated conventional methods and standard of social science inquiry.

#### **5.0 SUMMARY**

In this unit, methods of social science research was discussed starting from the research design, choosing of research topic, stating of research project layout (the preliminary section) to the main body of the research work (Thesis/project layout) which is usually and mostly in five chapters or six. Chapter one is introduction, followed by literature review chapter two, comprising conceptual framework and theoretical framework which could be split into two at times. Chapter three (research methodology), chapter four (data presentation and discussion of findings, chapter five (summary, recommendations and conclusion).

#### **6.0 TUTOR-MARKED ASSIGNMENT**

- 1) Of what importance is literature review to the research study?
- 2) Why do we carry out a research work?

#### **7.0 REFERENCES/FURTHER READING**

American Psychological Association (APA), 2005. publication manual of the American Psychological Association. Washington DC: American Psychological Association.

Henrichsen L.T. Smith and David S. Baller 1997. Training the Research Beast. Research methods in TESL and Language Acquisition.

Kerlinger F.N. (1973). Research Design: Meaning purpose and Principles. In: Foundations of Behavioural Research. London: Holt, Reinhart and Winston, Inc.

Patten, M.L. (2005). Proposing Empirical Research: A guide to the Fundamentals. Glendale, C.A.: Pyrcjak Publishing.

Best, J.W., and Kahn, J. V. (1993). Research in education (7<sup>th</sup> ed.). San Francisco: Jossey – Bass Publishers.

Guba. E. G., & Lincoln, Y.S. (1989). Fourth Generation Evaluation. Sage publication.

Marshall, Peter (1997). *Research Methods*. Plymouth: how to books.

Camp, W. G. (2001). Formulating and Evaluating Theoretical frameworks for career and Technical Education Research *Journal of vocational education research*. 26 (1).

Creswell, J. W. (1994). *Research design: qualitative and quantitative approaches*. Thousand oaks, CA: Sage Publications.

Brown, Robert (1963). *Explanation of Social Science* Chicago: Aldine Publishing Company.

Marriam, S. B. (1998). *Qualitative research and case study Applications in Education*. San Francisco: Jossey – Bass Publishers.

Reichel, M., and Ramey, M.A. (eds). (1987). *Conceptual frameworks for Bibliographic education: Theory to Unlimited Inc*.



## **UNIT 5 RESEARCH PROPOSAL AND RESEARCH PROJECT REPORT**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Research Proposal
  - 3.2 Research Project Report
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In academic parlance all over the world, before a student could be awarded a degree, master or Doctor of Philosophy certificate, he or she is expected to write a project/thesis. Before the commencement of the thesis proper, such a student would be expected to write and submit a project/research proposal to the assumed supervisor or department.

In addition, a research proposal could also be written and submitted by researchers to a funding agency or financial source outside their regular income. In this case, any researcher hoping to get such funding must present a grant proposal on which basis the grant may be awarded. After a researcher completes a project or a significant phase of a large project, he or she is expected to communicate the findings to others through a research report.

### **2.0 OBJECTIVES**

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

- explain what research proposal is
- enumerate and discuss components of a research proposal
- discuss research project report.

### **3.0 MAIN CONTENT**

#### **3.1 Research Proposal**

- A research proposal is an account of what a researcher intends to do and how he intends to do it.
- It is a document that presents a plan for a project to reviewers or sponsors for evaluation.

It can be a supervised project submitted to instructors as part of an educational degree (e.g., a degree project/thesis, a master's thesis or PhD dissertation), or it can be a research project proposal to a funding agency. Its purpose is to convince reviewers that the researcher is capable of successfully conducting the proposed research project. Reviewers have more confidence that a planned project will be successfully completed if the proposal is well written and organized, and if the researcher demonstrates careful planning.

Proposal helps the researcher to have a proper perspective on what is involved in executing a particular study. It possible for the researcher to visualize, ahead of time, the major difficulties, the workability of some techniques, the cost and several other things involved in the study.

#### **1.0 Components of a Research Proposal**

A research proposal usually consists of the sections immediately after the title of the project:

- 1.0 Introduction: It is divided into the following sub-headings
- 1.1 Background of the Study
- 1.2 Statement of the Problem
- 1.3 Purpose of the Study
- 1.4 Significance of the Study
- 1.5 Research Question and/or Hypothesis
- 1.6 Scope of Delimitation
- 1.7 Assumption (if any)
- 1.8 Definition of Terms (if any)

#### **2.0 Review of Literature**

This entails sitting of the previous works of other scholars or researchers that are related, relevant, or similar, or that are germane to the subject matter.

### **3.0 Research Methodology**

3.1 Research Design

3.2 Area of Study

3.3 Population

3.4 Sample and Sampling Technique

3.5 Instrument for Data Collection

3.6 Validation of Instrument

3.7 Reliability of Instrument

3.8 Method of Data Collection

3.9 Proposed Method of Data Analysis

3.10 Detailed Budget (if the proposal is to be submitted for a grant)

3.11 Bibliography/References

It should always be remembered that in writing proposal, it is important) that you communicates the methods and findings of a research project to others.

In writing a proposal, it is important to remember that since the actual work is yet to be executed, the tense should be futuristic.

### **3.2 RESEARCH PROJECT REPORT**

The research project report is usually presented following a particular format. The format varies from place to place and from discipline to discipline. The format presented in this chapter is the one considered to be widely used in this discipline. Essentially, a research project report comprises three major sections as follows:

(a) The Preliminaries (b) The Main Body (c) The Appendix

#### **1.1 The Preliminaries**

This is made up of:

- (i) The Title Page
- (ii) Approval Page
- (iii) Acknowledgement

- (iv) Table of Contents
- (v) List of Tables
- (vi) List of Figures
- (vii) The Abstract

**The title page** - carries information on the project, the programme,(degree, diploma or certificate) for which the project is being undertaken, the department and the university/institution to which the report is being presented, the particulars of the student submitting the project, the month and year the project is submitted.

**The approval page** - makes provision for the signatures of the supervisor, the internal examiner, the external examiner, the head of the department and dean of the faculty.

**The acknowledgement** - is used to express gratitude and indebtedness to individuals, institutions or organisations that provided one form of assistance or the other during the execution of the work.

In **the table of contents**, the various elements, chapters or parts of the report and the pages where they appear are listed. Only the first pages are indicated.

**The list of tables and figures** - follows after the table of contents.

**The abstract** is a very short account of the work. This short account gives an idea of the purpose of the work, brief description of the methodology and the major findings of the study.

## **1.2. The Main Body of the Report**

This section embodies the major report of the project. The materials of this section are usually arranged in five chapters as follows:

### **Chapter 1: Introduction**

This chapter is arranged under sub-sections as given below.

**1.1 Background to the problem:** Under this subsection, the researcher traces the conditions and factors necessitating the study. Here, the researcher presents all materials which will help his reader understand the development of the problem under investigation. The essence is to provide the necessary background information that will show the reader the conditions, circumstances and factors that have given rise to the problem under investigation.

**1.2 Statement of the problem:** Having traced the development of the problem in the preceding subsection, the problem is now formulated and defined in concise and precise terms. The statement of the problem can be stated in either a declarative

or an interrogative form. In whichever form the problem is stated the important thing is that it should be short (not exceeding half a quarto-sized page) and unambiguous.

- 1.3 Purpose of the study:** This refers to what will be accomplished in the study. It represents a statement of the objectives of the study. This can be written as a general statement of what the researcher intends to accomplish which is then broken down to specific statements of objectives. In doing this it is important to strike a balance, between specificity and generality. In other words, the objectives should not be too specific as to result in a long and unmanageable list of specific objectives nor too general as not to sufficiently guide action. Effort is always made to avoid preambles or any materials that do not directly relate to the purpose of the study. Such materials are unnecessary and could bore the reader of the report.
- 1.4 Significance of the study:** This can also be called the rationale or the importance of the study. It has to do with the major contributions the researcher hopes the work will make either to the theory or the practice of his field. This subsection is concerned with the usefulness of the findings of the study to mankind either in a theoretical or practical field. This provides the justification or rationale for undertaking the investigation. Indeed, this is a very important subsection of any project report since it tries to establish whether or not the work is of some value.
- 1.5 Research questions and/or hypotheses:** Research questions refer to the major questions to which the researcher seeks to provide answers in the course of the investigation, while hypotheses refer to intelligent guesses or hunches which the researcher formulates to guide his search for the solution to the problem.
- 1.6 Scope (or delimitation):** Scope (or delimitation) deals with the extent of the problem the researcher is able to tackle in the present study having regard to his competence, interest, available time and resources. It involves delineating properly the boundaries of the study what will be covered and what will not be covered in the study in question. It is a way of trying to bring the problem into proper and sharp focus. In a sense, the researcher is trying to "cut the much he can chew" out of the problem. The rule, of course, is biting neither too much nor too little. If the scope is narrowly defined, it may result in a trivial study while, if it is too broad, it may result to an unmanageable study.
- 1.7 Assumptions (if any):** These are those conditions that must be met or satisfied for the results of the study to be valid. Usually these are not subjected to an empirical test but must be plausible enough to be considered tenable. One should not posit conditions that are hardly tenable as assumptions in any study. Assumptions need not be made in all studies. There are some studies which may not necessarily require assumptions. For such studies, this subsection becomes unnecessary.

- 1.8 Definition of terms:** In this subsection, terms or concepts whose meanings are not obvious in the context of the study are defined or explained. These include terms or concepts whose meanings are not ordinarily known or which have been used in specialised sense in the study (i.e. different from the ordinary sense). The definitions given to such terms are usually operational and not the dictionary definitions. Operational definitions refer to the specialized sense in which those terms were used in the study that is different from their usual meanings. Where no such terms exist, this subsection is usually left out. As a matter of fact, the recent trend is not to make specific provision for this subsection anywhere in the write-up but to define any terms anywhere they occur first in the body of the report.

## **Chapter 2: Review of Literature**

This chapter embodies the review of all literature pertinent to the research theme usually organized under relevant sub-headings.

## **Chapter 3: Research Methodology**

This chapter comprises the following sub-sections:

- 3.1 Design:** This relates to the general approach adopted in executing the study. What is required here is for the researcher to specify the type of the design followed in the study.
- 3.2 Area of study:** The area of study refers to the geographical location covered by the study which is usually stated in terms of the country, state, education, political or administrative zone, local government area, etc as the case may be.
- 3.3 Population:** Here, the researcher specifies the aggregate of items or persons from whom data pertinent to the study were collected.
- 3.4 Sample and sampling procedure:** The sample (i.e. that portion of the population from which data were actually collected) is defined here as well as how it was obtained including the sampling technique used.
- 3.5 Instrument for data collection:** This involves a description of the instrument(s) used in collecting the data. Such a description should include how the instrument was developed and the major features of the instrument.
- 3.6 Validation of the instrument:** This describes the procedures adopted in ensuring that the instrument used has measured what it was designed to measure. It is very important to establish and report one form of validity or the other for the instrument. This enhances the strength of the work.

- 3.7 Reliability of the instrument:** Reliability concerns the consistency with which an instrument measures whatever it measures. The method used in establishing that your instrument possesses this quality of reliability, and the evidence in that respect, should be reported.
- 3.8 Method of data collection:** Here, the researcher reports the steps taken to collect the pertinent data. This entails saying whether the data were collected by the researcher himself or with the help of field assistants or by mail, etc.
- 3.9 Method of data analysis:** In this subsection, the researcher reports the statistical techniques or tools employed in analyzing the data.

#### **Chapter 4: Results**

This chapter embodies the results or findings of the study. These are usually presented in tables, figures and charts. The calculations involved in the analyses are not presented here. Only the summaries of such analyses in the form of tables, figures and charts are presented in this chapter. Each table or figure should have a number and title. The number should be in Arabic numeral and not in Roman numeral, For tables, the number and title should appear on the top of the table while for figures, the number and title should appear below the figure.

It is usually advisable to present the results according to the research questions or hypotheses to which they relate.

#### **Chapter 5: Discussion, Conclusion, Implications, Recommendations and Summary**

This chapter which is the last chapter comprises:

- 5.1 Discussion of the findings:** Here, the researcher tries to advance possible interpretations and explanations to his findings and tries to relate these to the findings of previous works.
- 5.2 Conclusion:** The major findings that emerged from the study should constitute the conclusion.
- 5.3 Implications of the findings:** These relate to what the findings suggest either in terms of theory or practice. In other words, implications of the findings relate to specific uses (either in the theoretical or the practical sphere) to which the findings can be put.
- 5.4 Recommendations:** These are suggested actions which could be taken in the light of findings to bring about improvements in the system or in the discipline.

- 5.5 Suggestions for further studies:** It is said that solving one problem gives rise to other problems, It is therefore expected that the researcher should state those problems that have arisen out of the one he has investigated for other people to investigate.
- 5.6 Limitations:** These are those short-comings in the design and execution of the project which would affect the generalisability of the findings.
- 5.7 Summary:** Lastly, the researcher provides a summary of the entire work i.e. a brief account of the entire report.

## **Chapter 6: Bibliography**

The bibliography is considered part of the main body of the report. It is a list of the sources which were made use of in preparing the study. The difference between bibliography and a reference is that whereas a bibliography consists of a listing of all sources that proved useful in the execution of the study, a reference is a list of sources that were actually cited in the work. For students' project reports, it is common to use bibliography while for research articles, reference is used. Detailed treatment of how to prepare a bibliography or a reference list has been given in Chapter 3.

### **11.4 Appendix**

This is the last part of a research project report. It consists of all materials that are related to the report and which may be referred to for greater details but which are not suitable for inclusion in the main body of the report. Such materials include the instruments used, calculations, raw data, letters of introduction, etc.

The research report is more than a summary of findings; it is a record of the research process.

A researcher should not wait until the research is done before thinking about the report; s/he thinks ahead of the report and keeps records carefully while conducting the research. Apart from the findings, the report includes the reasons for initiating the project, a description of the projects steps, a presentation of data, a discussion of how the data relate to the research question or topic.

There are almost as many reasons for writing a report as there are for doing research. The basic reason for writing a report is to tell others what you, the researcher, did, and what you discovered. Other reasons for writing a report are to fulfill a class or job assignment, to meet an obligation to an organization that paid for the research, to persuade a professional group about specific aspects of a problem, or to tell the general public about findings.



#### **4.0 CONCLUSION**

This unit reveals that writing a proposal is similar to writing a research report and involves careful planning and investigation before doing research. In the discussion or report of a researcher, a researcher talks about what he sees in the data and gives the reader a concise, unambiguous interpretation of its meaning.

#### **5.0 SUMMARY**

In this unit, you learned about the meaning of a research proposal and to write or prepared an academic research proposal. We also learned the challenges of writing a research report and how best a researcher can write a lucid, comprehensive, educative and informative research report through a careful planning and investigation before doing research.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is a research proposal?
- ii. What do we write a research proposal?
- iii. What are some advantages of a research report?
- iv. Why are many qualitative research reports longer than those reporting quantitative research?
- v. Explain briefly the various elements in a research proposal.

#### **7.0 REFERENCES/FURTHER READING**

Creswell, J.W. & Tashakkori, A. (2007). Developing Publishable Mixed Methods Manuscripts. *Journal of Mixed Methods Research* 2(1):107-111

Rabson, C. (2002). *Real World Research*. Oxford: Blackwell Publishing.

## **MODULE 2 DATA AND DATA COLLECTION INSTRUMENTS**

### **UNIT 1 MEANING AND COMPONENTS OF DATA**

#### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Data
  - 3.2 Types of Data
  - 3.3 Characteristics of Good Data collection
  - 3.4 Data Collection Procedure or Plan
  - 3.5 Bias in Data or Information Collection
  - 3.6 How to get Good or High Quality Data
  - 3.7 Use of Pilot Study
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

#### **1.0 INTRODUCTION**

Whenever a researcher has been able to identified research problem(s), he or she is then to look for appropriate means/ways of providing answers or solutions to the generated questions or identified problems. In as much as researcher problem provides a unique challenge to the researcher and different problems often call for carefully selected measurement devices or tools which are used for data collection while conducting research.

Whatever is the case, a researcher must possess considerable knowledge, skills and proper understanding of the instrument to be used such that it should adequately measure the variables, concepts or the phenomena being studied. Operationally, measurement should generate the required data for the research effort because data collection is a crucial stage in the planning and implementation of a study. If the data collection has been biased, superficial or incomplete, data analysis becomes difficult and the research report will be of poor quality.

#### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define and explain various types of data
- State characteristics of data
- Discuss data collection procedure or plan
- Understand bias in data and enumerate how to get good data
- List importance of pilot study.

### 3.0 MAIN CONTENT

#### 3.1 Meaning/Definition of Data

- Data are representation of reality that shows the results of measuring properties or processes.
- Data are information in the form of numbers, text, images used as a basis for making calculations, or drawing conclusion or making inferences
- Data systematically collected information about out objects or subjects of the study (people, object, event phenomena) and about the settings in which they occur.
- Data refers to facts, ideals or knowledge that are useful in answering research problem(s).

There are two main sources of data namely: primary source and secondary source

1. Primary Source of Data: Are those information, facts and figures relation to the population (subject or Object event) under study or being investigated. For example, census figures or data collected during population census/head count.

#### Advantages of Primary data

- a) Exact information needed is obtained
  - b) Terms are carefully defined as far as humanly possible by the researcher
  - c) Misunderstanding is usually avoided.
2. Secondary source of data: There are information, facts and figures generated and from a third party that has already been formerly documented. That is, the researcher is not directly or physically involved as at the time the information or data was been originally collected. For example, data collected from Archives, Government Agencies, Non-Governmental Agencies etc. by a researcher.

Disadvantage of secondary date

Such a data must be used with caution because it may not give the exact type of information required or need or the data might have become obsolete.

#### 3.2 Types of Data

The following are the four types of data identified in Steven's scales of measurement.

- i) **Nominal Data**  
Nominal means "name bearing". The nominal scale places things into named categories. These things are assigned to groups according to their common or

shared elements. For example women who are different in many ways could be assigned to the same category based on their shared gender.

Important: the different categories are not ordered in any “more or less” sense. They are just different from each other.

**ii) Ordinal Data**

The ordinal scale places things in order. Ordinal data show a particular item’s position relative to other items, such as “First, second, third etc.” The ordinal scale doesn’t specify the distance between each item. It just puts them in order. For example, in a play ground foot race where no one has a watch, the participants will know their actual times. They will know who came first, second, or third.

**iii) Interval data**

The interval scale uses equal-sized units of measurement (points, minutes, etc) and therefore, shows the distances, or intervals, between subjects’ performances. In the foot race for example, if the runner the first runner crossed the finish line, they might discover that the second place finisher was only two counts behind the winner while the third-place finisher was ten counts behind. Interval data show this difference in distance. Ordinal data would not. It is important to remember that with interval (as opposed to ratio) data, the intervals start from an arbitrary point, not absolute zero. Therefore a student who score a 60 on a grammar test could not be said to know thrice as much grammar as a student who scored 30. Also, the person who scored a 0 on this test would not be said to know no grammar at all.

**iv) Ratio Data**

The ratio scale is like the interval scale. It employs equal interval. However, the ratio scale begins at a true zero point. That point represents an absolute lack of the quality being measured. Because of this characteristic, additional mathematical functions are possible with ratio data that are not possible with other types of data.

**Data Collection Techniques:**

These are designed procedures to systematically collect information about our objects of study (people, objects, phenomena) and about the settings in which they occur. The two (2) basic methods for data collection are through:

- A controlled experiment (Experimental studies); and
- A survey (Observational studies)

**3.3 Characteristics of Good Data Collection**

- i) **Attributability:** We should be able to trace a good data to their source, e.g. by study number, sample number and parameter. Unique identification of data pertaining to an individual study helps to prevent data mix-up.
- ii) **Originality:** Data should not be recorded on scrap of paper for transcription into a final form because raw data constitute the first recording of the observation.

- iii) **Promptness:** data should be recorded or documented immediately the operation is completed because of the fact that memory may fail or become inaccurate, which may lead to data loss or faulty records. Recording after work/job should not be acceptable.
- iv) **Accuracy:** Researcher should ensure that the raw data have to be a true or correct representation of the (subjects, object or phenomena) observed and accuracy is totally or absolutely central to the integrity of the study.
- v) **Legibility:** Collected and collated data must be clear such that it can be read easily because data/records that are difficult to decipher may raise doubts.
- vi) **Indelibility:** In order to guard against or prevent deliberate alteration or tempering with data, water proof and indelible ink should be used. If any changes to raw data become inevitable, persons responsible for the change should sign and date the change.
- vii) **Storability:** In as much as the collected data represent the value (in time, resources and economic potential) of the research carried out, the collation, administration and physical placement of the storage facility. Access to the storage should be limited to authorized personnel and facility must protect records from physical damage, interference and loss.

### 3.4 Data Collection Procedure or Plan

A well planned data collection procedure is required by any researcher immediately she/her has identified the research problem so that:

- One will have a clear overview of what tasks have to be carried out, who should execute them, and the line time (duration) of the tasks;
- Researcher should be able to organize both human and material resources for data collection in the most efficient way; and
- He or she can minimize error and delays which may result from lack of planning (for example, the population not being available or data forms being misplaced).

#### Stages of Data Collection Process

The three main stages in the data collection process are:

- i) Permission to proceed
- ii) Data collection
- iii) Data handling

### **Stage1. Permission to proceed**

Consent must be obtained from the relevant authorities, individuals and the community in which the project is to be carried out. In the case of a student, he or she must get letter of introduction from the departmental head to the place research is to be conducted. It should also be known that on no condition should a student go to field without proper scrutiny and approval of the research instrument(s) by the assigned supervisor.

### **Stage2. Data Collection**

In the course of collecting our data, we have to consider: Logistics and quality control when allocating task for data collection, it is recommended that you list them first. Then you may identify who could best implement each of the tasks.

- Who will collect what data?
- How long will it take to collect the data for each component of the study?
- In what sequence should data be collected?
- When should the data be collected?

### **Stage3. Data Handling**

Data collected from the field should be carefully handled and checked for completeness and accuracy. A clear procedure should be developed for handling and storing them. One of the major methods of data handling is archiving which involves data collectors/researcher keeping perhaps on CD, all the non-ephemeral material relating to their efforts to acquire information. Obvious components of such a record include:

- Data collection instrument
- Raw data
- Metadata recording the what, where when and other identifiers of all variables
- Variable names and their interpretations, and labels corresponding to values of categorical variables
- Query programs used to extract analysis files from the database
- Log files defining the analysis and reports.

## **3.5 Bias in Data/Information Collection**

Bias in information collection or data gathering is referred to as a distortion in the collected data such that it does not represent reality. Possible sources of bias during data collection include:

- i) Detective Instruments, such as:  
Questionnaires with:

- Fixed or closed questions on topics about which little is known (often asking the wrong things')
- Open-ended questions without guidelines on how to ask (or to answer) them
- Vaguely phrased questions
- Leading questions' that cause the respondent to believe one answer would be referred over another; or
- Questions placed in an illogical equipment that are not standardized

These sources of bias can be prevented by carefully planning the data collection process and by pre-testing the data collection tools.

ii) Observer Bias

Observer bias can easily occur when conducting observations or utilizing loosely structured group or individual interview. There is tendency or a risk that the data collector will only see or hear things in which she/he is interested or will miss information that is critical to then research.

Observation protocols and guideline for conducting loosely structured interviews should be prepared, and training and practice should be provided to data collectors in using both these tools. Moreover, it is highly recommended that data collectors work in pairs when using flexible research techniques and discuss and interpret the data immediately after collecting it. Another possibility – commonly used by anthropologists – is using a tape recorder and transcribing the tape word by word.

iii) Effect of the interview on the Informant

This factor can arise in all interview situations. The informant might not believe the intention of the interview and avoid or dodge certain question or give misleading answers. For example: in a survey on influence of parent behavior of children character or personality formation, you ask secondary school students: Does your father sometimes beat your mother? Many will probably deny that he does, even it is true.

Such bias can be reduced by adequately introducing the purpose of the study to informants by phrasing questions on sensitive issues in a positive way, by taking sufficient time for the interview and by assuring informants that the data collected will be confidential.

iv) Information Bias

Respondents or informants might fail to give their correct home address or contact address if the formation has to do with terminal and infectious disease like HIV/AIDS. Information bias could be due to gaps in people's memory; this is called memory or recall bias. Being aware of the potential biases to a certain extent, can reduce or prevent them and then reduced to likely threat it can battle on the validity and reliability of your study.

### **3.6 How to get Good or High Quality Data**

Prepare a field work manual for the research team showing a comprehensive guideline on sampling procedures, purpose of study, procedures of study code process/method of collecting data and to record data.

- Ensure that you select your research assistants with care such that they will come from the same educational background, knowledgeable about the topic, familiar with the local conditions and be based.
- Large out the pre-test research instruments and research procedure with all the research team and assistants
- Research assistants should be properly catered for and not be subjected to undue stress.
- Supervisor should be appointed to oversee the activities of the research assistants with a well stated guideline for supervisory tasks.
- Methods should be devised to assure the quality of data collected by all members of the research team.

### **3.7 Use of Pilot Study**

This is a major approach to ensure quality in research. Pre-test or pilot study usually refers to as a small-scale trial of particular research components. It is the process of carrying out a preliminary study, going through the entire research procedure with a small sample.

#### **Why do we carry out a pre-test or pilot study?**

A pilot study or pre-test serves as a trial run that allows us to identify potential problems that may arise or a researcher can encounter in the proposed study. The pre-test and (or pilot study enables us, if necessary, to revise the methods and logistics of data collection before embarking on the actual fieldwork. In consequence, a good deal of time, effort and money can be saved at the end. Also, pre-test is simpler and less time-consuming and costly than conducting an entire pilot study.

#### **Areas of Research Methodology that can be Evaluated during Pre-testing.**

- i) Reactions of the respondents to the research procedures can be observed in the pre-test to determine availability of study population, acceptability of the methods used to get in touch with the study population, acceptability of the questions asked by the subjects/respondents and their willingness to answer the questions and collaborate with the study
- ii) The data-collection tools can be pre-tested to determine the ability of the tools to collect required information, and their reliability.



- iii) Sampling procedures can be checked to determine whether guideline for sample selection is obeyed and to ascertain how much time is needed.
- iv) Staffing and activities of the research team can be checked to determine:
  - Success of the training organized for research team.
  - Output of each member of the staff
  - Level of the research team work
  - adequacy of the logistic support provided
  - reliability of the result when instruments are used
  - whether staff supervision is adequate
- v) Procedures for data processing and analysis can be evaluated during the pre-test. Items that can be assessed include:
  - appropriateness of data master sheets and dummy tables and the ease of use
  - effectiveness of statistical procedures (if used); and
  - clarity and ease with which the collected data can be interpreted.
- vi) The proposed work plan and budget for research activities can be assessed during the pre-test. Issues that can be evaluated include:
  - Appropriateness of the amount of time allowed for the different activities of planning, implementation, supervision, coordination and administration
  - Accuracy of the scheduling of the various activities.

### **When Pre-test is Appropriate**

- Pre-test can be carried out under these conditions tools, either during the workshop, or, it that is impossible, immediately thereafter in the actual field situation.
- Pre-testing the data collection and data analysis process 1-2 weeks before starting the fieldwork with the whole research team (including research assistants, if required) so that you have time to make revisions.

Survey: An survey is a research process in which new information is collected from a sample drawn from a population, with the purpose of making inferences about the population in an objective way as possible.

- It is also refers to one, or some combination of two procedure(s) used in the collection of data. Various survey techniques include: questionnaire, interview, observation, focus group discussion, using available information, projective techniques etc.

## **4.0 CONCLUSION**

Data are usually collected from the field and organized before they are prepared for analysis. Researcher usually organize data into charts or table or summarise them with statistical measure and then use statistical analysis to it test hypothesis and answer research questions.

## **5.0 SUMMARY**

In this unit, you learned about the meaning of data, types of data and various characteristics of a good data collection. You also learned about data collection procedure and bias in data collection. How to get good or high quality data was discussed while importance of the use of pilot study in a research study was also explained in the unit.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is a data? List and explain briefly different types of data
- ii. Enumerate qualities of a good data.
- iii. What do you understand by the concept bias in data collection
- i. Of what importance is the use of pilot study in a research study?

## **7.0 REFERENCES/FURTHER READING**

- Akuzuilo E. O. (1993): Research Methodology and statistics for beginning research students. Akwa: Nuel centi (Nig) Publisher.
- Lumley J.S.P. and W. Benjamin (1993): Research: some ground Rules. Oxford New York Tokyo, Oxford University Press
- National Academy of Science (1995): On being A Scientist: Responsible conduct in Research. National Academy Press.
- Statistical services centre, the University of reading, UK (2000): Guidelines for Planning effective Surveys.

## **UNIT 2      QUESTIONNAIRE AS RESEARCH TOOL**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning and types of Questionnaire
  - 3.2 Merits and Demerits of types of Questionnaires
  - 3.3 Questionnaire Research flow Chart
  - 3.4 Quality of a Good Question
  - 3.5 Advantages and disadvantages of Questionnaires
  - 3.6
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Questionnaire is one of the major types of survey method of data collection in which the researcher gathers introduction about identified problem(s), issue, or phenomenon by asking specific groups of people (sample population) carefully drafted questions. When a researcher has completed the arrangements for sample selection; he or she then immediately design the procedure for collecting information (gathering data) from the subjects or respondents. Thus, questionnaire like other survey methods relies heavily on the responses (to questions) obtained from subjects contacted in the field.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define questionnaire
- State merits and demerits of types of questionnaire
- Draw questionnaire research flow chart
- Enumerate qualities of a good questionnaire
- List advantages and disadvantages of questionnaire

### **3.0 MAIN CONTENT**

#### **3.1 Definition/Meaning of Questionnaire**

- Questionnaire is a survey method of data collection in which information is obtained in research through the written responses of subjects to pre-arranged questions.

- It is a form of or represent a form of carefully selected and ordered questions and statement presented to elicit the data required to test hypothesis relevant to providing answers to the questions raised in the research problem.
- A questionnaire is a form designed for the collection of data from individuals who serve as respondents in a research effort.
- Questionnaire is a printed document that contains instructions, questions and statements that are complied to obtain answers (information) from the respondents.

In a questionnaire, each question item is included to serve a specific purpose, standardization of observation and responses are ensured. Questionnaires may be presented to respondents in two ways. They may be mailed or posted such that the researcher is quite detached from the filling of the form and this referred to as (mailed questionnaire). On the other hand, a questionnaire may be administered directly by the researcher or field research assistant trained and appointed to assist in gathering information (i.e. to collect data). Under this condition, there is a face –to-face contact, with the respondent.

Questionnaire often contains questions or items i.e., statements on a research problem which requires that the individuals indicate his opinions, attitudes and feelings about an issue. The item(s) may be one or more. There may also be 40 or more items depending on the purpose and nature of the study. There are two (2) major types of questionnaires. These are closed (fixed response and open-end questionnaire).

### **3.1.1 Types of Questionnaire**

#### **i) Close (fixed-Response) Questionnaire**

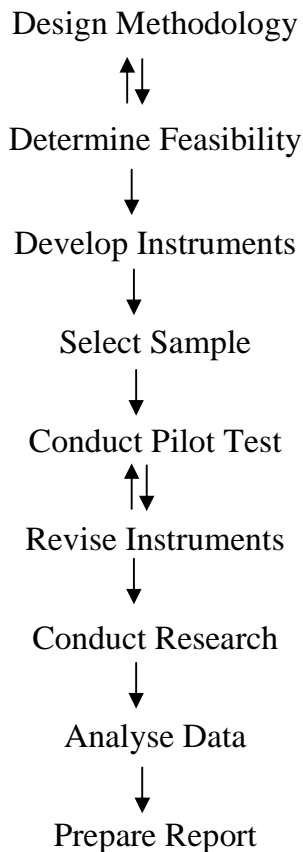
In this type of questionnaire, the respondent is provided some options from which he/she is expected to select the one that represents his or her opinions, feelings, attitude or traits. A good example is a questionnaire item asking for the respondent’s sex and offering the male and female option. The respondent has to pick one of the two options.

#### **ii) Open-End Questionnaire**

This type of questionnaire contains items or questions in which the respondent is free to present his/her responses in whichever way she/he wants. She/he is not restricted to any pre-determined response by the researcher. This type of questionnaire permits the respondent to provide enough information. It is however not easy to analyse and synthesize the collected data

### **3.3 Questionnaire Research Flow Chart**

Questionnaire research design proceeds in an orderly and specific manner. Each item in the flow chart depends upon the successful completion of all the previous items. Therefore, it is important not to skip a single step. It should be noticed that are two feedback loops in the flow chart to allow revisions to the methodology and instruments.



### 3.2 Merits and Demerits of types of Questionnaires

#### Merits of Close (Fixed Response) Questionnaire

- i) It is easier and quicker for respondents to answer
- ii) The Answers of different respondents are easier to compare
- iii) Answers are easier to code and statistically analyse respondents
- iv) The respondents are more likely to answer about sensitive topics
- v) Less articulate or less literate respondents are not at a disadvantage
- vi) Replication is easier.

#### Demerits of Close Questionnaire

- i) They can suggest ideas that the respondent would not otherwise have.
- ii) Respondents without knowledge or opinion can answer anyway
- iii) Respondents may be frustrated because their designed answer is not among the options provided or is not a choice
- iv) It may be confusing of many response choices are offered.
- v) Misinterpretation of a question can go unnoticed
- vi) Distinction between respondents answers may be blurred
- vii) Clerical mistakes or marking the wrong responses is possible
- viii) They may force respondents to give simplistic responses to complex issues.

- ix) They force people to make choice they would not make in the real world.

### **Merits of Open-End Questionnaire**

- i) An unlimited number of possible answers are permitted
- ii) Respondents can answer in detail and can qualify and clarify responses
- iii) Unanticipated findings can be discovered
- iv) They permit adequate answers to complex issues
- v) They permit creativity, self-expression, and richness of detail
- vi) They reveal a respondent's logic, thinking process and frame of reference.

### **Demerits of Open-End Questionnaire**

- i) Different of respondents give different degree of detail in answers.
- ii) Responses may be irrelevant or buried in useless detail.
- iii) Comparisons and statistical analysis become very difficult.
- iv) Coding of responses if difficult
- v) Articulate and highly literate respondents have an advantage.
- vi) Questions may be too general for respondents who lose direction
- vii) Questions may be too general for respondents who lose direction.
- viii) Responses are written verbatim, which difficult for interviewers
- ix) A greater amount of respondent time, thought and efforts can be intimidated by questions
- x) Answer take up a lot of space in the questionnaire.

### **3.4 Qualities of a Good Question**

As we have good questions so also we have bad questions that can prevent a researcher from accomplishing the goals and objectives of a research question(s). the qualities of a good question are as follows:

- 1) **Evoke the Truth**  
Questions must be non-threatening. When a respondent is concerned about the consequences of answering a question in a particular manner, there is a good possibility that the answer will not be truthful. Anonymous questionnaire that contain no identifying information are more likely to contain sensitive items, be sure to clearly state your policy on confidentiality.
- 2) **Ask for an Answer on only one Dimension**  
A survey major purpose is to find out information. Therefore, a question that asks for a response on more than one dimension will not provide the information you are seeking. For example, a researcher investigating a new food snack asks "Do you like the texture and flavour of the snack?" if a respondent answers "No", then the researcher will not know if the respondent dislikes the texture or the flavor, or both. Another questionnaire asks, "Were you satisfied with the quality of our food and service?" Again, if then respondent answers "No", there is no way to know whether

the quality if the food, service, or both were unsatisfactory. A good question asks for only one “bit” of information.

3) Can Accommodate all Possible Answers

Multiple choice items are the most popular type of survey questions because they are generally the easiest for a respondent to answer and the easiest to analyse. Asking a question that does not accommodate all possible response can confuse and frustrate the respondent

For example, consider the question:  
What brand of computer do you own?

- A. IBM Pc
- B. Apple

Clearly, there are many problems with this question.  
What if the respondent doesn't own a microcomputer?  
What if he owns a different brand of computer?  
What if he owns both IBM PC and an Apple?

There are two ways to correct this kind of problem.

The first way is to make each response a separate dichotomous item on the questionnaire.  
For example: do you own an IBM PC? (Circle: yes or no)  
Do you own an Apple computer? (Circle: Yes or No)

Another way to correct the problem is to add the necessary response categories and allow multiple responses.

This is the preferable method because it provides more information than the previous method.

What brand of computer do you own? (Check all that apply)

- Do not own a computer
- IBM PC
- Apple
- other

4) Has Mutually Exclusion Options

A good question leaves no ambiguity in the mind of the respondent. There should be only one correct or appropriate choice for the respondent to make.

An atypical example is:  
Where did you grow up?

- A. Country
- B. Farm
- C. City

A respondent who grew up on a farm in the country would not know whether to select choice A or B. This question would not provide meaningful information. Worse than that, it could frustrate the respondent and the questionnaire might find its way to the trash.

5) Produce Variability of Responses

When a question produces no variability in responses, we are left with considerable uncertainty about why we asked the question and what we learned from the information. If a question does not produce variability in responses it will not be possible to perform any statistical analysis on the item. For example

What do you think about this report?

- A. It's the worst report I've read
- B. It's somewhere between the worse and best
- C. It's the best report I've read.

Since almost all responses would be choice B, very little information is learned.

Design your questions so they are sensitive to differences between respondents. As another example:

Are you against drug abuse? (Circle:yes or No). Again, there would be very little variability in responses and we would be left wondering why we asked the question in the first place.

6) Follows comfortably from the previous questions

Writing a questionnaire is similar to writing anything else. Transition between questions should be smooth. Grouping questions that are similar will make the questionnaire easier to complete and the respondent will feel more comfortable. Questionnaires that jump from one unrelated topic to another feel disjointed and are not likely to produce high response rates.

7) Does not presuppose a certain state of Affairs

Among the most subtle mistake in questionnaire design are questions that make an unwarranted assumption. An example of this type of mistake is:

Are you satisfied with your current auto insurance? (Yes or No)

This question will present a problem for someone who does not currently have auto insurance. Write your questions so they apply to everyone. This often means simply adding an additional response category.

Are you satisfied with your current auto insurance?

- Yes
- No
- Don't have auto insurance



- 8) Does not simply a desired Answer  
 The wording of a question is extremely important. We are striving for object in our survey and therefore, must be careful not to lead the respondent into giving the answer we would like to receive. Leading questions are usually easily spotted because they use negative phraseology. For examples:  
 Would you like to receive our free brochure?  
 Don't you think the nation Assembly is spending too much money?
- 9) Does not use Emotionally loaded or Vaguely defined words  
 Both beginners and experienced researcher usually overlook this area. Quantifying objectives (e.g., most, least, majority) are frequently used in questions. We should bear it in mind or understand that these adjectives may connote different meanings (things) to different people.
- 10) Does not use Unfamiliar Words or Abbreviations  
 You have to take into cognizance who your audience (respondents) are and therefore avoid using uncommon words or compound sentences. Write short sentences and only use abbreviations if you are absolutely sure that every single respondent will understand their full meanings. Use of abbreviation might be okay if all the respondents belong to the same field. For example: what was your AGI last year?  
 The question might be appropriate if all the respondents are accountant
- 11) Is not dependent on Response to previous Questions Branching in written questionnaire should be avoided, but can be used as an effective probing technique in telephone and face-to-face interviews. It should not be used in questionnaire because it sometimes confuses respondents. Example of branching is:
1. Do you currently have a life insurance policy? (Yes or No) if no, go to question 3.
  2. How much is your annual life insurance premium? – These questions could easily be rewritten as one question that applies to everyone:
    - 1) How much is your annual life insurance premium?
- 12) Does not ask the respondent to order or rank a series of more than five items.  
 Questions asking respondents to rank items by importance should be avoided. This becomes increasingly difficult as the number of items increases, and the answers become less reliable. This becomes especially problematic when asking respondents to assign a percentage to a series of items. In order to successfully complete this task, the respondent must mentally continue to re-adjust his answers until they total one hundred. Limiting the number of items to five will make it easier for the respondent to answer.

### **Advantages of Questionnaire**

- ii. The responses are gathered in a standardized way, so questionnaire are more objective, certainly more so than interview.

- iii. Generally, it is relatively quick to collect information using a questionnaire. However in some situations they can take a long time not only to design but also to apply and analyse.
- iv. Potentially information can be collected from a large portion of a group, but the so called potential is not often realized, as the returns from questionnaire are usually low when compared with the number distributed or administered.
- v. Questionnaires responses are expected to remain anonymous and confidential hence it can be used to investigate some personal or sensitive topics.

### **Disadvantages of Questionnaires**

- i. Participants or respondents may forget important issues because questionnaires like many evaluation methods occur or take place after the event.
- ii. Questionnaires are standardized so it is not possible to explain any points in the questionnaire that respondent might misinterpret
- iii. Open-ended questions can generate large amount of data that can take a long time to process and analyse. This can be limited by limiting the space available to the respondents so that their response concise.
- iv. Respondent may answer superficially especially if the questionnaire takes a long time to complete. Asking to many questions should therefore be avoided.
- v. Subjects may not be willing to answer the questions. They might not wish to reveal the information or might think that they will not benefit from responding.

## **4.0 CONCLUSION**

Although, questionnaires come in many difference forms from factual to opinion based, from tick boxes to free test responses. To get reliable and valid responses, in cost effective way, it is imperative to be clear about the aim if the questionnaire and how the responses will help you improve and contribute to knowledge (academic) for the betterment of our society.

## **5.0 SUMMARY**

In this unit, questionnaire was defined, various types of questionnaires explained and merits and demerit of each and every one of them stated. The diagram of questionnaire research flow chart was displayed, while qualities of a good question were elaborately explained and advantage and disadvantages of questionnaires were also well stated for our consumption.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is the difference between structured and unstructured questionnaire? State one condition under which you would prefer to use each format.
- ii. Explain the steps you would take to ensure the construction of a good questionnaire.
- iii. State the advantages and limitations of administering the questionnaire by mail
- iv. What steps would you take to ensure a good percentage return of your questionnaire administered?

## **7.0 REFERENCES/FURTHER READING**

Lumley, J. S.P and W. Benjamin (1989): Research: some ground Rules, Oxford New York Tokyo, Oxford University Press.

National Academy of Science (1995): On Being A Scientist: Responsible conduct in Research National Academy Press.

Nworgu, B.G. (1991): Educational Research: Basic Issues and methodology, Ibadan: Wisdom Publishers Limited, P. 81-111.

Statistical Services Centre, the University of Reading, UK (2000): Guidelines for Planning Effective Surveys

Wiersma, W. (1994): Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305.

Moser, C.A. and Kalton, G. (1979): Survey Methods in social Investigation. Gower Publishing company, Aldershot, England.

Gilbert, N. (1993): Researching social life. Sage publications, London.

Openheim, A. N (1992) Questionnaire Design Interviewing and Attitude Measurement Pinter, London.

Wilson, N and McClean, S. (1994) Questionnaire Design: A Practical Introduction. University of Ulster.

## **UNIT 3 INTERVIEW AS RESEARCH TOOL**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Interview
  - 3.2 Classification of Interview
  - 3.3 Types of Interview
  - 3.4 Measures that Promote Good Quality of Data
  - 3.5 Guidelines for Effective Use of Data
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Interview is one of the research instruments (i.e. most widely used method) of gathering information (data) in social sciences. It is one of the two major types of the survey methods which make use of a schedule known as the interview schedule. The schedule refers to a set of questions which are asked and filled in by the researcher or an interviewer in a face-to-face situation with another person (subject, or respondent or interviewee).

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings you should be able to:

- Define interview survey technique
- Classify and explain classes of interview
- Enumerate and explain types of interview methods
- State measures promoting good quality of data
- Discuss guidelines for effective use of data.

### **3.0 MAIN CONTENT**

#### **3.1 Definition/Meaning of Interview**

- An interview is a data collection technique that involves oral questioning of respondents, either individually or as a group.
- This is a face-to-face interaction in which one person – the interviewer asks another person
- The interviewee questions which are germane to a study and for which oral response are anticipated and provided.

- Interview is a data collection method, that uses personal contact and interaction between an interviewer and an interviewee (respondent) such personal contact takes place either in a face-to-face situation or via telephone.
- The interview is a face-to-face interpersonal role situation in which one person, the interviewer asks a person being interviewed, the respondent of interviewee questions designed to obtain answers or extract information pertinent to the research problem.

The interview technique enables the researcher to collect first-hand information about the interview's knowledge, values attitudes, experiences, beliefs and preferences. Answers to the questions posed during interview can be recorded by writing them down (either during the interview or immediately after the interview) or by tape recording the responses, or by making use of both. The interview schedules should be designed in dine wit or on the basis of the objectives of the study.

The interview could take the form of non-directive and focused interview methods. In non-directive interviews the respondent is allowed to talk freely and comprehensively on a particular issue or topic, with the interviewer listening attentively and interjecting with occasional pleasantries, encouraging words and cogent questions that can bring out the required answers to fill in the gaps and bring the interview to a logical conclusion. On the other hand, the focused interview entails the respondent being asked to focus his attention on a particular event or experience. The interviewer then asks the already prepared appropriate questions. The discussion is usually limited to the pre-determined and relevant issues while the respondent is encouraged to express himself freely.

### **3.2 Classification of Interview**

The interview as an information seeking tool can be classified into two namely: structure and unstructured interview.

#### **1. Structured Interview**

In a structured interview both the wording of the questions and the order in which they are asked remain the same in every case. (That is, the structured interview is rigidly standardized and very formal). The same sets of questions are prepared for all the respondents, who are made to choose from a list of alternative responses provided by the interviewer. Structured technique is more scientific than the unstructured interview because the standardized approach gives room for scientific generalizations to be made from the gathered data. The only disadvantage pertinent to this approved is its rigid nature may deter a researcher from probing in sufficient length and depth.

#### **2. Unstructured Interview**

The respondents in this approach are encouraged to express their feelings or through freely, while the interviewer makes occasionally modifications on the questions to suit the respondent or occasion. The beauty or major merit of this technique is that it is possible to exceed the initial questions as a result of new unanticipated clues unveiled through the discussion. A major setback (demerit) identified with this

method is that it is rarely used for testing hypotheses because the collected data is difficult to quantify.

### **3.3 Types of Interview**

There are many different types of interviews used in getting information which are as follows:

a) **Traditional Face-to Face Interview**

Face-to-face is the most commonly used method of gathering information (data) in research. It takes place between two parties (that is interviewer and interviewee (respondent or subject)). The interviewer usually maintain a one-on-one discussion with the interviewee, he maintains eye contact, listen and record or write) down the answer(s) once a question as been asked. It is used to collect answers, views, opinion, beliefs, thought, ideas, notions, knowledge etc. The major problem of fact-to-face interview is bias. Bias can occur when an interviewer shows approval (or disapproval) of responses. Lack of anonymity could also result in dishonest responses especially if the topic being discussed is of personal or sensitive nature.

ii) **The Panel Interview**

This is another type of interview method of data gathering in which we have more than one interviewers trying to collect data (information) from an interviewee or a respondent by asking various questions and the interviewee taking his/her time in responding to questions being asked one after the other. Interviewee usually has primary eye contact with the panel member who asked the question. Panel interview method enables the interviewer to study changes in behaviours, attitude and emotion of the interviewee as well as to ascertain the level of intelligence, knowledge, experience and understanding.

iii) **Telephone Interview**

It is a useful and fast (if not the fastest) method of gathering information (data) from a relatively large sample (respondents or interviewees) who live most especially far away from the researcher or interviewer. The interviewer follows a prepared script that is essentially the same as a written questionnaire. However, the telephone survey is less expensive, time effective and allows the opportunity for some opinion probing. It also has certain limitations especially when the interviewer is unknown to the respondent she/he is limited by possible non-response, uncooperativeness and reluctance to answer posed question(s).

iv) **In-Depth Interview**

It is also referred to as intensive interview, unstructured, conversational interviews, ethnographic interview and focused interview. It is quite different from face-to-face interview conducted in a survey. The main aim of this interview is to obtain detailed information that might not be possible in other types of interview. It delves into the reasons behind the answers, opinions, views, or emotions given into a survey. It is most useful in field research.

v) Case Interview

This is a form of interview method, in which a researcher or interviewer may ask or expect interviewee to demonstrate his/her problem-solving skills. The interviewer outlines a situation or provides a case study and ask the respondent to formulate a plan that can be used to deal or solve the problem. Although, the subject might not be expected to display how she/he can real life situation. A lucid and loud response would enable the interviewer have a full understanding of the interviewee thought process.

Before allowing an interviewee to provide answers or possible solution to a case interview question, she/he should be allowed to ask questions for clarity and informational purpose in order to be able to analyse and dissect the case study. This is the only interview for which it is acceptable, even encouraged, to bring a pad of paper and pencil/pen. Most interviewers will allow their respondent to take notes and jot down thoughts as they work through the case.

### 3.4 Measures that Promote Good Quality of Data

- Prepare a fieldwork manual for the research team as a whole, including:
  - guidelines on sampling procedures and what to do if respondents are not available or refuse to co-operate.
  - A clear explanation of the purpose and procedures of the study which should be used to introduce each interview, and
  - Instruction sheets on how to ask certain question and how to record the answer.
- Select your research assistants, it required with care. Choose assistants that are:
  - from the same educational level
  - knowledgeable about the topic and local conditions
  - not the object of study themselves; and
  - not biased concerning the topic (for example health staff are usually not the best possible interviewers for a study on alternative health practices).
- Train Research Assistants carefully in all topics covered in the field work manual as well as in interview techniques and make sure that all members of the research team master interview techniques such as:
  - asking questions in a neutral manner
  - not showing by words or expression what answers one expects
  - not showing agreement, disagreement or surprise; and
  - recording the answers precisely as they are provided, without setting or interpreting them.
- Pre-test research instruments and research procedures with the whole research team, including research assistants.

- Take care that research assistants are not placed under too much stress (requiring too many interviews a day; paying per interview instead of per day).
- Arrange for ongoing supervision of research assistants. If, in case of a larger survey, special supervisors have to be appointed, guideline should be developed for supervisory tasks.
- Devise methods to assure the quality of data collected by all members of the research team. For example, quality can be assured by:
  - requiring interviewers to check whether the questionnaire is filled in completely before finishing each interview
  - asking the supervisor to check at the end of each day during the data collection period whether the recorded information makes sense; and
  - having the researchers review the data during the data analysis stage to check whether data are complete and consistent.

### **3.5 Guidelines for Effective use of Interview**

1. The interviewer must create a congenial atmosphere of mutual respect, trust and understand she/he does this by:
  - giving the respondent the feeling that the experience she/he will gain from the interview will be pleasant and satisfying;
  - impressing on the respondent that the interviewer is reliable, responsible and trust worthy; and
  - convincing the respondent that the interview is important and his/her contributions are valuable and worthwhile.
2. A brief assertion of the understanding and interest which is communicated to the respondent with comments such as “I see” “yes” “uh-huh”, from the interviewer as he listens to the respondent.
3. An expectant pause. The simplest way to suggest to the respondent to say more may be pausing and wearing an expectant look or a nod of the head. This should not be used too frequently as it is likely to embarrass the respondent.
4. Repeat the question when the respondent appears not to have clearly understood it.
5. A neutral question or comment as a direct bid for more information. “Can you tell me more on that? Can you substantiate that statement?”

### **Administration of Interview Schedule and Questionnaire**

Once the researcher has decided on who his/her study population would be for the research study and the survey method to be used which could either be (questionnaire or interview schedule). The researcher success or failure then depends on the following:



- 1) Self presentation (appearance), do not overdress, under dress, be moderate, decent and cute.
- 2) Knock at the door if there is door or bell ring if available.
- 3) Greet appropriately and introduce yourself briefly
- 4) Do not call yourself investigator
- 5) Be received or properly welcomed first before asking questions.
- 6) Display self confidence and belief in your study
- 7) Make the respondent flattered
- 8) Treat your respondent with respect and courtesy
- 9) Be time conscious
- 10) Do not be over sensitive when respondent want to open up.
- 11) Thank the respondent for participation.
- 12) Probe the respondent for additional information.
- 13) Make accurate records with side note
- 14) Information collected with either of the instrument should be properly kept for onward collation and analysis.

### **Merits and demerits of Interview**

#### **Merits**

- i) Interviews are flexible especially unstructured interview hence researcher is provided with detailed and fresh information the researcher may not have predicted or anticipated.
- ii) Unclear question(s) can be easily clarified because the interview involves dialogue between the interviewer and interviewee.
- iii) Many respondents are always willing to talk than filling or answering questionnaire.
- iv) Interview is a two in one method because as the researcher is conducting the interview, he/she also has the opportunity of observing the respondent especially through non-verbal communication (e.g. facial expression) can be observed and noticed.

#### **Demerit**

- i) The major identified weakness of interview method is interview bias. The interviewer is flexible to vary his approach to fit the occasion and in so doing he/she project her/his own personality unto the situation and this influence the responses received.
- ii) Its rigid nature may not enable a researcher to probe in sufficient length and depth (most especially the structured interview).
- iii) It is difficult to quantify the collected data hence; it is rarely used for testing hypothesis (i.e. unstructured interview).

## **4.0 CONCLUSION**

In as much as interview involves eliciting information from the respondents through some verbal interaction between the subject and the researcher. A great deal of skill in communication is required in using this type of technique. It is therefore become very important for the interviewer (researcher) to gather required skills needed in asking the right questions and must know how to get the needed information from the respondents.

## **5.0 SUMMARY**

In this unit, you learned about the meaning of interview and classification of interview as one of the important research tool. You also learned about different types of interview used in gathering information (data) and measures promoting good quality of data. You also saw that interviewing, especially face-to-face interview, can be difficult and that was the reason why guidelines for effective use of interview was discussed. Merits and demerits of interview were not also left undiscussed in the unit.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. Mention and briefly discuss two classes of Interview
- ii. What are the differences between interview and questionnaire?
- iii. Enumerate the types of interview you are familiar with
- iv. State measures that facilitate good quality of data
- v. How could data be effectively utilized in research?

## **7.0 REFERENCES/FURTHER READING**

- Kerlinger, F.N. (1992). Foundations of Behaviour research, Florida USA: Harcourt Brace College Publishers, P.391-434
- Nworgu, B.G. (1991) Educational research: Basic Issues and Methodology, Ibadan: Wisdom Publishers Limited. P.81-111.
- Wiersma, W. 1994. Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305

## **UNIT 4 FOCUS GROUP DISCUSSION (FGD)**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning of Focus Group Discussion
  - 3.2 Focus Group Discussion Guide
  - 3.3 How to Conduct Focus Group Discussion
  - 3.4 Guidelines in Conducting Focus Group Discussion
  - 3.5 Writing the FGD Report
  - 3.6 Differences between FGD and Survey
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Focus group Discussion is one of the research tools/instruments used for data collection in a research study. It is geared toward gaining knowledge about a particular topic, event, object or phenomenon, by interviewing a group of people directly affected by the issue and allowing the respondents to talk freely and spontaneously with the aid of or by using discussion guide. That lists the main topic theme to be covered in the session.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define or explain focus Group Discussion
- State appropriate and inappropriate time for FGD.
- Discuss process(es) of conducting FGD
- Explain guidelines of conducting FGD
- Enumerate how to write FGD report.
- List differences between FGD and Surveys.

### **3.0 MAIN CONTENT**

#### **3.1 Focus Group Discussion (FGD)**

This is a technique of data collection based group discussion. It involves assembling a handful of people or a small group of participants to constitute groups (usually six to twelve), under the guidance of a moderator, to discuss or talk about some topical issues of social research interest or which are thought to be of special importance to the respondents themselves and to the investigation.

Focus Group Discussion (FGD) is a rapid assessment, semi-structured data gathering method in which a purposively selected set of participants gather to discuss issues and concerns based on a list of key themes drawn up by the researcher/facilitator (Kumar 1987).

The Focus group discussion has become extremely popular because it provides a fast way to learn from target audience (Debus 1988).

The groups should not be too few or too many in number, but just enough to ensure affective discussion on the problem by the people. Participants are selected from specific target groups whose ideas and experiences are germane to the study. The groups should be homogenous (i.e. group participants should be in-depth, i.e. touching on various aspects of the issue (or problem) under study. For discussions to be effective and productive, the investigator, researcher or facilitator must have substantial skill in group dynamics and motivation and must be capable of leading a discussion to reduce the amount of time spent on irrelevant matters. Below are brief pointers regarding the “why” and “how” of focus group.

When is focus group Appropriate?

Focus groups are appropriate when you want to:

- Explore the depth and nuances of opinion regarding an issue
- Understand differences in perspectives
- Understand what factors influence opinion regarding an issue
- Understand what factors influence opinions or behavior
- Test materials or products
- Test reactions to actual or proposed services
- Design a large study or understand its results
- Capture opinions and perspective of a program’s target audience
- Learn about participants by observing their interactions.

Focus Group is not appropriate when you:

- Need to ask participants sensitive information
- Need statistical information about entire population.
- Are working with emotionally or politically charged groups
- Can't ensure confidentiality
- Want people to come to a consensus
- Do not have the skills to analyse the data

A focus group is run by a facilitator who guides the discussion through a number of pre-set topics.

## 3.2 Focus Group Discussion Guide

To keep the session on track while allowing respondents to talk freely and spontaneously, the facilitator uses a discussion guide that lists the main topic or theme to be covered in the session. It serves as a road map that guides the facilitator in covering the list of topics and keeping the discussion on track. The number of items in the guide is generally kept to a minimum to leave enough time for in-depth discussion. It should focus only on relevant research issues. The sequence of topics in the guide usually moves from general to specific.

### Asking Questions during Focus Groups:

The quality of question asked on focus group can make a large difference in the kind of information obtained. Krueger (1988) gives some tips on how to handle open-ended and dichotomous questions in these discussions: open-ended questions are considered to be most appropriate because they aimed at stimulating discussion by allowing participants to answer from different angles. As the possible responses are not preconceived, open-ended questions give the participants opportunities to express their thoughts and feeling based on their specific situations. Krueger warns that some question may appear to be open-ended but are really closed –ended because they include phrases such as “satisfied” “to what extent”, or “how much”.

Dichotomous questions are ones that can be answered by a ‘yes’ or ‘no’ or other similar two-alternative items. As yes-no questions are dead-ends, they usually do not trigger the desired group discussion. They also tend to elicit vague responses that do not lead to an understanding of the key issues being discussed (Mowlton and Roberts 1994)

## 3.3 How to Conduct a focus Group Discussion

**Facilitator:** In selecting a person to moderate a focus group, such individual should possess the following important qualities:

- Familiarity with the discussion topic
- Ability to speak the language spoken in the area
- Cultural sensitivity, including not acting as a judge, a teacher, does not looking down on respondents, not agreeing or disagreeing with what is said, and putting words in the participants mouth
- Genuine interest in people
- Sensitivity to men and women
- Politeness
- Empathy
- Respect for participants.

## **Steps in conducting the session**

It is important that the facilitator should obtain the background information of participants such as age and other pertinent information before the focus group discussion begins. The topic of FGD usually determines the type of information that will be collected. Once this is done, this sequence of steps is carried out:

- 1) After a brief introduction, the purpose and scope of the discussion are explained
- 2) Participants are asked to give their names and short background information about them-selves
- 3) The discussion is structured around the key themes using the probe questions prepared in advance
- 4) During the discussion, all participants are given the opportunity to participate.
- 5) Use a variety of moderating tactics to facilitate the group. Among these tactics that the moderator can use include:
  - Stimulate the participants to talk to each other, not necessarily to the moderator
  - Encourage shy participants to speak
  - Discourage dominant participants through verbal and non-verbal cues. The following may be used when the situation permits:
    - Call on other participants
    - Politely intervene by saying, “maybe we can discuss that in another occasion...
    - Look in another direction
    - Take advantage of a pause and suggest that the subject can be discussed in detail another session.
  - Pay close attention to what is said in order to encourage that behavior in other participants
  - Use in-depth probing without leading the participants.

### **3.4 Guidelines in Conducting Focus Discussion (FGD)**

- 1) The FGD is an opportunity for the research team to listen and learn, and not to lecture or provide team members’ interpretation of the local biophysical and social system.
- 2) The team members agree on various task assignments including:
  - a) Facilitator/interpreter, b) rapporteur, c) logistic in-charge
- 3) Each team member must have a copy of the FGD guide. The list of themes to be discussed may be written on the board to serve as guide for FGD participants on the scope and progress of the discussion
- 4) Familiarize yourself with local terminologies/names to avoid misunderstanding of what farmers say
- 5) Keep an open mind and listen more. Do not push your own agenda (e.g. a new variety you have developed which you think will solve farmers’ problems)
- 6) Avoid questions that yield yes or no answers.

- 7) Avoid leading questions. Examples: Don't you think that variety x is an excellent variety?
- 8) Be sensitive to local norms and customs.
- 9) Remember that farmers' time is valuable to them. Strive to complete the FGD within the time period that you mentioned to participants
- 10) Don't forget to thank participants and local leaders after the conduct of the FGD.

### **Logistical Arrangement for FGD**

- Invitations – participants are contacted in advance, at least one to two weeks before the session. A letter of invitation may be sent to each participant, taking into consideration the prevailing practices in the area. Participants are also reminded about the focus group discussion one day before the session:
- Group Composition – The choice participants depends on the topic of the focus group. Often, the people who are included are those knowledgeable about the topic but at the same time, it is also wise to gather the views of certain groups in the target population. The optimal number of participants is 8-10. If a group is too small, one person in the group may dominate it; if it is too big, then it may be difficult to control. Group members should be representatives of the intended target population.
- Transportation – to ensure attendance, transportation is usually arranged for the participants from their residence to the focus group venue. In rural area, where farm families may reside in distant villages, participants could be asked to converge at a central location to facilitate pick-up.
- Venue – Focus group discussion can be conducted in a place where 8-10 persons can be seated and assured of some privacy. In the rural areas, the most readily available sites are school buildings, health and community centers and churches. An appropriate venue is a neutral place that is free from distractions and where participants can talk openly.
- Seating Arrangements – A semicircular seating arrangement facilitates interaction among participants because it allows them to freely see and hear each other.
- Timing – The timing of the meeting should be convenient to all participants. While waiting for other participants to arrive the focus group discussion team can use the time to break the ice by getting information about their backgrounds. To minimize boredom; focus group discussions are generally not stretched beyond two hours.
- Name tags – it is best to remember the names of the participants. Often, a seating arrangement will facilitate identifying each one. If the culture permits, providing nametags to participate is useful because it enables facilitators to call on those who may be too shy to express their opinions.
- Recording – A trained rapporteur should capture the discussion in writing and note the participants' nonverbal expressions. Situations may occur where the discussion needs to be take-recorded but facilitators should weigh the advantages and disadvantages.
- Refreshment after the sessions is a small gesture of appreciation to the participants for having taken off their work to participate.

### **3.5 Writing the FGD Report**

After conducting the focus group discussion, the key findings are explicitly described, analysed and comprehensively written up in a report. Debus (1988) suggests the following useful guidelines for analyzing data:

- 1) Develop a plan for analysis consisting of:
  - Background of the research
  - Objectives\methods\discussion details
  - Focus group discussion guide
  
- 2) Analyse the content of the group discussion by
  - Reviewing the notes from the focus group
  - Listening again to the cassettes from the session (if tape recorded)
  - Grouping research finding according to key themes
  - Identifying the different positions that emerged under each key theme
  - Summarizing each of the different positions and assess the extent to which each position was held by participants
  - Pulling out verbatim phrases that represent each position.
  
- 3) Synthesize the group discussion by:
  - Reviewing the notes of each discussion made by the moderator
  - Identifying the recurrent ideas that came out during the discussion
  - Interpreting these recurrent ideas based upon other finding that emerged in the groups.

#### **Bad FGDs**

- Overly strict concern with scientific need to record proceedings
- Negative Hawthorne Effects in evidence
- Participant are usually self conscious
- There is a tendency to play or speak to the gallery
- Stiff formal and fairly lifeless.

#### **Good FGDs**

- Refreshments are available
- Obviously engaging and lasted till date
- Occurring in conditions of high comfort level by participants
- A cosy and circular sitting arrangement

What to do when you need more information.

Whenever the participants are not providing or supplying enough information required by the researcher, the following probes should be tried or applied:



- i) Would you explain further?
- ii) Would you give me an example of what you mean?
- iii) Would you say more?
- iv) Tell us more
- v) Is there anything else?
- vi) Please describe what you mean
- vii) I don't understand
- viii) Does anyone see it differently?
- ix) Had anyone had a different experience/

### 3.6 Differences between Focus Groups and Surveys

#### Focus Group

- Provide depth over breadth
- Use small samples and the findings cannot be generalized
- Enable the agency to ask a variety of questions and explore the answers as they arise
- Generate rich, complex ideas and are difficult to analyse

#### Survey

- Provide breadth over depth
- Require large samples and are more readily generalized
- Are standardized but answers in-depth
- Can be relatively simple to analyse but yield less rich data

## 4.0 CONCLUSION

In this unit, you learned about focus group discussion. Focus Group Discussion is one of the research instruments or tools widely used for social research enquiry because it provides a fast way of learning directly from target audience. It also allows subjects the opportunity of talking freely and spontaneously and the researcher to get detailed information from the target audience.

## 5.0 SUMMARY

The concept focus group discussion was defined and appropriate and inappropriate period of make use of the concept were also stated in this unit. You also learned about focus group discussion guide, how to conduct a focus group discussion coupled with guidelines in conduction of focus group discussion. How to write FGD report was also stated and comparism between focus groups and survey were itemized.

## 6.0 TUTOR-MARKED ASSIGNMENT

- i. Identify things to avoid or what to avoid in order to have a successful focus group discussion.

- ii. What is focus group discussion? State when FGD is appropriate and not appropriate respectively.
- iii. Briefly explain how to conduct a good focus group discussion
- iv. Discuss how to write FGD report.

## **7.0 REFERENCES/FURTHER READING**

Debus, M. (1988). A handbook for excellence in focus group research. Healthcom Project special Report Series. Washington, D.C.: Porter/Novelli.

Krueger, R.A. (1988). Focus groups. A practical guide for applied research. Newburg park, California, U.S.A: Sage Publications, Inc.

Kumar, k. (1987). Conducting Focus group interviews in developing countries. A.I.D. program Design and Evaluating Methodology Report No. 8. Washington D.C.: U.S. Agency for International Development:

Moulton, j. and Robert, A.H. (1993). Adapting the tools to the field: Training in the use of focus groups. In: Seidel, R.E. (ed.) Notes from the field: Communication for child survival. Washington. D.C.: Academy for Educational Development.

ETR Associates at <http://www.etr.org/FFN/FGcourse/FocusGroupCourse.html>

## **UNIT 5 OBSERVATION AND INDIRECT RESEARCH TOOLS**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning of Observation
  - 3.2 Indirect Methods of data Collection
  - 3.3 Field Study
  - 3.4 Mapping and Scaling
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Observation is probably the most widely used method of securing or collecting data or information in descriptive research method. It entails both direct and indirect observation of phenomenon to be described, over a period of time. Complexity of phenomenon makes descriptive research important in the social sciences and therefore makes it necessary for a research to give a true picture of a situation or a population under study by being physically present to study, monitor, observe and report the trend of event or activities on the field precisely, objectively and accurately for the purpose of the research and future reference and review.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Explain observation
- State importance of preliminary steps to be taken during observation
- Mention and briefly discuss different types of observation
- Discuss indirect methods of data collection
- Explain field studies, mapping and scaling.

### **3.0 MAIN CONTENT**

#### **3.1 Definition/Meaning of Observation**

- Observation is the basic method of getting information about the world.
- Observation is a technique that involves systematically selecting, watching and recording behaviour and characteristics of living being, objects or phenomena.

- Observation is an approach that entails watching individuals, events or situations in a systematic manner with a view to obtaining information about the specific nature of such individuals, events or situations.
- It is a systematic method of data collection.
- The concise Oxford Dictionary defines observation as “accurate watching and noting of phenomena as they occur in nature with regard to cause and effect or mutual relations”

The main purpose of observation is to collate and synthesize information about and describe the behaviour of certain individuals or trend of events precisely as they occurred. Observation gives room for the collection of first hand information from the subject or field. It could also be the major method of gathering information (data) in situations (and on phenomena), which other methods of data collection might not be useful.

Observation may be made personally or mechanically. Both methods are widely used in survey research, but most observation is of the personal type. CCTV is a typical example of mechanical observation device or instrument used in the observation of activities of people within a given environment (that is CCTV camera being used as a security and safety monitoring device for both motorists and pedestrians on the major roads) most especially in the western societies and public places in Nigeria. Observation can give additional, more accurate information on the behaviour of people than interview or questionnaire. To gather data by direct observation, the researcher must first of all decide what to observe, select the process of observation and then decide on the particular group or the actual sample size to be observed.

### **3.1.1 Important Preliminary Steps to be Taken**

When using Direct Observation

- i) The aspect of behaviour, issue, event or phenomenon to be observed must be selected.
- ii) The behaviours, events, issues or phenomenon falling within the chosen category must be clearly defined.
- iii) The people that a researcher might want to use in carrying out the observation must be properly trained in order to achieve the objective(s) of the research.
- iv) A system or instrument that will be used for quantifying observation must be developed.
- v) Detailed procedures for recording the observation must be developed.

### **3.1.2 Types of Observation**

There are different methods/types of observation, and these include:

#### **i) Participant Observation**

This is a form of observation method where the researcher identifies with the group or situation being studied. That is, the observer poses as a member of the group being studied or he may also be a genuine member of the group.

For examples, in the study of some societies and culture, a sociologist or an anthropologist (as researchers) live in the society for some time or decide to become a member of a group in order to study the group through close observation. Also a criminologist who pretends to be a prisoner and stays in the prison in order to observe and get first hand information.

## ii) **Non-participant Observation**

The observer watches the situation, event, people, group, or phenomenon, openly at concealed, but does not participate. Here, the researcher does not identify with the group (or society) and does not take part in its activities. In this case, the researcher remains an outsider.

For example, wildlife studies in which the researcher stays inside the wild to observe the animal activities.

However, observation whether participant or non-participant could be in any form of the following:

- a) **Structured or Unstructured**  
Observation is said to be structured when the researcher selects (or controls) what to observe e.g. as in the use of check list. It is unstructured when there is no control that is non-selective.
- b) **Concealed or not concealed**  
Observation is concealed when the researcher and his/her intentions are not known to those being studied. When the researcher as well as his/her intentions is known, the approach is described as not concealed.

### **3.1.3 Disadvantages of Participant Observation**

- i) The risk with participant observation is that the role adopted by the observer will restrict his understanding of the situation. This is what Relay 1963 calls the biased view-point effect.
- ii) The success of the participant observer approach depends on his/her skill and personality.
- iii) Apart from the problem of objectivity, there is also difficulty of distinguishing between observation and inference.
- iv) Finally, participant observation has been seen as a somewhat individual method. One cannot expect it to yield identical picture if another use the method.

### **Instruments used in Observation**

The instruments used in observation are checklist and rating scale. A checklist contains the attributes of items which the researcher wants to observe and a provision for showing whether or not the attributes are present.

## 3.2 Indirect Methods of Data Collection

It has been ascertained that there are some research problems that might touch on issues that are controversial or sensitive. Consequently, such subjects might be reluctant or unable to discuss such topics/issues or give out information. Even, observational method might not be feasible for some problems. Methods are therefore devised to collect information on such problems are referred to as indirect methods. The methods are indirect because instead of making direct observation or asking direct questions on the problem under investigation. The researcher might draw inferences from other activities involving the subject. There exists many ways of accomplishing this; which include the following:

### 1) Projective Techniques

These are techniques of collecting data on peoples' perception and response to the world through the individual organization of events or situations. For example:

- (a) Thematic Apperception Test (TAT) that is widely used in psychology where a subject's manipulation of objects, pictures (Visual or verbal stimulus) is interpreted in terms of the subjects perception, emotions, attitude and feelings about the world. It is not the object or the picture that is of importance to the researcher as the underlying feelings or characteristics, of the subject manifested in the handling and comments about the object or picture.
- c) Another projective techniques include play techniques which involves the manipulation of dolls or other play objects; psycho-drama and socio-drama which involves acting out roles
- d) The third is verbal techniques such as sentence completion. That is presentation of a hypothetical question or an incomplete sentence or case-study to an informant (story with a gap). A researcher may ask the informant to complete in writing sentence such as:
  - The major trouble (problem) with Nigeria is .....
  - If I were to be tested positive for HIV, I would ....
  - If my wife were to propose that I use condoms, I would....
  - If I were to discover that my neighbour had Tuberculosis, I would...

These sentences could be completed in different ways by different respondents or subjects. The variations would be a manifestation of the differences in the characteristics, feelings, attitudes, emotions (etc) of the subjects about the questions asked.

Such techniques however, should be handled with great care, most especially if such researcher or one is not sufficiently trained or grounded in using techniques. The only beauty or benefit of the techniques is that they can easily be combined with semi-structured interviews or written questionnaires. They are also very useful in FGDs to get people's opinion/view on sensitive issues.

- 2) **Physical Traces:** At times inferences could be made about events by simple observation of “traces” for example the extent of flooding or erosion, tsunami, hurricane, conflagration, foot marks, finger prints, wear and tear of an object, Forensic material etc. This method is indirect because the researcher, expert or disaster management team were not (or could not have been) present at the time of the incident. It is also indirect because the observations made have implications or clues for understanding (or interpreting the problem or phenomenon under study.
- 3) **Content Analysis:** this involves analysis of the content of written communication as a manifestation of the characteristics and feelings of the “writer(s)”. Dairies, letters, minutes of meetings, Newspaper articles, editorials (etc) can reveal much. If the content is carefully studied and systematically analysed, it could lead to making useful inferences and conclusions, about the personality behind the communicative act, the time political climate and the effect (etc) of the communication.
- 4) **Statistical Record:** Statistical records constitute secondary sources of data for the researcher. To some extent, they also form part of the indirect method, since the researcher is removed from direct contact with the subject/phenomenon being studied. Conflict statistics, labour statistics, health statistics, educational records, police statistics (on crime, accident etc), statistical abstracts and other documentary sources like archival records and government publications (e.g. Gasette) are useful sources of data for the researcher.

However, great caution should be exercised generally in the cause of handing indirect methods of data collection, and secondary sources of information.

### 3.3 Field Study

Most social science researchers entail some elements of fieldwork by which the researcher establishes contact with the population (society, community or group) being studied. Although, many of the above discussed various methods of data collection involve some aspects of the field-studies could be restricted to Anthropology and/or Ethnographic field-studies which involve a detailed study of the life of a community or group. It usually involves some degree of participation by the researcher in the life of the community. A lot of revelations were discovered about different societies, groups of people and/or cultures through field- studies by sociologists, Anthropologists and Ethnographers. As applicable to other methods the researcher adopting field-studies approach, has to choose what to observe (study), since there are several areas or aspects of a community’s, group’s of society’s life that could be examined in field-studies.

### 3.4 Mapping and Scaling

#### 3.4.1 Mapping

Mapping is a valuable technique for visually displaying relationships and resources. It gives researchers a good overview of the physical situation and may help to highlight

relationships hither to unrecognized. Mapping a community or study area is also very useful and often indispensable as a pre-stage to sampling.

### **3.4.2 Scaling**

This is a technique that allows researchers through their respondents to categorise certain variables that they would not be able to rank themselves.

Mapping and scaling may be used as participatory techniques in rapid appraisals or situation analyses.

## **4.0 CONCLUSION**

In the course of conducting observation on an event, issue or phenomenon, researcher should try as much as possible not to interfere with the setting in which the observation is taking place. He/she should make a list of the relevant aspects of the situation to be observed, and may also ignore the first, two or three observations; in order to allow the group being observed returns to its normal way of life and to overcome the influence of the presence of the observer. In the case of indirect methods, effort should be geared toward getting information from a reliable, primary, sound competent source(s).

## **5.0 SUMMARY**

Under this unit, you have learned about the meaning of observation, types of observation, as well as their advantages and disadvantages. We also discussed several indirect methods of data collection of which the researcher lacks control over, and substantial knowledge of the data collection process. These could be potential source of errors and means that researcher needs to be especially vigilant and cautions.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. Distinguish between participant and non-participant observation.
  - ii. What is observation? State three limitations and two advantages of observation.
  - iii. Briefly explain the steps you would take in ensuring the reliability of data collected from observation.
- i. List and explain three (3) indirect methods of data collection.

## **7.0 REFERENCES/FURTHER READING**

Lumley, J. S.P and W. Benjamin (1989): Research: some ground Rules, Oxford New York Tokyo, Oxford University Press.

National Academy of Science (1995): On Being A Scientist: Responsible conduct in Research National Academy Press.



Nworgu, B.G. (1991): Educational Research: Basic Issues and methodology, Ibadan: Wisdom Publishers Limited, P. 81-111.

Statistical Services Centre, the University of Reading, UK (2000): Guidelines for Planning Effective Surveys

Wiersma, W. (1994): Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305.

Moser, C.A. and Kalton, G. (1979): Survey Methods in social Investigation. Gower Publishing company, Aldershot, England.

Gilbert, N. (1993): Researching social life. Sage publications, London.

Openheim, A. N (1992) Questionnaire Design Interviewing and Attitude Measurement Pinter, London.

Wilson, N and McClean, S. (1994) Questionnaire Design: A Practical Introduction. University of Ulster.

## **MODULE 3 SOURCES OF RESEARCH DATA / INFORMATION**

### **UNIT 1 LIBRARY AND RESEARCH**

#### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Library
  - 3.2 Library Classification
  - 3.3 Contribution of Ranganathan to Library Classification
  - 3.4 Cataloguing
  - 3.5 Electronic Library
  - 3.6 Search Engine
  - 3.7 Benefits of Library to Research
  - 3.8 Library Registration and Uses Procedures
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

#### **1.0 INTRODUCTION**

The importance of library to research cannot be under estimated. It could be said to be the backbone of foundation of any genuine, reliable, valid and dependable research study/work anywhere and anytime. There was a body of research supporting the view that school/institution library can have a positive impact on academic achievement particularly at the tertiary level. Several researches have also revealed that many students are not “information literate”. That is, they do not understand or know how to locate relevant information sources they encounter that can teach them valuable research skills and improve the quality of their research works.

Therefore, before any student can write or embark on a good and reliable research study, she/he must go to the library and make use of several available and relevant materials people have already written many overviews that outline important facts on the subject matter and as well provide a concise list of recommended readings.

#### **2.0 OBJECTIVES**

By the end of this unit and relevant references, you should be able to:

- Define library
- Explain library classification
- Discuss cataloguing
- Discuss indirect methods of data collection
- Explain filed studies, mapping and scaling.

### 3.0 MAIN CONTENT

#### 3.1 Meaning/Definition of Library

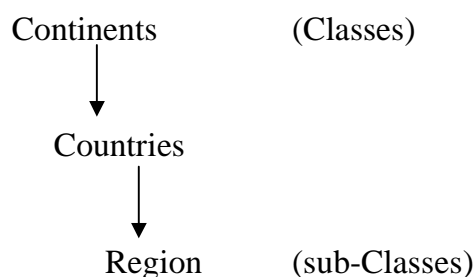
A library is a place where knowledge in whatever form print, electronic, tapes etc is deposited. Or A library is the storehouse of knowledge and wisdom which have accumulated since the beginning of time. A library is primarily set up to acquire, organize, store and make accessible to the users, within the quickest possible time all forms of information materials which they require.

Materials in the library are often organized to allow easy access of these information/materials.

The systematic acquisition, organization and dissemination of books, not mere label distinguishes a library from either a reading room, study, or a storehouse of books. The wide variety of materials found on any library demands a highly organized and involved system of classification. However, a researcher is not expected to attain the proficiency of a librarian, but facility in the use of the library and its materials is the key to research studies. Although, the researcher might have to consult a professional librarian occasionally, in order to locate unusual material, it is absolutely necessary that she/he be able to locate the more common sources quickly and efficiently, and be able to extract the information contained therein with dispatch and accuracy.

One of the ways materials are organized in the library is called “classification”. Classification ordinarily involves the grouping together of those items which have certain characteristics in common, and the separation of these from others which do not possess them. Classification therefore, can be defined as the process of grouping things concepts or ideas based on common characteristics. Classification also displays or shows the relationship between things and between classes of helpful sequence.

For example: Books can be grouped by making use of their colours; red one side, blue books on the other side, journals can be arranged according to their plates of origin or continents). You can go further by dividing them into smaller groups or sub-classes, e.g. countries of origin. By using territory, the collection could be divided into:



### **3.2 Library Classification:**

Library classification is the systematic arrangement of human knowledge recorded in various documents deposited in the library. For example, books, serials, tapes, films, microfilms, photographs, maps, computer diskettes, CD-Rom, external disk etc. library classification entails assigning each item to a specific class which in most systems is subdivided by subject e.g., economics, education, Agriculture, social sciences are different subjects that should be placed in different classes. Library classification aims at arranging the documents in a helpful sequence on the shelves and providing subject analysis of the content. For example, social sciences materials or peace and conflict studies materials could be kept together depending on the types of social sciences. Sociology will be kept together, psychology separately and economics separately from political science and geography. Books are generally arranged by symbol notations on the shelves. Notations consist of early recognized signs or symbols used to identify the various classes and subclasses. It could be in form of numbers, alphabet (pure notation) [30] or KN (pure notation) it could be mixed (K46).

Library and information centres do classify documents by grouping those with the same or related subject content together and assigning to them symbols or class-marks. The symbol or class-mark assigned identifies a document as a member of a specific group or class. This aids the library or information centre in organizing and retrieving materials.

### **3.3 Contribution of Ranganathan to library classification**

The role of Dr. R. L. Ranganathan to classification practice in librarianship is of great outstanding through his five laws of library science and principle of decreasing concreteness in classification of a subject popularly known as PMEST.

### **5 Laws of Library Science**

Ranganathan stated that:

- 1) Books are for use: This therefore means all books acquired should be exposed to users for long period of time instead of keeping them for reference purpose only.
  - 2) Every user his book
  - 3) Every book its user
- These two principles give preference library environment. Book should be classified and placed in such a way that users will be able to find them based on their understanding of the subject of the book. This is usually influenced by the environment and the understanding and background of the users, which give room for alternative placements.
- 4) Do not waste time of the library user: once a book is wrongly classified, it will take a longer time to find since it will be separated on the library shelves from other related materials.
  - 5) The library is a growing organism, which connotes that there should be constant acquisitions and preservation of materials in libraries. There should be constant

classification of library materials as they are brought. Classification and cataloguing should be continued in a library (whenever the need arises).

## **PMEST**

This is an acronym which stands for the following:

P = stands for personality which represents the most important/concrete element in a subject.

M = represent matter

E = stands for Energy

S = space and;

T = time.

### **3.3 Cataloguing:**

Is the process of producing a catalogue. Cataloguing like classification is a list of all the items (i.e. books, journals, photographs, micrograms, CD-Rom etc) in a library.

Cataloguing describes a book, pointing out its subject content which ultimately places the book in a subject class.

Chan (1994) defined a library catalog as a kind of bibliographic file which consists of a set of records that provides data about the items in the collection. It differs from bibliography or a periodical index in that all its records pertain to items in one or more libraries and carry information on where the items can be found.

The data on each catalog include:

- 1) A bibliographic description giving the identification, publication and physical characteristics of the document.
- 2) A call number (consisting of classification number based on the subjects content and a book number based on the author, the title pr both that indicates the location of the items in the collection.

There are many multiple access files which offer many ways to retrieve a particular record by author, title, subject and other characteristics in library catalogs.

Primary forms for library catalogue.

There are different forms of primary library catalogue which include:

- 1) The card catalogue
- 2) The book catalogue
- 3) The microform catalogue
- 4) The computer-accessed catalogue
- 5) Online catalogue

**Card Catalogue:** This is a type of catalogue, in which cataloging entries are recorded on 3 by 5 cards, with one entry per card or set of cards. Each entry could be revised, inserted, or deleted without affecting other entries. A card catalogue lists a library's book holdings. Each card will provide you with a call number that will enable you to locate the desired volume on the shelves. The call number resides in its upper left corner.

As a rule, every book held by the library will be represented by several cards filled at different places, with each presenting an essentially identical description of the book. The only difference will be on the top line, which determines where the card will be filed, one will be under the name of the author, another under the title of the work and one or more will appear under subject headings assigned to correspond to the content of the books. Some libraries have catalogues in which all the three types of cards (author, title and subject) are interfiled in an alphabetical order or sequence, A-2, near the bottoms of its cards are what are called training which are records of the secondary headings (or added entries) under which the record is filed.

### **Online Catalogue:**

A library with an online catalogue is the type in which user can retrieve catalogue records directly from a computer database, by means of monitor. The records of an online catalogue may be stored in mainframe or a mini-computer connected with a public-access terminal. In either case, users are literarily online to the data base. The CD-Rom (compact disk-read only memory) is another type of online catalogue in which data-base is periodically copied into compact disks, which can be accessed through stand-alone microcomputer.

### **Cataloguing facets**

- 1) **Descriptive cataloguing:** This gives the physical and other bibliographic details of the book (series, illustrations, ISBN, dimension, etc).
- 2) **Author/Title Headings:** This gives the author/title of the book. The tool in descriptive cataloguing is the Anglo-American cataloguing Rules (AACR II 1988, amended version of AACR II 1978)
- 3) **Subject Cataloguing:** This points out the subject(s) treated by the book. A book on "crafts making" may have dwelt on distinct subjects like weaving, carpentry, blacksmith and painting. In subject cataloguing, headings are assigned to all major subject contents of the book to facilitate easy access to it by readers with differing interests.

The subject cataloguing tools most popular with Nigerian libraries are the Sear's list of subject Headings and the Library of congress subject Headings.

The most popular classification schemes:

- i) **Dewey Decimal Classification – DDC** (very popular with special, school and public libraries in Nigeria).

- ii) Universal Decimal Classification – UDC (used at present, mainly by some research libraries).
- iii) Library of Congress Classification – LC (popularly used by academic libraries all over the world). LC is used with a Cutter Table.

### **3.5 Electronic Library**

Electronic Library is a library where information is stored electronically online as well as in CD-ROMs and DVDs. The major carrier of e-library is the internet. The data may or may not be unique in an electronic format i.e. some, if not much of it is duplicated in print. Library access as well as offsite use is made easier by inexpensive hardware and software.

Access to e-library is via an Internet service provider (ISP) is many big libraries. Also, at home one can access e-library with the help of modern being provided by many of our communication companies in Nigeria which could be a daily, weekly or monthly subscriptions depending on individual financial capacity. With the floodgates opened, there are now billions of pages of data on the net. The internet is totally open, and interactive in nature, but without built in-editor, publisher, censor or even fitters. With a mouse click, you can wander or enter into any library of your choice and no one is there to stop, caution, or direct you.

### **3.6 Search Engines**

In many computer searches, a password(s), surname and sometimes authorization code(s) may be required but you can gain access to full-text items. Passwords may be allocated automatically by the library, your department, or authorized IT officer or staff. Search engines store very large numbers of database, looking for sources which mention your keywords/index terms/phrases which provide access to thousands of web sites.

Researcher can use any of the required or needed information on the internet:

- i) Goggle (<http://www.goggle.com>)
- ii) Yahoo – (<http://www.yahoo.com>)
- iii) Alta vista – (<http://www.altavista.com>)
- iv) Meta crawler (<http://www.matacrawler.com>)

#### **3.6.1 Guide for searching for information on the internet**

- i) Allocate enough time for yourself
- ii) Be optimistic that you will find exactly or similar things you are looking for.
- iii) Be prepared
- iv) Know your search engine
- v) Document any useful information found.
- vi) Don't underestimate the information or website
- vii) Avoid spam
- viii) Networking – endeavour to get relevant information your colleagues

- ix) Referencing – always acknowledge the source of information you get from the internet
- x) Patience and persistent. The two are key works for internet searching.

### **3.7 Benefits of Library to Research**

- 1) It enables student/research to develop a suitable topic for research, using the library reference collection and other sources of background information.
- 2) Library allows researcher/student be select and use the most appropriate library catalogs, article databases and printed indexes, and internet search tools to locate relevant and timely materials.
- 3) It gives students the opportunity to distinguish between popular and scholarly sources and detect signs of bias, whether the material is in printed form or on the internet
- 4) It teaches student valuable research skills and improve the quality of his/her paper(s).
- 5) Student learns the difference between “surfing the Net” and carrying our substantive research.
- 6) It enables student to give appropriate quote and cite sources in a way that gives proper credit to cited scholars and avoids plagiarism.
- 7) It exposes students to techniques of evaluating web sites and of proper citing of online material.

### **3.8 Library Registration and uses Procedures:**

Each and every library is set up for a group pf people. National, state or public libraries are open to everybody, while other libraries try as much as possible to restrict their user registration to the groups of people for whom the libraries were established. However, all libraries have regulations stipulating who is guiding the conduct of activities in libraries.

Potential library users are required to register before being permitted to use the library. Every library designs registration forms and cards to suit its peculiar situations. Essential to every registration form is the identity of the potential user, (name, residential address, occupation etc). The provision of space for a guarantor is also very important. Acceptable guarantors are those who hold responsible public posts, have reasonable business establishments. In academic libraries, heads of departments, deans of faculties, etc. are the guarantors acceptable for the registration of every potential library user (student). The official stamp and signature of the guarantor are required on the registration card before a potential user is registration in most libraries is from of charge and expires or lapses at the end of each year while in most higher institutions, registration expires at the end of completing the course of study. In the case of the former, a library user is therefore required to renew his or her registration annually. A library user is therefore required to renew his/her registration annually. Many libraries require the passport photograph of potential users for registration. This is done in order to ensure that the library is dealing with the right user all the time, especially in lending transactions. A library user may be permitted to delegate someone to return books borrowed by him/her to the library but not permitted to elongate someone to borrow books for him.



After registration, a potential user is given a library ticket (identity card) called borrower's ticket. This entitles the user to borrow a given number of books as stipulated in the library's regulations. Users are eligible to borrow 2 to 7 books depending on which library and the users – book ratio. A fee is usually charged for a replacement ticket, if a user loses his/her lending ticket issued to him/her. This defers users from being unnecessarily careless with lending ticket issued to them.

#### **Overdue:**

A library book is said to be overdue if a borrower fails to return it on the date stipulated on the book card and date due slip. Every library has a circulation or loan policy stipulating the number of books each category of user is entitled to borrow and for how long. Loan period in most Nigerian libraries range from two weeks to one month (in well developed academic libraries).

Usually, in most libraries, an overdue notice or letter is sent to a user who has failed to return the library book loaned to him/her on time in order to remind such a defaulting borrower that the library book in his/her possession is due for return. Every library usually fixed overdue fine for defaulting user.

#### **4.0 CONCLUSION**

In as much as library is the storehouse of knowledge, it is therefore imperative for any student or researcher to be familiar with the facilities and materials available in the library and how best he/she can utilize them to his/her advantage. Proficiency in the use of the library for the review of literature and theoretical framework is a function of the ability to locate sources directly, to browse through multiple sources and to call relevant materials and to interpret and organize them for the research work or thesis.

#### **5.0 SUMMARY**

In this unit, the meaning of library was extensively discussed together with library classification and cataloguing for proper understanding of the basic rudiment of library operations. Electronic library was also explained while various search engines was mentioned and guides for searching information on the internet itemized. Benefits of library to research were not left out while library registration and uses procedure were both discussed in order to familiarize the student or reader with the processes of registering with both public and private libraries as a prospective user.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

- 1) A student or researcher best comparison should be library. Discuss.
- 2) Electronic library might not be the best source of information or materials for a researcher at times. Expantiate.
- 3) No library, no research. True or false
- 4) What is classification and what significant importance is it to the library administration.

5) Define cataloguing and briefly explain some of its components.

## **7.0 REFERENCES/FURTHER READING**

Chan, L. M. (1994) *Cataloguing and Classification: An Introduction USA*, McGraw-Hill, Inc.

Katz, W. A. (2002) *Introduction to Reference work. Basic Information services*, New York, McGraw-Hill Inc.

Kumar, K. (1981) *The Theory of Classification 2<sup>nd</sup> Rev. Edu.* Gbazebad, India: Vi/ca Publishing House 538p.

Nwalo, K. V. and Ohaegbu G. A. (1997) *Classification Centres* 54p (Manuscript)

Mann, T. (1987) *A Guide to Library Research Methods*, New York, Oxford University Press.

## **UNIT 2 USE OF INTERNET RESOURCE FOR RESEARCH PURPOSE**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Internet
  - 3.2 Types of Information Resources on the Internet
  - 3.3 Basic Internet Tools
  - 3.4 How to find Information on the Internet
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In this present era of research study, whether the intent of the researcher is to conduct descriptive or inferential types of research, he or she must engage in some sort of interaction with the computer. This interaction or relationship could be structured in many ways depending on the degree or depth at which the researcher wants the relationship or involvement with computer to be.

However, the internet is a very useful tool for research and it is free for all in most cases. But without proper clear understanding of the components and the use of computer, there is no way by which the researcher can have access to the process or procedure of information loading and retrieval from the internet. Getting high quality web materials could also be very tasking compared to getting information from printed school books and journals.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings you should be able to:

- Define or explain what internet is all about
- Enumerate and discuss various types of information on the internet
- Understand basic internet tools
- Explain how to find information on the internet

### **3.0 MAIN CONTENT**

### 3.1 Meaning/Definition of Internet

The internet is made up of many thousands of smaller networks that are linked together to form a global network of computers-while internet is a local network of computers.

These networks use (Transmission control protocol/internet protocol), which are a set of rules that allow computers that are connected to a network to internet with each other or one another, whether they are windows – based, mackintoshes, UNIX machine or running on any other operating system. Any network can join the internet as long as it uses the internet protocol. The Wider Area Network (LAN) is a network spanning an area farther than 5 kilometers or less. The LAN has several advantages-such as: it reduces bandwidth consumption and is fast. It is tailored towards local needs and is used for library catalogues.

#### 3.1.1 Internet Services

The services being provided by the internet can be divided into two broad areas namely:

1. Communication and Information
  - (i) Communication: The internet serves as a medium of communication by providing service either by sending a message to a family member, colleague in another office, or contacting or linking a thousand other researchers around the world working in a particular subject area or similar or same field.
  - (ii) Information: Internet provides an ever-increasing quantity and range of information in a number of different formats. It is also possible to make available personal information (research papers, announcement, organizational and so on) to a worldwide audience by using the internet; we should also be aware of the fact that as internet tools become more powerful, there is an increasing overlap in these services and the distinction between services that provide access to information and those that allow communication is becoming blurred.

### 3.2 Types of Information Resources Available on the Internet

Access to information resources on many subjects are made available or provided on the internet in various formats which include:

- **Documents:** Many different document formats are available such as: plain text (ASCII), word-processed presentation and so on.
- **News:** News on various topics ranging from academic to trivial issues can be obtained from a variety of sources. Electronic versions of a number of newspapers provide national and international news daily. For examples, the guardian, Nigeria

Tribune, the Sun, Compass, the nation and weekly magazines such as The News, Tell, Newswatch etc. can be accessed on line.

- **Library catalogues:** The library catalogues of many universities are available over the internet at both national and international levels as (OPACs) online Public Access Catalogues.
- **Software:** Several thousands of free software applications can be obtained from large software achieves such as public domain software and commercial software as well as trial versions of commercial software available for free download.
- **Graphics, audio and video files:** Multimedia information in many forms or versions are being made available in large numbers day in day out as a result innovation and development in information technology.
- **Directory Services:** Although, no complete directory is available on the internet but a number of directory services are available for example, yahoo ([www.yahoo.com](http://www.yahoo.com)) is one of the most popular internet directory services. Staff directory are also provided by some organizations containing job titles, telephone numbers and e-mail addresses on their websites.
- **Databases:** A number of useful databases (both full text and abstracts) can be accessed via the internet.
- **Books and Journals:** Several books as well as journals are available in electronic forms on the internet for quick and easy access for prospective subscribers.
- **Blogs:** A new feature that is gaining increasing popularity is the “blog weblog”. Blog is an abbreviated version of weblog, which is a term used to describe web sites that maintain an ongoing chronicle of information. A blog is a frequently updated, personal website featuring diary type commentary and links to articles or other web sites. Blogs range from the personal to the political, and can focus on one narrow subject or a whole range of subjects. Many blogs focus on a particular topic, such as web designs, politics, sports, conflict, economics or mobile technology. Some are more eclectic, presenting links to all manner of other sites. Others are more like personal journals, presenting the author’s daily life and thoughts.
- **Junks:** These are forms of information made available on the internet which a lot of it can false or misleading. Therefore, internet users have to carefully evaluate or screen whatever information they obtain over the internet before they access or open them as some information might even be virus which could be harmful or dangerous to their systems (computers)

### 3.3 Basic Internet Tools

- i) **Telnet:** Telnet allows a user connect to a remote computer across the internet network such that the capabilities or services hosted on the remote computer can be accessed and used via a local computer. In order to satisfy security requirements, the services are subject to a number of restrictions.
- ii) **File Transfer:** It is also referred to as File Transfer Protocol (FTP), and the facility allows files to be moved from one computer to another. The files could be in form of documents, software, graphics etc. like Telnet. ETP is sometimes subject to some security restrictions.

- iii) **Electronic Mail (E-mail):** Electronic mail or e-mail is the oldest and most widespread application of the internet. E-mail combines the speed and convenience of the fax machines with the information of the telephone. It is extremely cost-effective and allows messages to be sent between computers unlike the traditional postal system 'snail mail'. Each and every e-mail user has his/her own e-mail address. For example.

Personal e-mail address [peace@yahoo.com](mailto:peace@yahoo.com) or [peace@hotmail.com](mailto:peace@hotmail.com)

**Educational Institution e-mail address:**

[apeace@nou.edu.ng](mailto:apeace@nou.edu.ng) or [Ado.Jhon@ui.edu.ng](mailto:Ado.Jhon@ui.edu.ng) US president e-mail address:  
[President@whitehouse.gov](mailto:President@whitehouse.gov)

The second example is a commercial site, indicated by 'co' before the country code. The last example is the US president's e-mail address: it should be noted that there is no country code since e-mail was invented in the USA. US e-mail addresses usually omit a country code. The contents of most e-mail are just plain text, however, many mailers (e-mail software) allow users to send attachments' which could be word processed documents, graphics or other files. When sending an attachment you should be sure that the recipient's e-mail software can cope with it when it arrives. A number of organizations offer free e-mail accounts e.g. Yahoo mail (<http://mail.yahoo.com>), Hotmail ([www.hotmail.com](http://www.hotmail.com)) and so on.

- iv) **Mailing lists:** Mailing list or discussion list is an extension of the e-mail (commonly called listserv). This facility gives room for subject-based group communication. By joining a list, a user will receive all mails sent to the list and can in turn send one message to a special address and have it distributed to all other list members. Lists can be local, national and international. They can have thousands or half-a-dozen of members. The lists can be in various forms ranging from academic and research-oriented or cultural and recreational. They used for a wide range of purposes such as informal discussions, dissemination of information, surveys and questionnaire, and locating colleagues with similar interests. While many lists are public and open for anyone to joint, others are private and closed. National groups often use mailing lists to supplement their meetings and even hold electronic meetings which are run over a specific number of days by a chairperson using an agenda.
- v) **Newsgroups:** The Newsgroup (also known as News or use-net News) is another group communication forum that has been in existence and use for several years in the Newsgroup. Like mailing lists, Newsgroups are subject-based and there are thousands in existence. Unlike mailing lists, newsgroups are like electronic bulletin boards. Messages to a group (known as postings) are stored on a computer sever

and users have to access this computer in order to read them. Group participants can use the group to make announcement, ask for answers to problems, air opinions and so on. Many newsgroups are international and are very verbose with hundreds of posting everyday.

Newsgroups are organized into hierarchies based on prefixes. For example, all the science-based groups such as sci-environment are grouped together under the “sci” prefix. Although, messages to a group look like e-mail messages, the sender does not use e-mail software to contribute. A special piece of software called a newsreader is required. An institution or organization that receives a large number of newsgroups can have storage problems if postings to then group are kept indefinitely. Most institutions normally store Newsgroups for a limited time before deleting them.

vi) The World Wide Web

The World Wide Web (www or Web for short) is current the most widely used internet service. It is the nearest approach so far to an integrated interface to the many networking tools that are available on the internet. The web is fairly unique among internet services because its protocols allow for a web server to send information of many different types (text, sound, and graphics) as well as offer access to other internet services. In addition to documents, the web provides access to Telnet sessions, ETP archives, Usenet News archives, database searching, name searching and so on. It also combines several Internet protocols including e-mail, Usenet news, ETP and Telnet. The flexibility also contributed to the success and popularity of the web.

The World Wide Web is based on a client -server architecture and uses the concept of hypertext or text with links that can be followed electronically to other documents, files, sounds, images, or even programs. The main advantage of power of hypertext lies in its ability to link different pieces of information in simple ways at exactly the spot at which you thought of the connection. In this sense, hypertext links are like footnotes, except that they are easier to follow and can be any length. A link might be to another page on the same document or to another document or file located on another computer anywhere in the world. A document might include many links to other documents held on many different servers. Words or phrases in the document that are linked to further information will be highlighted to denote their “hypertext” status. Selecting any one of those linked words will enable one to view the related document wherever it is. Unlike the other main information retrieval tools, www allows a user to view formatted documents as well as graphics on their computer screen. WWW clients (software for navigating the web) are known as browsers. There are browsers for most platforms ranging from plain, line-oriented browsers to ones with a sophisticated graphical interface such as Netscape Navigator or Internet Explorer. Web protocols not only allow for more interactive, multimedia presentations of information, the typical web browser can also after its users access to other internet resources, making a web browser perhaps a user’s most valuable Internet application.

The hyper text mark-up language or HTML is the primary language used in formatting documents for display on the web. HTML is a relatively simple set of codes that converts or turns ordinary text into hypertext when viewed by a web browser. One good thing about the system is that it is neither compulsory nor necessary that it must be viewed on the same system that created it. Meaning that, an HTML file created on a Macintosh computer will look just about the same when viewed on IBM. Another beauty of it is that all links will function in exactly the same way. The ability to move a single file between more than 30 different types of computer systems and have it work the same way in all of them is referred to as **portability**.

In addition, the World Wide Web is made up of millions of web pages, with each being 'served' by a browser (when requested) one page at a time. A web page is generally a single HTML document which might include text, graphics, sound files, and hypertext links. Each HTML is a single web page regardless of the length of the document or then amount if information included. HTML

Document names will end with the extension “.htm’ or “html: diagram pg. 159

The client Architecture

- vii) Web site: This is a collection of Web pages under the control of a particular person, organization or group. A web site generally offers a certain amount of organization of its internal information. A browser usually starts with an index or default page and then uses hypertext links to access more detailed information. Another page within the Website may offer links to other interesting sites on the web or just about anything else.

Uniform Resource Locator: Uniform Resource Locators (URLs) is used by the World Wide Web to represent links to services and resources within HTML documents. A URL identifies particular internet resources, for example a web page, an FTP server, a library catalogue, an image or text file, etc. URLs represent a standardized addressing scheme for internet resources and help users locate these resources by indicating exactly where they are. Every resource available via the World Wide Web has a unique URL and it is possible to represent nearly any file or service on the Internet with a URL.

Example of URL:

- <http://www.hcc.hawaii.edu/directory/book.htm> connects an HTTP server and retrieves an HTML file.
- <http://www.eff.org/directory/>-Displays a directory's contents
- <ftp://www.xerox.com/pub/file.txt>-Opens and FTP connection to [www.xerox.com](http://www.xerox.com) and retrieves a text file.
- <telnet://www.hcc.hawaii.edu:1234>- telnets to [www.hcc.hawaii.edu](http://www.hcc.hawaii.edu) port 1234.



The first part of the URL (before the two slashes) specifies the method of access. The second is typically the address of the computer where the data or service is located. Further parts may specify the names of files, the port to connect to, or the text to search for in a data base. A URL is always a single unbroken line with no spaces. Sites that run World Wide Web servers are typically named with www at the beginning of the network address. Also, most web browsers allow the user to specify a URL and connect to that document or service. When selecting hypertext in an HTML document, the user is actually sending a request to open a URL. In this way, hyperlinks can be made not only to other texts and media but also to other network services.

### **3.4 How to find Information on the Internet**

In this present day era, that the whole world is now a global village with advent of science and information technology, information or events occurring in thousands of kilometers away are now being made readily available in every parts of the world even homes within a tinkle of an eye. The internet has become one of the most important sources of information on almost any topic under the sun. It has been described severally as an ‘information treasure trove’, an ‘information superhighway’, and as an ‘Infobahn’. The internet cannot be likened to a library that all its available items are identified and can be retrieved by a single catalogue. There exist many millions of files available over the internet and this poses serious problems to someone trying to locate particular information using the internet. However, one can conduct a successful search on the internet by making use of a number of strategies.

One of the most efficient ways of conducting a search on the internet is to use the world wide web because it includes most internet services, it offers access to a great deal of what is available on the internet.

The following basic ways of accessing information on the internet are identified and listed by Cohn (2005)

- Join a discussion group (mailing list) or Usenet newsgroup. A good web-base directory used to Usenet newsgroups is Telnet, located at <http://tile.net/>.
- Go directly to a site if you have the address. This is done by typing the URL of the website directly into the address bar of your browser window and clicking ‘Go’ on the browser toolbar or pressing the ‘Enter’ key on your computer keyboard.
- Browse the www. This is an interesting, though haphazard, way of finding desired material on the internet. By starting from one homepage, a searcher can follow links to information and other sites of internet. A home page is the starting or index page of a website. Creators of homepages usually provide links to other site on the web. A good starting point is the home page of any organization in your subject area of interest.

- Explore a subject directory. Large number of organizations and individual are creating directories to catalogue portions of the internet. These directories are organized by subject and consist of links to internet resources relating to these subjects. Most directories provide a search capability that allows a user to query the directory's database on his/her area or topic of interest.

- There are two (2) basic types of directories:  
Academic and professional directories which are often created and maintained by subject experts to support then needs of professional and researchers and directories contained in commercial competing for traffic. Examples are:

Academic -

Commercial - yahoo! ([www.yahoo.com](http://www.yahoo.com))

- Explore the deep Web: The 'deep' or invisible web refers to content that is stored in databases accessible on the web but usually not available via search engines. In other words, this content is 'invisible' to search engines. This is because spider (search engine software) cannot or will not enter into databases and extract content from them as they can from static web pages. In the past these databases were few and were referred to as specialty databases subject specific databases, and so on. The best way to access information on the invisible web is to search the databases themselves. Invisible-web.net ([www.invisible-web.net](http://www.invisible-web.net)) is a small side that lists databases on the web. It is a directory of high quality databases especially useful to researchers.

Topics covered by databases in the invisible web range scholarly recourse to commercial entities. Very currently dynamically changing information is likely to be stored in databases, including News, job listing, available airline flights and so on. Many search engines sites and commercial portals feature deep web content as part of their package of services. This phenomenon is referred to as 'converging content' for example, you can visit Alfa Vista and look up news, Maps, jobs, auctions, items for purchase, etc, all of which fall outside the purview of a spider – gathered index. All Google also integrates searches of PDF and Microsoft office files into its general; service

- Conduct a search using a web search engine. Search engines are the tools that provide subject access to websites. There are many search engines available but all of them search differently and none of them search the entire World Wide Web.

### **Tips on conducting searches**

- Read the directions on each search site. The technique for formulating a search depends of the search engine you are using. There are a wide variety of options available among the different search engines

- Check you Spellings
- If you result are not satisfactory, respect the two sear engines work from the same index.
- Try search engines that allow you to search multiple search engines simultaneously (Mera search engines). Be aware that you will lose access to advance to advanced every option since not all engines off them.
- If you have too many results or results that are not relevant try the following:
  - Add concept words. Some search engines allow you to search again within existing results. Try this option at Google ([www.google.com](http://www.google.com))
- Use vocabulary that is specific to your topic; avoid words with general concepts
- Link appropriate terms with the Boolean AND so that each term is required to appear in the record.
- If one of your search terms is a phrase enclose it within quotations e.g. global warming.
- Use the Boolean Not to keep out records containing terms you do not want.

If you have too few results:

- Drop the least important concept(s) to broaden your subject.
- Use more general vocabulary
- Add alternate terms or spellings for individual concepts and connect with the Boolean OR
- Try the option available on some engines to find related lists. Google, Meta Mission (<http://metamission.com>) and Profusion ([www.profusion.com](http://www.profusion.com)) are among the engines that offer this feature.

#### **4.0 CONCLUSION**

As earlier discussed, materials on the internet are of various quality. While some are carefully researched, written and are of high standards or qualities, others are of low standards frivolous, even vulgar. Therefore, any intending researcher or a student should endeavour to examine the genuineness, the source of information, the scope of information, the identity and qualification of the author before such information is adopted and used for academic work.

## **5.0 SUMMARY**

In this unit, you learned about internet types of information resources on the internet and how a student or researcher can source for information on the internet for the writing of term paper, assignment, journal article, thesis, book, research study and so on. We also discussed about various basic internet tools through which information are made available and could be transferred from one point to the other as quickly as possible.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is Internet? Explain two (2) major services being provided by the Internet.
- ii. Enumerate types of information resources available on the internet
- iii. List and explain five (5) basic internet tools
- iv. Of what importance is internet to a student and a researcher?

## **7.0 REFERENCES/FURTHER READING**

Cohen, Laura (2002) Conducting Research on the Internet. Available online:  
<http://library.albany.edu/internet/reseach.html>.accessed....

Harris, Robert (1997). Evaluating Internet Research sources. Available online:  
<http://www.virtualsalt.coln/evalu8it.htm>.accessed.....(date)

## **UNIT 3                      RESEARCH ETHICS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Research Ethics
  - 3.2 Fundamental Research Ethics Principles
  - 3.3 Historical Background of Ethics in Research
  - 3.4 Informed Consent in Research
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In the course of carrying out a research study, a researcher is expected to follow some fundamental moral values and procedures to safe guide conduct of research, such that all studies would be conceived, designed, and implemented according to the highest stipulated standards. This requires that the design and methods of the proposed study should be reliable and valid such that they will be practically feasible, answer scientific questions, follow accepted principles, off plausible data analysis plan and balance risks against benefits.

### **2.0 OBJECTIVES**

By the end of this unit and the relevant readings, you should be able to:

- Define or explain research ethics\give an account of historical background research ethics
- Explain basic principles of ethics in social research
- Enumerate importance of ethics in research

### **3.0 MAIN CONTENT**

#### **3.1 Definition/Meaning of Research Ethics**

Ethics means the best of practice or connotes what is morally right and what is not. It also means fundamental moral values shared by researchers which tend to analyse what action is good or bad.

According to Cambridge international Dictionary, ethics has to do with or relates to moral action and conduct, i.e. what is professionally right. It is about conforming to professional standards. Ethics is defined according to Webster's Encyclopedia of dictionaries, as relating to morals or moral principles and the philosophy which treats human character and conduct, of distinct between right and wrong and moral duty and obligations to the

community. It also defined ethical as “conforming to the standards of conduct of a given profession or group”.

A research study may achieve one of the following objectives: breaking new grounds, further break through thus advancing knowledge beyond an existing breakthrough and re-emphasising or re-assertion of an existing breakthrough. The utility of the third objective lies in the justification or acceptance of an existing conclusion in respect of the earlier breakthrough. It is essential to be conscious of the fact that certain characteristics or features are common to all research efforts.

These characteristics include:

- Originality
- Usage of acceptable research methodology and in the case of the use of new methods, justification for it and its acceptance for further research.
- Usefulness: it must be a useful product of human effort and it must be legal.

In the process of carrying out a research study, the researcher is permitted, indeed expected to consult existing literature on the subject matter of the research. The sources of consultation, the existing literature or research effort must however be stated clearly. The underlying reason for this is that an existing research effort or literature may ginger up thought and may ultimately produce further break-through.

It is also permitted to consult existing literature in order to give validity to one’s effort. The researcher is allowed to do this as long as it is within the permissive extent of the law.

### **3.2 Fundamental Research Ethics Principles**

The three basic or core principles that are particularly relevant to the ethics of research involving human subjects, originally articulated in the Belmont Report, form the universally accepted basis for research ethics are as follows:

- ii. Respect for person
- iii. Beneficence
- iv. Justice

i. **Respect for Persons:**

This is based on informed consent. It requires that human subjects be clearly informed on the risks, benefits and alternatives relating to their involvement in the research. It also involves voluntariness and freedom to withdraw. Or

It requires a commitment to ensuring the autonomy of research participants, and where autonomy may be diminished, to protect people from exploitation of their vulnerability. The dignity of all research participants must be respected. Adherence to this principle ensures that people will not be used simply as a means to achieve research objectives.

**ii. Beneficence:**

Beneficence is concerned with benefiting maximally and minimizing harm. It is also concerned with eliminating unnecessary risk and placing emphasis on safety. In fact, it is advisable to e.g. avoid human subjects if possible; risks to subjects require justification. In addition, there should be a high likelihood of significant benefits to others. Subjects should freely volunteer and there should be no brutal or inhumane treatment.

On the other hand, we can also say beneficence requires a commitment to minimizing the risk associated with research, including psychological and social risks, and maximizing the benefits that accrue to research participants. Researchers must articulate specific ways this will be achieved.

Responsibilities of the Human Subject:

The Human subject must insist on:

- a) A clear understanding of the study and his/her rights;
- b) That the exercise or study is a research project;
- c) The purpose of the study;
- d) Expected experiences of participation
- e) Length of participation
- f) Compensation of any;
- g) Risks/injury if any as in investigator's responsibilities; and
- h) How participation benefits hum her or others.

**iii. Justice**

This requires a commitment to ensuring a fair distribution of the risks and benefits resulting from research. Those who take on the burdens of research participation should share in the benefits of the knowledge gained. Or, to put it another way, the people who are expected to benefit from the knowledge should be the ones who are asked to participate.

Alternatively, justice means that there should be fair procedures for recruitment and subjects should not be selected because of their vulnerability. Also the benefits of research should be fairly distributed.

In addition to these established principles, some bioethicists have suggested that a fourth principle, respect for communities, should be added. Respect for communities “confers on the researcher an obligation to respect the values and interests of the community in research and, wherever possible, to protect the community from harm”. It is believed that this principle is in fact, fundamental for research when community-wide knowledge, values and relationships are critical to research success and may in turn be affected by the research process or its outcomes.

### **3.3 Historical Background of Ethics in Research**

The origin of the ethics in research is dated back to the end of Second World War. It was during the Nuremberg Trial after the war that public became aware of the infamous research conducted in the concentration Camps by German physicians which often ended with the death of the research subjects and did not meet even the most rudimentary concepts of medical or research ethics of the time (Best and Kabin 2006).

The experience of the medical experiments led to the convenience of the Nuremberg tribunal following the defeat of the Nazi. The Nazi legal defense focused on research practices in Allied countries and there were many convictions and some executions. Some escaped like Josef Mengele and some were not found guilty like Kurt Blome. The tribunal issued the Nuremberg code in 1946 and was the first ethical code written governing Human subjects' research with emphasis on informed consent, free choice, minimizing harm and minimizing benefits.

Another example of research that was carried out which ignored both medical and research ethics was the well-known Tuskegee Syphilis study (Jones 1993). Also, in 1932, a study was carried out on long effects of syphilis where 399 African – American men with syphilis were denied treatment regarding racism and ethical misconduct.

It was therefore agreed that every research project involving human subjects should be preceded by careful assessment of predictable risks in comparison with forceable benefits to the subject or to others. The right of the research subject to safeguard his or her integrity must always be respected. Every precaution should be taken to respect the privacy of the subject and to minimize the impact of the study in the subject physical and mental integrity and on the personality of the subject.

Numerous professional associations have revised their codes of ethics to address the major moral concerns of their disciplines. For example, in 1953, the American Psychological Association issued the first code of ethics for psychologists and was revised in 1963. In 1970, the Board of Directors of Appointed Ad Hoc committee on Ethical standards on Psychological Research to bring the 1963 code up to date in light of changes in the science, in the profession and in the broader social context in which psychologists practice. Also in 1985, the code of ethics on the practice of sociology was approved by the membership of the American sociological Association.

### **3.4 Informed Consent in Research**

Informed consent is a mechanism for ensuring that people understand what it means to participate in a particular research study so they can decide in a conscious, deliberate way whether they want to participate. Informed consent is one of the most important tools for ensuring respect for persons during research. Many people think of informed consent primarily as a form, that is, a piece of paper that describes in detail what the research is about, including the risks and benefits. This form generally goes through ethics committee approval procedures, includes legalistic language, and is signed by the participant, the



researcher and possibly a witness. Such informed consent forms are appropriate for biomedical and other researcher most especially when the risk faced by participants may be substantial. They may also be necessary for minimal risk research when the foundation for trust between researchers and participants is weak.

Forms are regarded as only one part of an informed consent process while in some cases, forms may not be the best way to ensure informed consent. There are also situations where obtaining informed consent from individual participants may not be feasible or necessary. For example, a researcher using participant observation to learn about how transactions occurs in a public market would find it very hard to get everyone observed in that setting to sign a consent form and would probably create unwarranted suspicion about her motives in the process of seeking such consent. Yet if people see a stranger hanging around, watching, asking questions, and perhaps taking discreet notes, they may be even more suspicious about why she is there.

### **How to Achieve Informed Consent**

Generally, informed consent procedures are based on national and international research ethics guidelines. First and foremost, in achieving informed consent, people should be informed about the research in a way they can understand. This can be a multi-step process. For example, you may begin by approaching community leaders and explaining the research to them. The leader may them facilitate a community forum where interested people can learn about the research and ask questions. You might distribute information sheets, advertisements, or brochures, or try to get local newspapers or radio stations to do a report on the research. A community advisory board might be set up. Or the researchers might spend a week or two just talking with people or educating them one-on-one. If the researchers will be spending a lot of time in the community setting, or if the research is potentially controversial or sensitive, such efforts can go a long way toward gaining trust as well as understanding. At times, it may be necessary to obtain formal permission from community leaders or gatekeepers before research can commence.

In addition, data collection activities that require more than casual interaction with a person require individual informed consent from that person, regardless of whether community-level permissions exist. Examples of such activities include in-depth interviews and focus groups.

The person should be told:

- The purpose of the research
- What is expected of a research participant, including the amount of time likely to be required for participation.
- Expected risks and benefits, including psychological and social.
- The fact that participation is voluntary and that one can withdraw at any time with no negative repercussions
- How confidentiality will be protected
- The investigator to be contacted for questions or problems related to the research

- The name and contact information of an appropriate person to contact with questions about one's rights as a research participant (usually the chair of the local ethics committee overseeing the research)

All the above mentioned information must be provided in a language and at an educational level that the participant can understand. Would be or potential participants must be competent to make a decision about being in the research, and free from coercion or undue inducement to participate by researchers or others.

### **Types of informed consent**

Individual informed consent may be written or oral.

- **Written Consent:** means that a person receives a written form that describes the research and then signs that form to document his or her consent to participate. In the case of illiterate participants, the form is read to them, they make some kind of mark in place of signature, and then a witness usually sign as testimony that the consent is authentic. Written informed consent may also be described as documented informed consent.
- **Oral consent:** means that a person receives all of the information needed for consent either verbally or in writing and then verbally consents to participate. The participant does not sign a consent form; therefore, this is often described as waiving the requirement for documentation of informed consent. This does not mean that the requirement for informed consent is waived. Most ethics committees require the researchers to maintain accurate records of how and when consent was obtained for each participant. Oral consent is generally acceptable for research with minimal risk and a signed consent form would be the only piece of identifying information for study participation.

### **3.5 Important Ethical Agreements in Research**

The following provide valuable foundational information for proper understanding of ethical issues important for all research.

#### **i) Voluntary Participation**

This requires that people should not be coerced into participating in research but rather follow tenet of research ethics which but rather follow tenet of research ethics which says experimental/research participation must be voluntary. In social research as it is in many other disciplines. No one should be force to participate. Although, this norm is easier to accept in theory than to apply in practice. It is also contrary to several scientific general concerns, because the scientific goal of generalizability is threatened if experimental subjects or survey respondents are all kinds of people who willingly participate in such things. Because this orientation probably reflects more general personalities traits, the results of the research might not be generalizable to all kinds of people most clearly, in the case of a descriptive survey a researcher cannot generalize the sample survey findings to an entire

population unless a substantial majority of the scientifically selected sample actually participates – the will respondents and the somewhat unwilling.

ii) No Harm to the Participants

In social science, the people being studied should never be injured, regardless of whether they volunteer for the study. For example, in a situation where subjects are expected to reveal information that would embarrass subjects or endanger their home life, friendships, jobs and so forth. In a study in which research subjects are asked to reveal deviant behaviour, attitudes they feel are unpopular, any rape experience or sexual assault, act of theft when young, or personal characteristics that may seem demeaning, such as low income, occasional mental disturbance, bed wetting by adult, and the like. Revealing such information usually makes subjects feel at least uncomfortable.

If a particular research procedure or design is essential and also likely to be unpleasant for subjects, you will find yourself in an ethical netherworld and may go through some personal agonizing. In recent years, social researchers have been getting greater support for abiding by this norm.

iii) Anonymity

Anonymity is guaranteed in a research project when the researcher – not just the people who read about the research – cannot identify a given response with a given respondent. Although, there are some exceptional cases, for example an interview survey respondent can never be considered anonymous since an interviewer collects the information from an identifiable respondent. A typical example of anonymity is a mail survey or questionnaire in which no identification numbers are put on the questionnaires before their return to the research office.

iv) Confidentiality

A research project guarantees confidentiality when the researcher can identify a given person's responses but essentially promises not to do so publicly. In an interview survey, for example, the researcher would be in a position to make public the income reported by a given respondent, but the respondent is assured that this will not be done. Whenever a research project is confidential rather than anonymous, it is the researcher's responsibility to make that fact clear to the respondent. Moreover, researchers should never use the term anonymous to mean confidential.

A number of techniques have been developed in order to allow outsiders access to data without compromising the confidential requirement. These include the following:

- a) Deletion of identifier: The researcher can for example delete the names, addresses or from the data released on individuals.
- b) Crude Report Categories: The researcher can also release local or country rather than neighborhood (or census – track) data, year of birth rather than specific date, profession but not professional specialization specific etc.

- c) **Micro-aggregation:** It means, constructing “average person’s from data on individuals and releasing these data rather than the original data on individuals.
  - d) **Error Inoculation:** The researcher can deliberately introduce errors into individual records while leaving the aggregate data unchanged in order to protect participant confidentiality.
- v) **Privacy:** In course of carrying out a research study or conducting investigation, privacy of respondents or individuals are sometimes violated. The right of privacy is the freedom of the individual to pick and choose for himself or herself the time, the circumstances and most importantly the event under which his/her attitudes, beliefs, behaviour, and opinions are to be shared with or withheld from others.

Privacy is in three (3) different dimensions which are as follows:

1. **The sensitivity of information being given:** The more sensitivity or potentially threatening the information is, the more researchers are obliged to protect the privacy of the research participants. Information such as sexual practice, religious preferences, income, racial prejudice.
2. **The setting being observed:** The setting where the research is carried out may be in private or sometime public depending on the researcher and the research mission. For example, home is considered one of the most private settings in our culture and intrusion into people’s homes without consent is forbidden by law.
3. **Dissemination of Information:** This has to do with ability to match personal information with the identity of the research participants.

The above mentioned dimensions must be considered by the researcher when taking decision on how private certain information is and what to do to safeguard the privacy of research participants.

vi) **Professional Researchers’ Ethical Issues**

Professional researchers are required or expected to fulfill the following ethics norms:

- a) **Honesty:** A researcher should guard against telling lie(s) as much as possible and must be honest with himself, the participants and the research community.
- b) **Integrity:** This entails keeping one’s promises and agreements, act with sincerity of purpose and strive as much as possible for consistency of thought and action.
- c) **Respect:** Researcher is required by norm to protect the participants’ basic human and civil rights.
- d) **Communitarity:** The norm expects researcher to report the methods, purpose, motives and consequences accurately and to have their findings, including

means, ends, motives and results freely and honestly with other members of research community. (Smith 1988:284).

- e) Carefulness: Researchers are always advised to avoid or guard against careless errors and negligence.
- f) Disinterestedness: Research ethical norms forbid that personal gain should not be a researcher's main (or only) reason for embarking on any form of research.

### **3.6 Importance of Ethic in Research**

- 1.) Research ethical norms or principles encourage peaceful working relationship between the researchers and research participants. On the part of researchers/authorship, intellectual properties are protected while participants are not to be harmed in order to avoid conflict or crisis.
- 2.) The research ethic principles support the aims of research such as knowledge, truth and avoidance of error. For example, researcher has to be honest in reporting data, result, methods and procedure and publication status.
- 3.) Ethical principles assist in building public support for research since the public have been educated and conscientised and convinced that researches are carried out for the promotion and acquisition of knowledge and information necessary for the betterment, development and upliftment of mankind.
- 4.) Ethical principles ensure that researchers are accountable to the public.
- 5.) Important moral and social values such as social responsibility, human rights, animal welfare etc. are promoted by ethical principles.

### **4.0 CONCLUSION**

This unit has considered ethical issues in social research. Several codes of practice, guidelines, principles and policies which are now provided in various academic disciplines are geared towards eliminating unethical practice and misunderstanding that may arise in the course of carrying out research study.

### **5.0 SUMMARY**

In as much as ethics of social research deals mostly with the methods employed in carrying out a research study and ethical issues in social research are both important and ambiguous, most professional associations of social researchers have created and published formal codes of conduct describing what is considered acceptable and unacceptable professional behaviour. Research ethics from a number of organizations therefore provide a valuable foundation for understanding ethical issues important for all research.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1. What influence does the fundamental research ethics principles have on research?
2. Define research ethic and explain two of its fundamental principles.
3. How can informed consent be achieved?

## **7.0 REFERENCES/FURTHER READING**

Aldridge, A. and Levine, K. (2001) *Surveying the Social World: Principles and Practice in Survey Research*. Buckingham: Open University Press. Pages 21-3 consider privacy. Research ethics, informed consent, confidentiality and sensitivity.

Bernard HR. *Research Methods in Anthropology* second edition. London: sage Publications 1995.

Blaxter, L. Hughes, C and Tight, M. (2001) *How to Research*, 2<sup>nd</sup> edu. Buckingham: open University Press pages 157-61 deal with ethical issues in a clear and helpful way.

Busher, H. (2001) 'Ethics of Research in Education: chapter 5 in M. Coleman and A.R.J Briggs (eds) *Research methods in Educational leadership and Management*. London: Paul Chapman Publishing.

Cohen, L., Manion , L. and Morrison K. (2000) *Research Methods in Education*, 5<sup>th</sup> edu. Chapter 2, 'The Ethics of Educational and Social Research: provides 20- pages of sound advice. London and New York: Routledge.

Darlington, Y. and Scott, D. (2002) *Qualitative Research in Practice: Stories from the field*. Buckingham: Open University Press. See chapter 13, 'Research ethics'

Denzin NK, Lincoln YS (eds.). *Handbook of qualitative Research*. London: Sage publications, 2000.

Homan, Roger. 1991. *the Ethics of social Research*. London: Longman. A thoughtful analysis of the ethical issues of a practicing British social researcher.

Lee, Reymond. (1993) *doing research on sensitive Topics*. Newbury Park, C.A: sage. This book examples the conflicts between scientific research needs and the rights of the people involved – with guideline for dealing with such conflicts.

May, T. (2001) *social Research issues, methods and process*, 3<sup>rd</sup> edu. Buckingham: Open University Press. Pages 59-68 consider ethical issues in social research.

Oliver, P. (2003). *The students guide to Research ethics*, maidenhead: Open University Press. Oliver clarifys research terminology, discusses the moral justification of research, areas of research which raise ethical issues, issues relating to the principle of informed consent, anonymity and confidentiality-and much more sweet, Stephen.

1999.” Using a mock institutional research”. *Teaching sociology* 27 (January): 55-59.

Nkwi P. Nyamongo I, Ryan G. *field Research into social issues: Methodological Guidelines*. Washington, DC: UNESCO , 2001.

Pope C, Mays N. *Qualitative Research in Health care*. London : BMT Books. 2000.

## **UNIT4      REFERENCING STYLES IN ACADEMICS WORKS I**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Referencing Style
  - 3.2 Importance of Referencing
  - 3.3 APA Style of Referencing
  - 3.4 MLA Style of referencing
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In the academic environment, it is imperative for every academics, scholars, researchers and students to site, reference or acknowledge all sources of information, ideas, quotations or words that you have used in your essay, research paper, articles, dissertation or thesis in a way that identifies the original sources. Also in academic community it is very important you show the reader where you have used someone else's ideas or words because failure to properly do so may the reader think that you show the reader think that you are cheating by claiming someone else's work as your own.

However, failure to adequately and accurately acknowledge your sources could be tantamount to plagiarism. Plagiarism therefore is a grievous or very serious offence in academic palace that can have a disastrous consequence for an academic student found culprit and guilty of the offence.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings your should be able to:

- Define or explain what referencing and referencing styles means
- Enumerate different referencing styles
- State importance of referencing
- Discuss or explain each and every referencing style.



## **3.0 MAIN CONTENT**

### **3.1 Definition of Referencing Styles**

- Referencing Styles are the various ways of acknowledging literature source consulted in research work.
- They are formats used for preparing references (sources of information) for academic works.
- These are endnotes or footnotes that provide correct bibliographical citation for the sources noted in the text. Footnotes appear at the bottom of each page of academic work while Endnotes appear at the end of each chapter or at the end of the entire academic paper.
- They are specific ways or formats of acknowledging all sources of information and ideas that you have used in your essays, research paper, dissertation or thesis in a way that identifies the original source
- It is a compilation of a set of rules for scholar by publications.

#### **3.1.1 Types of Referencing Styles**

There are different types of referencing styles, with each style having its peculiarities with differences in the amount of details referencing and other editorial details recognized and preferred by various bodies and publishing outfits. These are usually referred to as 'house styles', which include the following:

- APA (American Psychological Association) Style
- MLA (Modern Language Association) Styles
- Chicago Manual of Style
- Harvard Style
- Vancouver Style
- British Standard

### **3.2 Importance of Referencing**

- It guides against plagiarism which if not avoided, can lead to disastrous consequences.
- When you reference correctly you are demonstrating that you have read widely on a topic.
- It reveals the original source(s) of information and allows the reader to consult the original sources of your information and acknowledges the author(s) from which the information was taken
- When you make good reference, you are also supporting your hypothesis with comments from expert authors.
- It gives credit to previous scholarly work cited.

### **3.2.1 What do Styles Strive to Achieve?**

- Clarity and consistency of work
- Conciseness: They help to avoid redundancy and save space and energy
- Though manuals give comprehensive information on referencing styles and other aspects of writing and documentation, they are not static
- They are reviewed constantly.

### **3.3 American Psychological Association (APA) Style of Referencing**

APA style of referencing is a common style used in the social and Behavioural Sciences. This style is an author-date method of referencing (i.e. it requires name of the author and your publication).

#### **3.3.1 APA Basic Rules for Document Layout**

The following are some general guidelines for referencing works in the text of a document.

The author's surname and year of publication are used within the text of a document (commonly referred to as in-text citations) when you are quoting, paraphrasing or summarizing someone else's ideas. At the end of the document full details of the in-text citations are given in a reference list.

Referring to the works of others in your text

- Follow the author-date method of in-text citation. This means that the author's last name and the year of publication for the source should appear in the text and a complete reference should appear in the reference list at the end of the paper.
- If you are referring to an idea from another work but not directly quoting the material, or making reference to an entire book, article or other work, you only have to make reference to the author and year of publication in your in-text reference.
- If you are directly quoting from a work, you will need to include the author, year of publication, and the page number for the reference.
- Examples for referring to another idea or study.

#### **3.3.2 Formatting Citation in a Text by APA**

The following are some basic rules for formatting citations in the body of a work or paper:

- Always capitalize proper nouns, including author names
- If you refer to the title of a source within your text, capitalize all words that are four letters long or more within the title of a source
- When capitalizing title, capitalize both words in a hyphenated compound word.
- After a colon or dash in a title, capitalize the first word

- Italicize the titles of longer works such as books, edited collections, movies, documentaries or albums
- Put quotation marks around the titles of shorter works such as journal articles, articles from edited collections, television shows and song titles
- If a work has two authors, cite both names every time the reference appears in your text. Join the authors' names with the word 'and'
- If a work has three, four, or five authors, cite all of the authors the first time you refer to the work, shorten the citation to the last name of the first author plus the words *et al.* join the authors' names with ; join the authors' names with an ampersand (&) if the you are referring to them in a parenthetical citation.
- If a work has six authors (or more), cite only the last name of the first author plus the word *et al.*

### 3.3.3 Reference List

1. Authors' names are inverted (last name first); the last name and initial for all authors of a particular work unless the work has more than six authors
2. If the work has more than six authors, list the first six authors and then use *et al.* after the sixth author's name to indicate the rest of the authors.
3. Reference list entries should be arranged alphabetically according to the surnames (last names) of the first author of each work.
4. If you have more than one article by the same authors), single – author references or multiple-author references with the exact same author's in the exact same order listed in order of the year of publication, starting with earliest.

### 3.3.4 Examples of APA Format

Journal Article with DOI assigned

Liefert, W. Lerman, Z. Gardner, B. & Serova, E. (2005) Agricultural Labour in Russia: Efficiency and profitability. *Review of Agricultural Economics*, 27(3), 412-417, doi:10.1111/J. 1467-9353.2005.00237.x

Journal article without DOI assigned found in Library database

Cooper, L. (2009). Human voice: Language and conscience in Twain's A Connecticut Yankee in King Arthur's court. *Canadian Review of American studies*, 39(1), 65-84. retrieved from EBSCO Mega file database.

Magazine article without DOI assigned, found in Library database

Hubbard, L. (2009, May 11). Survey demand for defunct energy drink. *Convenience store News*, 45(6), 16. Retrieved August 4, 2009, from EBSCO Mega file database.

Magazine article without DOI assigned, with no author, found in library database  
 phones unsafe at any speed. (1996, July). *Safety & Health* 154(1), 102. Retrieved from Academic Search Premier database.

Article freely available from the publisher (This is an example of the page number not given) Roundtree, C. & Huglen, M. (2004). The rhetoric of bush's war on evil. *KB Journal* 1(1) Retrieved from <http://kbjournal.org/nextphase>.

Journal article with DOI assigned and more than seven authors

Besselmanu, D., Schaub, D., Wenker, C. Vollm, M. (2008). Juvenile mortality in captive lesser Kudu (*Tragelaphus imberbis*) at Basle 200 and its relation to nutrition and husbandry. *Journal of 200 and wildlife Mediumee*, 39 (1), 86-91. doi:10.1638/2007-0004.1

### **Edited book**

Letheridge, s., & Cannon, C.R. (Eds.). (1980). *Bilin- gual education*. New York: Praeger.

Book (two authors)

Strunk, W., & White, E. B. (1979). *The elements of styles* (3<sup>rd</sup> ed.) New York: Macmillan.

Article or Echapter in an edited book (print)

Sheets, B. (2006). The cost of Lingering arm injuries. In B. selig. & W. Selig (eds.) *A compilation of long stories* (pp.211-234). Milwaukee, WI: MB Press.

Chapter or section in an internet document

Thompson, G. (2003). Youth coach handbook. In Joe soccer, Retrieved September 17, 2004 from <http://www.joesoccer>. Comlmenu.html

Doctoral dissertation, from a commercial database Olsen, G. (1985). *Campus child care within the public supported post-secondary institutions in the stage of Wisconsin* (Doctoral dissertation). Available from Pro Quest Dissertation and Theses database. (Publication No. AAT 8528441)

Online reference work

Po1 (food). (2009). In Wikipedia. Retrieved August 3, 2009 from <http://en.wikipedia.org/wiki/mainpage>

Video Blog Post

Redbone, L. In.d). seduced-Leon Redbone. (Video file) Retrieved from <http://www.youtube.com/watch?v=SRSQ1ISWP24>

Online document with government author Wisconsin Department of Natural Resources. (2001) Glacial habitat restoration areas. Retrieved from <http://www.dnr.state.wi.us/org/land/wildlife/hunt/hra.htm>

Personal communications

Personal communications may be things such as email messages, interviews, speeches, and telephone conversations. Because the information s not retrievable they should not appear in the reference list. They should look as follows: example: S. Shurley (personal communication, September 20, 2008) indicated that .... Or In a ecent interview (S. Shurley, personal communication, September 20, 2000) I learned that.....

#### Citation of a work in a secondary source

To cite secondary sources, refer to both sources in the text, but include in the references list only the source that you actually used. For example, suppose you read Fielder (2008) and would like to paraphrase the following sentence within that article: Braun (2008) defined bat speed as “the ability to catch up to a baseball with a moving bat” (p.11).

In this case, the in-text citation would be: (Braun, 2008, as cited in Fielder, 2008) fielder (2008) would be fully referenced within the list of references.

#### Reference citations in text

To refer to an item in the list of references from the text, an author-date method should be used. That is, use the year of the publication in the text at appropriate points.

Example: Researchers have indicated that more is expected of students in higher education (Hudson, 2001, p.8) and secondary education (Taylor & Hornung, 2002, P.31).

#### One author

Isaac (2001) indicated in his research....

In a recent study, research indication (Isaac, 2001)

#### Two or more authors

When a work has two authors, always cite both names every time the reference occurs. For works with three, four or five authors, cite all authors the first time the reference occurs. In subsequent citations, include only the last name of the first author followed by et.al

#### Specific parts of a source

(Yount & Mohtor, 1982, p.19)

(Cooper, 1983, chap.4)

#### When a work has no authors

Cite in text the first few words of what appears first for the entry on the list (usually the title) and the year.

(“New Student Center,” 2002).

### **3.4 Modern Language Association (MLA): Style of Referencing**

Documenting your research paper according to MLA style (Modern Language Association) requires PARENTHETICAL DOCUMENTATION in the body of the text and preparing a list of Works Cited at the end.

#### Parenthetical Documentation

Parenthetical documentation informs readers to your paper that you are using information opinions, and ideas from other sources. The unit of a parenthetical documentation – a citation or reference.... Consists of a name or a title keyword, followed by page the number(s) of the source. Enclose them in parentheses and insert them at the end of sentences or wherever appropriate.

This guide is based on MLA Handbook for Writers of Research Papers usually in Liberal Arts and Humanities.

- Each entry must include a label indicating the format of the item like Print, Web etc.
- Abbreviations are required where need: n.p. for no publisher, n.d. for no date, and n.pag for no pagination.
- Titles should be italicized, not underlined.
- URLS do not need to be included for citations to online materials unless the URL is the only way for the reader to find the web site.
- Volume and issue numbers are included in all citations to journal articles, whether or not the journal is paginated continuously or issue-by issue.

Citations in text: use short parenthetical citations, instead of numbered footnotes, to point the reader to complete information about your sources in your Works cited list:

- The parenthetical usually includes the author's last name and the page number cited: (Higgins 25)
- If your Works cited list includes more than one work by an author, the parenthetical should include part of the title: (Higgins, Williams 141)
- If a work has more than one author, use the authors' last names as used in the citation: (Robertson and McDaniel 53), (Smith et.al)
- If the work does not have an author, the parenthetical should include the first one or two words from the title: ("Venue's Loss" 8A)
- In some cases, like newspaper articles, films or online works with no page numbers, or if an entire work as being acknowledged, incorporated the author's name or work title into your sentence instead of using a parenthetical: "in the Wizard of Oz....." or "Branch report".

Book, Single Author:

Higgins, John. *The Raymond William Reader*. Malden: Blackwell Publishers, 2001. Print.

Book, more than one author: list authors' name in the order they are listed on the book. Use et.al, for more than three authors.

Robertson, Jean and Crang Mc Daniel. *Themes of contemporary Art: Visual Art after 1980*. 2<sup>nd</sup> ed. New York: Oxford University Press, 2010. Print.

Smith, Mick, et. Al. *Emotion, Place and culture*. Burlington. VT: Ashgate, 2009. Print.

Work in an anthology

Hallett, Nicky. "Anne Clifford as Orlando: Virginia

Woolf's *Eminent Historiography and women's Biography*" Anne Clifford and Lucy Hutchinson. Ed. M.hoko Suzuki. Surrey. England: Ashgate, 2009. 2-22. Print.

Newspaper Article (unsigned)

“Venue’s Loss Brings Back Many Memories” Atlanta Branch, Taylor. “The Clinton Tapes: Wrestling History with the President” The New York Times 25 Sept. 2009: Books of the Times 29. Dow Jones Factwa. Web 29 Sept., 2009.

Magazine Article: written for scholars and professionals Kratzke, Peter. “Recopying to Revise: Composition in an old Key”. *Composition studies* 36.2 (208): 9-22 Print.

Article from an online database: include name of database, format (Web) and date material was found. A URL is not required.

Edwards, Kim. “Good Looks and Sex Symbols: The power of the Gaze and the Displacement of the Erotic in Twilight”. *Screen Education* 53.1 (2009): 26-32. *Communication & Mass Media Complete*. Web. 31 October, 2009.

Article from a web site: include web site publisher; if no publisher, substitute N.P. for “no publisher”

Lind, Michael “Why Dilbert is Doomed: The Jobs of Tomorrow are Not what You’d Expect”. *Salon*. Salon Media Group Inc., 2 November, 2009. Web 15 December, 2009.

Reprinted Article

Hunt, Tim Misreading of Kerouac. “The Review of Contemporary Fiction. 3.2 (Summer 1983) 29-33, Rpt in contemporary *Library Criticism*. Ed. Roger Matuz and Cathy Falk. Vol. 61. Detroit: Gale Research, 1990.29-33. Print.

Article from a well-known encyclopedia (unsigned) “Tutankhamen”. *The New Encyclopedia Britannica: Micropaedia*. 15<sup>th</sup> ed. 2007. Print.

Article from lesser-known encyclopedia (signed)

Schafer, Elizabet D. “Andrew’s Raid”. *Encyclopedia of the American Civil War*. Eds.. Heidler and Jeanne T Heidler. 5vols. Santa Barbara: ABC-CLIO, 2000. Print.

Article from online encyclopedia on GALILEO

Killam, G.D. “Chinua Achebe”. *Dictionary of Literary Biography*. Ed. Bernth Lindfors and Reinhard Sander, Vol. 117. Detroit: Gale, 1992. 15-34. *Literature Resource Center*. Web. 30 October, 2009.

Entire web site

Electronic Poetry Center. 2009. SUNY Buffalo. Web. 29 Sept. 2009.

Web page within a larger web site

Martin, Thomas R. “An Overview of classical Greek History from Homer to Alexander”. *Perseus Digital Library*. Ed. Gregory R. Crane. 1999. tufts U. web. 25 Sept. 2009

Film or Video

The Wizard of OZ. Screenplay by Noel Langley Florence Ryerson and Edgar Allan Woolf Dir. Victor Fleming. Perf Judy Garland, Ray Bolger, Bert Lahr and Jack Haley. Metro-Goldwyn-Mayer, 1939.

## **4.0 CONCLUSION**

Each and every academic discipline has its features that distinguish its aim, content, rules and methods of scholarly inquiry from those of others. Therefore, an academic who wants his/her paper published must first of all understand the principles and guideline recognized and adopted or recommended by the institution; journal, publisher, discipline body or association, organizational paper in which she/he (research) prefers.

## **5.0 SUMMARY**

A brief definition of referencing style was given followed by different types of styles of referencing with each style having its peculiarities with differences in amount of details, referencing and other editorial details. Importance of referencing was also stated while American Psychological Association style (APA) and modern language Association style guidelines and format were discussed with relevant examples for proper understanding of how different sources of information should be cited or referenced.

## **6.0 TUTOR-MARKED ASSIGNMENT (TMA)**

1. What do you understand by the concept referencing style?
2. Of what relevance is referencing to academic research work?
3. Which of the referencing house style do you prefer out of the above discussed styles and why?

## **7.0 REFERENCES/FURTHER READING**

American Psychological Association (APA). 2005. Publication Manual of the American Psychological Association. Washington DC: American Psychological Association.

MLA Handbook for Writers of Research Papers, 7<sup>th</sup> edition (2009)



## **UNIT 5 REFERENCING STYLES IN ACADEMIC WORKS 2**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Chicago Manual of Referencing Style
  - 3.2 Harvard Style of Referencing
  - 3.3 The Vancouver Style of Referencing
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

This unit is the other (second) part of referencing styles in Academic work I that introduces students, scholars, researchers or academics to rules on referencing style preferred by various bodies and publishing outfits which those who want their works published should conform with. APA and MLA styles were extensively discussed in the first part, which be preceded by the Chicago manual style and Harvard style with brief reference to others in this second part.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings you should be able to:

- Explain Chicago manual style of referencing
- Discuss Harvard style

### **3.0 MAIN CONTENT**

#### **3.1 The Chicago Manual of Referencing Style**

The Chicago Manual of style allows for two different types of reference styles, which reveals how to create endnotes or footnotes and a bibliography for both print and electronic formats. Endnotes or footnotes provide correct bibliography citation for the sources noted by number in the text. Footnotes appear at the bottom of each page while endnotes appear at the end of each chapter or at the end of the entire paper.

Traditionally, researchers in the humanities and social sciences use the documentary – Note style, while researchers in the sciences use the Author – Date system. The two different types of reference style are:

- a) the Author – Date System and

b) the documentary – Note (or Humanities) style.

**PRINT SOURCES**

(N = Footnote/end note      B = bibliography)

**BOOKS**

Use a shortened format for subsequent references to the same work.

**One author:**

N      1. Emery Blackfoot, *Chance Encounters* (Boston: Serendipity Press, 1987), 67.

N      2. Blackfoot, 97.

B      Blackfoot, Emery. *Chance Encounters*. Boston: Serendipity Press, 1987.

**Two authors:**

N      3. Liam P. Unwin and Joseph Galloway. *Peace in Ireland* (Boston: Stronghope Press, 1990), 72.

N      4. Unwin and Galloway, 102.

B      Unwin, Liam P., and Joseph Galloway. *Peace in Ireland*. Boston: Stronghope Press, 1990.

**More than three authors:** For works having more than three authors, a note citation should give the name of the first-listed author followed by "et al." or "and others" without inverting punctuation. In the bibliography entry, the usual practice is to list all of the authors. The name of the first author is inverted.

N      5. Charlotte Marcus et al. *Investigations into the Phenomenon of Limited-Field Criticism* (Boston: Broadview Press, 1990), 134.

N      6. Charlotte Marcus and others. *Investigations into the Phenomenon of Limited-Field Criticism* (Boston: Broadview Press, 1990), 134.

N      7. Marcus et al., 175.

B      Marcus, Charlotte, Jerome Waterman, Thomas Gomez, and Elizabeth DeLor. *Investigations into the Phenomenon of Limited-Field Criticism*. Boston: Broadview Press, 1990.

**Corporate author:**

N      8. International Monetary Fund, *Surveys of African Economies*, vol. 7, *Algeria, Mali, Morocco, and Tunisia* (Washington, D.C.: International Monetary Fund, 1977), 27.

N      9. International Monetary Fund, 46.

B      International Monetary Fund. *Surveys of African Economies*. Vol.7, *Algeria, Mali, Morocco, and Tunisia*. Washington, D.C.: International Monetary Fund, 1977.

**Edition other than the first:**

N      10. John N. Hazard. *The Soviet System of Government*, 5th ed. (Chicago: University of Chicago Press, 1980), 132.

- B Hazard, John N. *The Soviet System of Government*. 5th ed. Chicago: University of Chicago Press, 1980.

**Edited work, compilation, or translation:** The name of the editor, translator, or compiler takes the place of the author when no author appears on the title page. In notes and bibliography, the abbreviation *ed./eds.*, *comp./comp.*, or *trans.* follows the name and is preceded by a comma.

- N 11. Anthony B. Tortelli, ed., *Sociology Approaching the Twenty-first Century* (Los Angeles: Peter and Sons, 1991), 59.

- N 12. Tortelli, 93.

- B Tortelli, Anthony B., ed. *Sociology Approaching the Twenty-first Century*. Los Angeles: Peter and Sons, 1991.

## ARTICLES IN JOURNALS, MAGAZINES, AND NEWSPAPERS

### Basic form:

- N 13. Noel Robertson. "The Dorian Migration and Corinthian Ritual," *Classical Philology* 75 (1980): 17, 19-22.

- B Robertson, Noel. "The Dorian Migration and Corinthian Ritual." *Classical Philology* 75 (1980): 1-22.

**With season or month:** The name of months are capitalized but lower case is recommended for the names of seasons.

- N 14. Ilya Bodonski. "Caring among the Forgotten," *Journal of Social Activism* 14 (fall 1989): 112-34.

- B Bush, Jane R. "Rhetoric and the Instinct for Survival." *Political Perspectives* 29 (March 1990): 45-53.

### Issues with numbers only:

- N 15. Eva Meyerovich. "The Gnostic Manuscripts of Upper Egypt," *Diogenes*, no. 25 (1959): 91, 95-98.

- B Meyerovich, Eva. "The Gnostic Manuscripts of Upper Egypt." *Diogenes*, no. 25 (1959): 84-117.

### Popular magazines:

- N 16. E. W. Caspari and R. E. Marshak. "The Rise and Fall of Lysenko," *Science*, 16 July 1965, 276.

- B Caspari, E. W., and R. E. Marshak. "The Rise and Fall of Lysenko." *Science*, 16 July 1965, 275-278.

### Newspapers:

- N 17. Tyler Marshall. "200th Birthday of Grimms Celebrated," *Los Angeles Times*, 15 March 1985, sec. 1A, p. 3.

- B Marshall, Tyler. "200th Birthday of Grimms Celebrated." *Los Angeles Times*, 15 March 1985, sec. 1A, p. 3.

## OTHER SOURCES

### Movie reviews:

- N 18. Stanley Kauffman. "Turbulent Lives," review of *A Dry White Season* (MGM movie), *New Republic*, 9 October 1989, 24-25.
- B Kauffman, Stanley. "Turbulent Lives." Review of *A Dry White Season* (MGM movie). *New Republic*, 9 October 1989, 24-25.

### Book reviews:

- N 19. Susan Lardner. "Third Eye Open," review of *The Salt Eaters*, by Toni Cade Bambara, *New Yorker*, 5 May 1980, 169.
- B Lardner, Susan. "Third Eye Open." Review of *The Salt Eaters*, by Toni Cade Bambara. *New Yorker*, 5 May 1980, 169.

### Interviews:

- N 20. McGeorge Bundy, interview by Robert MacNeil, *MacNeil/Lehrer News Hour*, Public Broadcasting System, 7 February 1990.
- B Bundy, McGeorge. Interview by Robert MacNeil. *MacNeil/Lehrer News Hour*. Public Broadcasting System, 7 February 1990.

**Encyclopedias:** Well-known reference books are usually not listed in bibliographies. When they are cited in notes they appear as follows. s.v. (sub verbo) means "under the word".

- N 21. *Encyclopaedia Britannica*, 11th ed., s.v. "cold war."
- N 22. *Dictionary of American Biography*, s.v. "Wadsworth, Jeremiah."

## CITATIONS IN THE TEXT

**Basic form:** Consists of the author's last name and the year of publication of the work. No punctuation is used between the author's name and the date. When the reference list or bibliography includes two or more works by different authors with the same last name and the same date, it is necessary to include the author's initials. When there are more than three authors use "et al".

(Blinksworth 1987)	(Collins and Wortmaster 1953)
(EPA 1986)	(P. Brown 1991)
(Smith, Wessen, and Gunless 1988)	(Zipursky et al. 1959)

**Placement of text citations:** An author-date citation in the text should be placed where it will offer the least resistance to the flow of thought. The best location is just before a mark of punctuation:

Before proceeding . . . we will describe the system of scaling quantitative scores (Guilford 1950).

What conclusions . . . had they been aware of the narrow-aperture principle recently reported (Klein, Cane, and Abbelli 1991)?

## ARTICLES RETRIEVED IN ELECTRONIC FORMAT

These guidelines were retrieved from the WWW and are based on the principles presented in the 14th edition of *The Chicago Manual of Style*.

### FOR FOOTNOTES AND ENDNOTES:

Author's name is in normal order followed by the document title, date of Internet publication, <URL> or other retrieval information, date of access, and text division, if applicable.

#### Book:

1. Peter J. Bryant. "The Age of Mammals," in *Biodiversity Conservation* April 1999, <<http://darwin.bio.uci.edu/~sustain/bio65/index.html>> (11 May 1999).

#### Article in electronic journal (ejournal) or magazine (ezine):

2. Tonya Browning. "Embedded Visuals: Student Design in Web Spaces," *Kairos: A Journal for Teachers of Writing in Webbed Environments* 3, no. 1 (1997), <<http://english.ttu.edu/kairos/2.1/features/browning/index.html>> (21 October 1999).

3. Nathan Myhrvold. "Confessions of a Cybershaman," *Slate*, 12 June 1997, <<http://www.slate.com/CriticalMass/97-06-12/CriticalMass.asp>> (19 October 1997).

#### Newspaper article:

4. Christopher Wren. "A Body on Mt. Everest, a Mystery Half-Solved," *New York Times on the Web*, 5 May 1999, <<http://search.nytimes.com/search/daily/bin/fastweb?getdoc+site+site+87604+0+wAAA+%22a%7Ebody%7Eon%7Eemt.%7Everest%22>> (13 May 1999).

#### Government publication:

5. George Bush. "Principles of Ethical Conduct for Government Officers and Employees," Executive Order 12674, 12 April 1989, pt. 1, <<http://www.usoge.gov/exorders/eo12674.html>> (30 October 1997).

#### Professional and personal sites:

6. Joseph Pellegrino. "Homepage," 12 May 1999, <<http://www.english.eku.edu/pellegrino/default.htm>> (12 June 1999).

7. Gail Mortimer. *The William Faulkner Society Home Page*, 16 September 1999, <<http://www.utep.edu/mortimer/faulkner/mainfaulkner.htm>> (19 November 1997).

### FOR A BIBLIOGRAPHY:

Authors' names are inverted. The elements of entries are separated by periods. The first line of each entry is flush with the left margin, and subsequent lines are indented three or four spaces.

#### Article in an electronic journal (ejournal):

Teague, Jason Crawford. "Frames in Action." *Kairos: A Journal for Teachers of Writing in Webbed Environments* 2, no. 1, August 20, 1998.

<<http://english.ttu.edu/kairos/2.1>> (7 October 1999).

### 3.2 Harvard Style

In the Harvard referencing list, year of publication is usually in parenthesis:

- Abaldwin, R.L. and R.T Blackburn (1981) The academic career as a developmental process: Implication for higher education.
- Journal of Higher Education 52(6), pp.598-614

There are many modifications of the Harvard style (modification by universities and organizations)

#### Variants of the Harvard Style

- At the Lachester University (UK), the year of publication is not in parenthesis and there is a period after year of publication.
- At Monash University (Australia), articles are in double quotation marks.
- At the University of Western Australia the year of publication is not in parenthesis.

Source Types/General Rules	In-text citation	Bibliography
Book, single author	(Collins, 2001, p.49)	Collins, J. (2001) <i>Good to great</i> . New York, HarperBusiness.
Multiple authors format (for any source). Examples are for 2, 3 and 4 or more authors.	Format in citation: (Gundry & Kickul, 2007) (Hughes, Ginnett & Curphy, 2006) (Davis et al., 2000)	Format in reference:  Gundry, L.K. & Kickul, J.R. Hughes, R.L., Ginnett, R.C. & Curphy, G.J. Davis, B. et al.
Chapter in an edited collection	(Kotter, 1999, p.73)	Kotter, J.P. (1999) Making change happen. In: Hesselbein, F. & Cohen, P.M. eds. <i>Leader to leader</i> . San Francisco, Jossey- Bass, pp.69-79.
Secondary reference (book cited within another book)	(Argyris, 1982, quoted in Senge, 2006, p. 164)	Argyris, C. (1982) Reasoning, learning and action: individual and organizational. San Francisco: Jossey-Bass. Quoted in: Senge, P.M. (2006) <i>The fifth discipline</i> . New York, Currency/Doubleday.
Journal article (print)	(Hazy, 2006, p.61)	Hazy, J.K. (2006) Measuring leadership effectiveness in complex

		social-technical systems. <i>Emergence: complexity &amp; organization</i> . 8 (3), pp.58-77.
Journal article (retrieved from online database)	(Kuvaas, 2006, p.371)	Kuvaas, B. (2006) Work performance, affective commitment, and work motivation: the roles of pay administration and pay level. <i>Journal of organizational behaviour</i> [Internet], 27 (3), pp.365-385. Available from: < <a href="http://www3.interscience.wiley.com">http://www3.interscience.wiley.com</a> > [Accessed 13 January 2009].
Reference book with no author (e.g., dictionary)	(Oxford English dictionary, 1989, p.127)	<i>The Oxford English dictionary</i> . (1989) vol 5, 2 <sup>nd</sup> ed. Oxford, Clarendon.

Source Types/General Rules	In-text citation	Bibliography
Government report	(Ministry of the Solicitor General, 1990, p.45)	Canada. Ministry of the Solicitor General. (1990) <i>A vision of the future of policing in Canada</i> . Ottawa, ON, Department of Justice.
Magazine article	(Salmon, 2009)	Salmon, F. (2009, March 17) A formula for disaster. <i>Wired</i> , pp.74-79.
Newspaper article, no author	(“Crime Rates Rise,” 2005)	Crime rates rise for second consecutive year. (2005) <i>The Vancouver Sun</i> , 15 July, p.A1.
Brochure	(Royal Canadian Mounted Police, 2006)	Royal Canadian Mounted Police (2006) <i>Crime prevention tips for homeowners</i> . Nanaimo, Canada, Royal Canadian Mounted Police.
Electronic documents (i.e. electronic book or case study) retrieved from online source	(Rochlin & Boguslaw, 2001)	Rochlin, S.A. & Boguslaw, J. (2001) <i>Safeco’s urban marketing initiative</i> [Internet]. Boston, MA, The Center for Corporate Citizenship at Boston College. Available from: < <a href="http://www.caseplace.org">http://www.caseplace.org</a> > [Accessed 6 March 2009].
Web page - authored	(Rowett, 1998)	Rowett, S. (1998) <i>Higher Education for capability: autonomous learning for life and work</i> [Internet], Higher Education for Capability.

		Available from: < <a href="http://www.lle.mdx.acu.uk/hec/about.htm">http://www.lle.mdx.acu.uk/hec/about.htm</a> >[Accessed 8 August 2000].
Web page - corporate	(Ikea Group, 2009)	Ikea Group (2009) <i>About Ikea</i> [Internet], Inter IKEA Systems B.V. Available from: < <a href="http://www.ikea-group.ikea.com/?ID=2">http://www.ikea-group.ikea.com/?ID=2</a> > [Accessed 6 March 2009].

### 3.3 The Vancouver Style

The Vancouver referencing style requires name of the author and number of publication. Vancouver style is used in medicine and can be evaluated.

Example:

Annas G.J New drugs for acute respiratory distress syndrome. N. Engl J. Med. 1977; 337: 435 - 9

### 4.0 CONCLUSION

As we are aware of the fact that, different format of references exist in academic environment. Therefore the rules and guidelines recommended by any of the referencing style being adopted or used should be observed to ensure consistency in the final academic work and to credit to the authors whose idea we borrowed by a researcher.

### 5.0 SUMMARY

References consist of all documents or information cited in text of a manuscript. In this unit Chicago, Harvard and Vancouver referencing styles were discussed and they cut across journal articles, books, chapter in books, technical reports government report, magazine and newspaper articles brochure, electronic document (movie reviews) interviews, encyclopedias and other.

### 6.0 TUTOR-MARKED ASSIGNMENT

Identify and state the major unique difference between Harvard style and other styles.



## **7.0 REFERENCES/FURTHER READING**

The Chicago Manual of Style (ref desk Z 253 U69 1993)

Speedy Guide to Harvard Referencing (Faculty of Management- Vancouver Island University)

## **MODULE 4 COMPONENTS OF A GOOD RESEARCH**

### **UNIT 1 SAMPLE AND SAMPLING METHODS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 The Meaning of Sample and Sampling
  - 3.2 Importance of Sampling in Research
  - 3.3 Sampling Methods
    - 3.3.1 Probability Sampling Methods
    - 3.3.2 Non- Probability Sampling Methods
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 Reference/Further Readings

#### **1.0 INTRODUCTION**

In some research studies, the group of items to which the study relates (the population) may be small enough to warrant the inclusion of all of them in the study. But on the other hand, the study may entail a large population which cannot all be studied. Therefore, in a situation whereby the population is very large, we cannot conduct interview or administer questionnaires to them all, but we have to identify and make use of certain portion of the entire population. This becomes necessary in order to cut or minimize cost, economise time and make best of the sample that would be used in the study.

#### **2.0 OBJECTIVES**

By the end this unit and relevant readings, you should be able to:

- Define sample and sampling
- Mention types of methods of sampling
- Explain different types of probability methods and enumerate merits and demerits of each.
- List and discuss different types of non-probability sampling methods.
- Itemise merits and demerits of different types of non-probability sampling methods.

## **3.0 MAIN CONTENT**

### **3.1.1 Sample:**

- Is a small representative group from the population.
- The part of the population which is the chosen selection while the total group with which the study is concerned is called the population.

### **3.1.2 Sampling:**

- Is the process of selecting a sample from a population.
- Is the term used to denote the collection of information and drawing of inferences about a population from a study of only a part of the population.
- Is the process of selecting a number of group or sample for a study in such a way that the group/sample represent the population from where they were selected.

The method of sampling is widely used in social research because it is always practical to study all the members of a community or group, since the numbers are too large. This method has come to stay in scientific investigation because it is not possible to conduct a study in which all units of interest can be covered. By carefully selecting a small proportion of the population to represent the total population, it is possible to obtain the same information or result as could be obtained from the entire population.

## **3.2 Importance of sampling in Research**

- It reduces cost in terms of time, money and administrative manpower.
- It is a speedy and convenient way of conducting research.
- It gives room for greater accuracy.
- It offers greater scope for interaction with subjects than could be possible in full or completes coverage of the total population.

The two principles of sampling are to avoid bias in the selection procedure and obtain high precision of estimates within available resources.

## **3.3 Sampling Methods**

There are two main methods of sampling vis.

- (a) Probability sampling, where the method of select is random and such item or unit has determinate chance of being selected and also guides against or avoid bias; and

- (b) Non-probability sampling, where the method of selection is not strictly random, and each item or unit has no specific chance of being selected.

### **3.3.1 A. PROBABILITY SAMPLING DESIGN/METHOD**

These include the following

#### **1) Simple Random Sampling**

This is basic sampling procedure in which each item, unit or member of population has an equal chance of being included or selected in the sample drawn from a population. A random sample can be obtained by assigning a number to each member of the population written in a piece of paper and placed in a basket. Each number is drawn from the basket (either by replacement or without replacement of number) after a thorough mix. Another method that could be applied is to use a table of random numbers specifically constructed for such purpose.

The first step in random sampling is to ensure that each unit, or individual or segment in the population is listed once and only once, such that each member of the sampling population has then same probability of being chosen.

The number of distinct samples of size  $n$  that can be drawn from the  $N$  unit is given by the combinatorial formula below:

$$\binom{N}{n} = {}_N C_n = \frac{N!}{n!(N-n)!}$$

#### **Merits of Simple Random Sampling**

- i) It is very simple to apply
- ii) It is the most statistically reliable of all the probability sampling techniques
- iii) Every member of the population is given equal chance of being selected that is no unit in the population is either favoured or disfavoured.

#### **Demerits of Simple Random Sampling**

- i) It is the most time consuming method of sampling
- ii) The computation of a compilation and accurate sampling frame is required which is often not easy to accomplish.
- iii) It is expensive as huge cost is required to travel and to compile the sampling frame most especially for large survey.

## 2) Systematic/Systemic Sampling

This is a technique of random selection of sample on a systematic basis. It consists of selecting every  $n$ th case, (e.g. the 5<sup>th</sup> case, the 12<sup>th</sup> case, the 25<sup>th</sup> case, etc). The first case might be selected by a simple random procedure, but thereafter every 12<sup>th</sup> unit is selected, or

It is the selection of units of the sample at a fixed interval on the sampling frame with the first member selected at random. For example, a researcher can select a 1-in-3, 1-in-5, or, in general, a 1-in- $k$  systematic sample. Consider, a medical researcher who is interested in obtaining information about the average number of time 15,000 medical specialists prescribed a certain drug in the previous year ( $N=15,000$ ). To obtain a simple random sample of  $n=160$  specialists, we would use the methods of section A and refer to a table of random members; however, this would require a great deal of work. Alternatively, we could select one name (specialist) at random from the first  $k=9$  names appearing on the list, and then select every ninth name thereafter until a sample of size 160 is selected. This is called a 1-in-9 systematic sample.

Having known the population size which is  $N$  we can determine an approximate sample size,  $n$ , for the survey and then choose  $k$  to achieve that sample size. As mentioned above, there are  $N = 15,000$  specialists in the population for the medical survey, suppose the required sample size  $n = 100$ . We must choose  $k$  to be 150 or less. For  $k = 150$ , we would obtain in exactly  $n = 100$  observations, while for  $k < 150$ , the sample size would be greater than 100.

In general, to obtain a systematic sample of  $n$  elements from a population of size  $N$ ,  $k$  must be less or equal to  $N/n$  (that is,  $k \leq N/n$ ). Note in the above example that  $k \leq \frac{15,000}{100}$ ; that is,  $k \leq 150$

### Merits of systematic sampling

- i) It is easier to use on the field than a random number table.
- ii) It is mostly used when population is homogeneous, fairly small and sampling frame is complete.
- iii) It is economical and less time-consuming compared with random sampling technique.

### Demerits of systematic sampling

- i) The method cannot be said to be purely random because of the pre-selection of the subsequent sample units.

- ii) It might unconsciously lead to the elimination of certain units i.e. it does not give equal chance of being selected to the units.

### 3) Stratified Sampling

The technique tries to ensure that different groups or categories of a population are adequately represented in selecting a sample of the population. It involves dividing the population into strata or layers, and then selecting the sample units from each strata. The strata could be in terms of sex, age or education (etc), sample units are randomly selected from each strata, the sub-samples are then joined together to form the total sample. The technique increases the efficiency of probability sampling. Or

This method involves the division of the sampling frame into homogeneous groups in order to ensure that the sample is truly representative. The population is first divided into smaller non-overlapping groups or subgroups called strata. The division is carried out such that the units in each stratum are homogeneous with the main characteristics of interval.

Stratified random sample is drawn by clearly specify the strata, place each sample unit of the population into then appropriate stratum for example, a households divided into rural or urban units and by selecting a sample from each stratum using the simple random sample-techniques earlier discussed. After the sample size  $n$ , is chosen, many ways exists on how to divide  $n$  into individual stratum sample sizes,  $n_1, n_2, \dots, n_L$ .

It should be noted that each division may result in a variance for the sample mean. Therefore our task is to use an allocation (division) which gives a specified amount of information at minimum cost. In the course of carrying out our task, we must bear in mind three factors that affect the allocation scheme to use. These include:

- The total number of elements in each stratum
- The variability of observations within each stratum
- The cost of obtaining an observation from each stratum with respect to total number of elements in a strata, note that the number of elements in each stratum affects the quality of information in the sample. For example, a sample size of 20 from a population of 200 elements should contain more information than a sample of 20 from 2000 elements. Hence, large sample sizes should be assigned a strata containing large number of elements.

Similarly, variability must be considered because a larger sample is needed to obtain a good estimate of a population parameter when the observations are less homogeneous.

The formula for allocating samples in each stratum is given as follows:

$$n_1 = n \frac{N_1 \sigma_1 / \sqrt{C_1}}{N_1 \sigma_1 / \sqrt{C_1} + N_2 \sigma_2 / \sqrt{C_2} + \dots + N_l \sigma_l / \sqrt{C_l}}$$

$$n_1 = n \frac{N_1 \sigma_1 / \sqrt{C_1}}{\sum_{i=1}^l N_i \sigma_i / \sqrt{C_i}}$$

Where  $N_i$  denotes the size of  $i^{\text{th}}$  stratum,  $\sigma_i$  denotes the population standard deviation (SD) from the  $i^{\text{th}}$  stratum and  $C_i$  the cost of obtaining a single observation from the  $i^{\text{th}}$  stratum.

It is necessary to approximate the variance of each stratum before sampling in order to use the allocation formula in equation. The approximate may be obtained from earlier surveys from knowledge of the range of measurements within each stratum.

### Merits of Stratified sampling

- i) It requires small sample in order to ensure representativeness than simple random sampling.
- ii) It ensures adequate representation of each type of category thereby providing greater reliability.
- iii) It enables disproportionate sample sizes possible from different strata.
- iv) Crucial variables are used to define the strata.
- v) It enhances the accuracy of the sample estimates.

### Demerits of Stratified sampling

- i) A complete sampling frame for the entire population is required which leads to high cost and more time for the exercise.
- ii) The availability of the information necessary to divide the population into groups is not guaranteed by the availability of sampling.
- iii) It fails to produce always an estimator with a small variance than the corresponding estimator of simple random sampling.

## 4) Cluster Sampling

This is a procedure used in large-scale surveys, where the population (or the area) to be studied might cover all extensive territory. The desired sample size in this approach could be arrived at by demarcating the area into small units, called clusters, and then drawing the sample units from the randomly selected clusters. Clusters and sample units could be selected by the process of simple, systematic or stratified random sampling, or by a combination of these techniques. Or

On the other hand, thus method the division of the population into small groups called clusters based on the criterion of geographical proximity. The sample units are chosen in nearby groups of various sizes in selected areas of similar populations. The size of the final cluster is very important and the smaller the final cluster, the more reliable the sample. From the categorized clusters a sample of clusters is drawn using systematic or random sampling. All the units within the chosen clusters may then form the sample, or a sub-sample can be selected with the aid of systematic or random sampling.

Clusters may be of equal or unequal sizes. The usefulness of cluster sampling can be shown from the following illustration. Assuming a researcher or an investigator wishes to estimate the average income per household in a large town, how then should he choose the sample? If the researcher uses simple random sampling (SRS), it is obvious he/she will need a frame listing all the household (elements) in the town which may be very costly to obtain. The researcher cannot avoid this problem either by using stratified random sampling because a frame is still required for each stratum in the population. Rather than drawing a SRS of elements, the investigator could divide the city into regions such as blocks (or clusters of elements), and select a simple random sample of blocks from the population. This is easily accomplished using a frame which lists all city blocks. Then the income of every household within each sampled block would be measured.

### **How to draw a cluster sample**

First and foremost, you specify appropriate clusters. This is so because elements within a cluster are often physically close together and, hence tend to have similar characteristics. Stated another way, the measurement on one element in a cluster may be highly correlated with the measurement on another.

Thus, the amount of information pertinent to a population parameter may not be increased substantially as new measurements are taken within a cluster. Since measurements cost money, an investigator would waste money by choosing too large a cluster size. As a general rule, the number of elements within a cluster should be small relative to the population size, and the number of clusters in the sample should be reasonably large. For example, suppose that school districts are specified as clusters for sampling households in a city. The clusters contain many households.

Consequently, the resources of the investigator allow only a small number of clusters; say 2 or 3, to be sampled. Thus sample may not be representative of the population because the households within the same school district may be relatively homogeneous with respect to the characteristic being measured. More information could be obtained by sampling a larger number of clusters of smaller size. Once appropriate clusters have been specified, a frame which lists all clusters in the population must be composed. A sample of clusters is then selected from this frame by using the SRS.



## Properties of Estimators when Cluster Size is Equal

The estimators of  $\mu$  and  $\hat{\sigma}^2$  possess special properties when all cluster sizes are equal (that is,  $m_1 = m_2 = \dots = m_n$ ). First, the estimator  $\bar{y}$ , is an unbiased estimator of the population mean,  $\mu$ . Second,  $v^2 = \frac{1}{n} \sum (y_i - \bar{y})^2$  is an unbiased estimator of the variance of  $\bar{y}$ . Finally, the two estimators,  $M\bar{y}$  and  $N\bar{y}_{ct}$ , of the population total,  $\hat{O}$ , are equivalent.

## Merits of Cluster Sampling

- i) it is useful in situations of unavailable complete sample frame.
- ii) It is sometimes gives more information per unit cost than do either simple or stratified random sampling.
- iii) It is less expensive than simple or stratified random sampling if the cost of obtaining frame which lists all population elements is very high or if the costs of obtaining observations increase as the distances separating the elements increase.

## Demerits of Cluster Sampling

- i) It makes available less reliability than a random sample of the same size.
- ii) Biased sample can be generated as a result of the choice of few clusters because units with the same characteristics can be included in the selected clusters.

## 5) Multi-stage Sampling

This technique can be regarded as variant of cluster random sampling. In adopting this procedure the sampling process moves through a series of stages. From a large total population, a sample is randomly selected into a first stage, and this is again randomly sampled into a second stage and may be into a third stage (etc). The probability of selecting the sample units is enhanced if the initial (i.e. first stage) sampling fraction is high. Or it involves selecting procedure, the primary groups and subgroups are selected on the bases of geographical distribution rather than other characteristics. The first stage of this process involves breaking down the area under survey (population) into a number of standard regions called the primary sampling units. The sample to be chosen is then divided among these primary sampling units according to their population sizes. At the second stage of this process, a small number of the primary sampling units is randomly selected. The selected small number is referred to as the secondary sampling units. Finally, the sample in each secondary unit is chosen using any of the random, stratified, and systematic sampling techniques. Even within each group, stratified can be adopted. However, the extent of stratification is dependent on the purpose of the survey and the homogeneity of the population. It must be pointed out that the first stage of multistage sampling is akin to cluster sampling.

### **Advantages of Multi-Stage Sampling**

- i) It saves time and cost of conducting survey.

### **Advantages of Multi-Stage Sampling**

- i) It reduces the extent to which the same genuinely random
- ii) It may lead to increase in sampling error due to loss of randomness.

### **3.3.2 B. NON-PROBABILITY SAMPLING METHODS/DESIGNS**

Non-probability procedures are generally only used when probability sampling cannot be practised or is not practicable. This is so because the representativeness of the sample may be low and the statistics that might be calculated from the sample data may be dubious and this unreliable.

In quantitative research or non-probability procedures, only a sample (that is a subset) of a population is selected from any given study. The examples include the following which will also help you understand the reasons for using each method.

#### **1) Quota Sampling**

It is a method or technique commonly used in opinion poll or market survey. It entails informing the interviewers how many respondents with particular characteristics to sample so that the overall reflects the characteristics of the population as whole characteristics might include age, place of residence, gender, class, profession, marital status etc. The criteria we choose allow us to focus on people we think would be most likely to experience, know about or have insights into the research topic. We then proceed to the study area and using recruitment strategies appropriate to the location, culture and study population – find people who fit these criteria until we meet the prescribed quota. The interviewers, however do not know whom to sample. The result of quota sampling is a series of accidental samples. Where is some information about the population, quota can be included. Once the quota for a particular category has been filled, responses will not be collected from those in that category.

#### **Merits of Quota Sampling**

- i) It is very useful when the overall proportions of different groups within a population are known.
- ii) It can be used when the study is based upon a simple comparison of two groups.
- iii) It can be adopted or used in circumstances when random and stratified sampling cannot be used.
- iv) It is very cheap

## **Demerits of Quota Sampling**

- i) It is not truly random because each unit within the population does not have an equal chance of being chosen.
- ii) The lack of genuineness may distort the results
- iii) Low response rate may be experienced.
- iv) A number of personal questions may be required before the researcher can determine whether the respondent has the characteristics of quota group on which information is required.
- v) It may be difficult in a practical sense to fill the quota.

## **2) Accidental sampling**

This is a method in which the researcher constitutes the sample by just taking any unit that is available, he/she takes any that is at hand and continues so until the desired sample size is attained. Or

It is a technique that makes use of any unit of the population at hand. It is essentially a convenience sampling technique that follows no prescribed sampling rules. This leads to the inability of the researcher to determine the representativeness of the sample. Therefore, it is impossible to eliminate how much bias has been introduced into the sample.

## **3) Snowballing Sampling**

This is a very special sampling method usually used when other methods are not practical. It entails making use of personal contacts to build up a sample of the group to be studied. However, such sample cannot be representative because units must be part of a network of contacts before they can have any chance of being included. Or

It is also known as chain referral sampling under which participants or information with whom contact has already been made use their social network to refer the researcher to other people who could potentially participate in or contribute to the study. Snowball sampling is often used to find and recruit “hidden population”, that is groups not easily accessible to researchers through other sampling strategies.

## **4) Purposive Sampling**

This is one of the most common sampling strategies in which sample units are chosen on the basis of the judgement of the researcher, which often can be faulty. The sample elements are chosen because of certain common criteria relevant to a particular research question. The method is used for community situations in which one or a few communities are selected of the variables with which the research is concerned. Also,

research that has to do with inter-relationship between variables may be carried out through a case study. Under this technique, sample sizes which may or may not be fixed prior to data collection, depend on the resources and time available, as well as the study's objectives. Purposive sample sizes are often determined on the basis of theoretical saturation (the point in data collection when new data no longer bring additional insights to the research questions). Purposive sampling is most successful when data review and analysis are carried out in conjunction with data collection. In a nutshell, the researcher relies on his "assumed" good judgement in selecting the sample units.

### **5) Convenience Sampling**

Under this sampling technique, the researcher or investigator selects a group of sampling units from the study population solely on the ground of convenience. It is usually based on the assumption or presumption that there is reason for any one unit/chunk from the population to be different from the others with respect to the characteristics under investigation. The sample selection process continues until your required sample size has been reached. It is evident that the technique is prone to bias and influences which are beyond your control, as the cases only appear in the sample because of the ease of obtaining them.

### **6) Judgement Sampling**

It is a common non-probability method. The researcher selects the sample based on judgement. This is usually an extension of convenience sampling. For example a researcher may decide to draw the entire sample from one "representative" city, even though the population includes all cities. When using this method, the researcher must be confident that the chosen sample is truly representative of the entire population.

## **4.0 CONCLUSION**

Any researcher always aims at obtaining a sample that is as much representative of the population under study as possible despite all odds and challenges. Despite the fact that these aims are not easily realizable in practice because of time, money and insufficient knowledge of the population, the researcher has to take some factors into full account while making decisions relating to sampling.

## **5.0 SUMMARY**

In this unit, you learned about sample and sampling. Sampling is widely used in social research, especially in survey research and non-reactive research techniques. You learned about different types probability sampling methods and their merits and demerits.

Different types of non-probability sampling methods were also extensively discussed coupled with their merits and demerits.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is a sample? How does a sample differ from the accessible population?
- ii. Why should a sample be representative of its parents population?
- iii. Briefly explain probability and non-probability sampling techniques.
- iv
  - (a) Define simple random sampling
  - (b) Discuss how you would use this technique in obtaining your sample
- v. Differentiate between accidental and simple random sampling.

## **7.0 REFERENCES/FURTHER READING**

Bernard HR. Research Methods in Anthropology second Edition, London: Sage Publications, 1995

Denzin NK, Lincoln YS (eds.) Handbook of Qualitative Research, London: Sage Publications, 2000.

Nkwi. P, Nyamongo I, Ryan G Dield Research into social Issues: Methodological Guidelines, Washington, DC: Unesco, 2001

Hope C, Mays N. Qualitative Research in Health Care London: BMJ Books, 2000.

Snedecor G. W and Cochran W.G (1980): Statically Methods. The Iowa, State University Press, Ames, Iowa, USA.

Tuned Agboola; C.O., Olatubara; B. Ola Yusuf and Moruf Alabi (2003): Contemporary social science Research Methods: A practical guide. Murlab Search wisdom Educational Services, Marina, Lagos, Nigeria.

## **UNIT 2 RESEARCH MEASUREMENT AND SCALING**

### Contents

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning of Measurement
  - 3.2 Functions of Measurement
  - 3.3 Definition of Scale and types of Scales of Measurement
  - 3.4 Measuring Scales
  - 3.5 Errors of Measurement
  - 3.6 Validation of Instrument
  - 3.7 Reliability Testing
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Whenever a researcher sets out to collect information or gather data on an identified research problem, he/she is more or less involved in one kind of measurement or the other. Naturally, we all measure things from time to time in our individual lives, but the process of measurement in research can be complicated if not properly handled. It entails a number of decisions that can have serious consequences on the outcome of a research study if taken with levity.

Therefore, the importance of measurement in a research study should not be underestimated because the success of every research effort depends on the appropriateness of the measuring instrument/scale designed for the study. Hence, for the purpose of proper data analysis and interpretation, the information or data obtained in research has to be transformed from qualitative (i.e. words or phrases) into quantitative (i.e. numeric) forms.

### **2.0 OBJECTIVES**

By the end of this unit and relevant reading, you should be able to:

- Define measurement
- State functions of measurement
- Explain types of scale of measurement

- List and discuss measuring scales and errors of measurement
- Briefly discuss validation of instrument and reliability testing

### **3.0 MAIN CONTENT**

#### **3.1 Meaning of Measurement**

Measurement may be viewed as a procedure of assignment numerals to properties, objects, and events by following specific rules for understanding the numbers so assigned.

Measurement enables the researcher to record (register) the value of a particular variable obtained from the field.

For example, instead of recording ‘Yes’ or ‘No’ to questions, the number ‘1’ for ‘Yes’ and ‘2’ for ‘No’ (or vice versa) could be used to record the responses. It is easier to handle the latter (i.e. the number), than the former, both at the level of data collection and at the level of using the data (i.e. data analysis and interpretation).

In the case of objects or events the numbers are used to measure the attributes of the object or events. Therefore social scientists do not measure their theoretical variables per se, but rather indicators or inducers of the variables. Meaning that measurement in social sciences is to a large extent, indirect. Measurement therefore, is not an end itself, but rather a means of capturing in quantitative form aspects of reality which can be used to support or falsify theories about social behavior. In fact, measurement could be likened to or referred to as the bridge between theoretical statements and the empirical observations in which they are based, and, without adequate measurement procedures the theories themselves become unstable.

#### **3.2 Functions of Measurement**

- 1) Measurement provides data for the social scientist
- 2) It enables scientist (researcher) to understand the property of the event
- 3) It is also a mechanism through which researcher views the relationship of one property to that of the other.
- 4) It gives room for testing hypothesis, propositions and theories
- 5) Measurement helps to establish the degree of presence or absence of some factors.
- 6) Measurement makes possible the meaningful observation of reality (that is, it lightens the methodology of concept to the world of reality).
- 7) It promotes new discovery.

### 3.3 Definition of Scale and types of Scales of Measurement

**3.3.1 Scale:** A scale is a set numerical values assigned to subjects, objects, or behaviours for the purpose of quantifying and measuring qualities. Scales are used to measure attitudes, values and other characteristics.

They differ from tests in that the results of these instruments, unlike these tests do not indicate success or failure, strength or weakness. They measure the degree to which individual possesses the characteristics of interest.

#### 3.3.2 Types of Scales of Measurement

The following are the four general types of scales of measurement: nominal, ordinal, interval and ratio.

- 1) **Nominal Scale:** It is known or referred to as the crudest form of the scaling methods. It gives categorization without order; whatever is being measured is categorized into two or more categories that indicate only differences with respect to one or more characteristics. For example, sex of an individual, which can be either male or female-which can be represented by number 1 or 2.
- 2) **Ordinal Scale:** This is the next highest scale of measurement. In addition to indicating differences, this scale also orders the scores on some basis, such as low to high or least to most. Although the scores are ordered, equal intervals between scores are not established. They are used when a researcher wants to put his or her observations or data in a certain order of importance. An example is people attitude towards a particular issue; they could be assigned the following choices.

Strongly disagree	<input type="checkbox"/>	disagree	<input type="checkbox"/>
Neutral	<input type="checkbox"/>	Agree	<input type="checkbox"/>
Strongly Agree	<input type="checkbox"/>		

One of the characteristics of these categories is that the distance (i.e. interval) between categories rank next to each other are equal.

- 3) **Interval Scale:** Interval scale is also called equal unit. In addition to ordering, equal units or intervals are established in this scale, such that a difference of a point in one part of the scale is equivalent to a difference of one point in any other part of the scale. An example is the thermometric measurement that is the thermometer used for measuring (reading) temperature. However, unlike the other



scales, interval scale can measure the interval or distance or distance between two points on a quantitative instrument. For example, interval scale allows the research to say that position 9 on the scale is above position 10 and also that distance from 10 to 9 is the same as the distance from 9 to 8 but it does not give room for conclusions. To say that 12 is twice as strong as the position 6 because no zero position has been established. Interval scale does not have an absolute zero point instead its zero point is arbitrarily determined.

- 4) **Ratio Scale:** the ratio scale is regarded as the highest level of measurement, because the characteristics of its categories include all those discussed in the above three scales. In addition, to equal units, this scale contains a true zero point that indicates a total absence of whatever is being measured. Examples include a tape rule, ruler and monetary expenditures for various school functions, etc. The ratio scale is normally used when variables such as weight, length and time are measured (quantified).

The scale comprises a hierarchy measurement levels which are based on the amount of information contained in the score or the measurements generated by the scales. The scale of measurement adopted for research determines the statistical design to be used.

Many variables cannot be categorized into the hierarchy of scales, especially into ordinal and interval scale. At times, it is difficult to define the equal unit or interval absolutely. The intervals may be established on the basis of convention and usefulness. The major concern is whether the level of measurement is meaningful and that the implicated information is quantified. It is not normally used to measure people's attitudes or perceptions because the lowest possible length and weight are known to be zero, but it is obviously difficult to define a total absence (zero point) of human qualities.

### **3.4 Measuring Scales**

The outcome as well as success of every research study depends on the appropriateness of the measuring scale designed. Nworgu (1991) described three major scales for the measurement of psycho-social variables. These are:

- i) The summated rating scale devised by Rensis Likert which is usually referred to as; the Likert-type scale
- ii) Equal appearing interval scale also known as Thurstone scale and
- iii) The cumulative scale called Guttman's scale.

These scales are widely used in the social sciences and education for the measurement of effective traits, most especially attitude.

- 1) Likert's summated Rating Scale: The construction of this scale involves generation of statements about the variable being measured and providing a set of graduated response options. Example of Likert's summated rating scale is:  
Instruction: Please read each item and tick ( ✓ ) the most appropriate column that describes your view.

Note that:

SA = Strongly Agree = 4 points  
A = Agree = 3 points  
D = Disagree = 2 points  
SD = Strongly Disagree = 1 point.

S/No	Statements	SA	A	D	SD
1.	Most conflicts in Nigeria are ethnic religious and resource based.				
2.	Amnesty has drastically reduced Niger Delta crisis				

The respondent is expected to indicate his position on each statement by ticking the appropriate column in the graduated response options. These are summed up for each individual so as to obtain a total score which represents the person's stand on the variable or attribute that is being measured.

- 2) Thurstone Equal-Appearing Internal Scale  
This type of scale requires that the researcher construct a number of statements (items) which are related to the attitude being measured. These statements are presented to a panel of 25 (or more) judges, who are requested to sort the items into? Or more categories sets of judges are asked to rate each of the items in terms of the degree of intensity on a 7 point scale or more. The average rating for each item is computed, that is the average of the categories into which items was sorted. The code for rating is as follows:

Rating Code

Very High	High	Slightly above Average	Average	Slightly below Average	Low	Very Low
7	6	5	4	3	2	1

Hypothetical Rating of an item by 25 Judges

Category	7	6	5	4	3	2	1	Total
Number of Judges	2	1	4	3	4	5	6	25
Category X	1 4	6	2 0	1 2	1 2	1 0	6	80

The mean value is obtained by dividing 80 by 25

i.e.  $\frac{80}{25} x = 3.2$

This is the average point assigned to the item by the 25 judges. Each of the items constructed in the questionnaire is subjected to the same procedure, with a view of obtaining a numerical value or weight for each item. About 20 items are selected on the basis of their weights, from the pool of items for inclusion in the final instrument.

By using this scale, respondents are requested to tick 3 to 5 of the twenty statements or items which best represent their views on the issue. The individual score is determined by taking the mean or median of the scale values of those statements that were picked by him or her. If a subject (an individual) picks statement 3, 8, 11, 15, 19, with scale values 2.5, 2.7, 3.4, 3.8 and 4.1 respectively, the mean score is 3.3.

$$\frac{2.5 + 2.7 + 3.4 + 3.8 + 4.1}{5} = \frac{16.5}{5} = 3.3$$

Mean Score = 3.3 while Median is 3.4

Either of these (3.3 or 3.4) values can be used as the individual's score. The higher the score, the more intense is the person's attitude towards the issue under consideration.

### 3) Guttman's Cumulative Scale

Unlike the earlier two scales discussed above, Guttman's scale considers scale considers the unidimensionality of items, that is, the degree (extent) to which all the items measure one aspect of a particular variable. Guttman scale has become widely used in many types of social science research, particularly in psychology and area of attitude measurement (like peace and conflict study) in survey research Guttman scale analysis is a means of analyzing the underlying operating characteristics of three or more items in order to determine if their inter-relationship meet several special properties which define a Guttman scale. It is unidimensional because it measures only one underlying attribute. Guttman scaling begins with measuring a sett of indicator or items. These can be questionnaire items, votes, or observed characteristics. The indicators are usually

measured in a simple yer-no or present –absent fashion. Three to twenty indicators can be used. The researcher selects items on the belief that there is a logical relationship among them then places the results into a Guttman scale and determines whether the items forms a pattern that corresponds to the logical relationship. Once a set of items is measured, the researcher considers all possible combinations of responses for the items.

#### Example of use of Guttman Scaling

A researcher might consider a set of seven items with varying intensities and which are un-dimensional. Let us assume these items are given to a group of eight respondents to indicate the extent to which they agree or disagree with each of the items. The items have been arranged in order of intensities from the most intense to the least intense. The appropriate response for every individual is indicated with a + sign for agree and – sign for disagree. The items are unidimensional. Anybody who agrees with item 1, will also agree with subsequent items, that is, 2,3,4,5,6 and 7. Those who agree with item 2, will also agree with items 3,4,5,6, and 7 Respondent who however agree with 2 does not necessarily have to agree with item 1, just as those who agree with 3 may not agree with 2, and so on.

Respondent	STATEMENT							Score
	(Most Intense)			(Least Intense)				
1	1	2	3	4	5	6	7	7
2	+	+						6
3	-							5
4	-	-						4
5	-	-	-	-				3
5/6	-	-						2
			-	-	-			
7	-	-	-	-	-	-		1
8	-	-	-	-	-	-	-	0

The score for each respondent is given by the number of items he agrees with. Respondent 1 agreed with all the seven items, hence he scored 7; respondents 2 agreed to 6 items, hence he scored 6; and so on. The responses follow the same pattern, as the items are unidimensional and constitute a perfectly scale. If the items of a perfect scale vary in intensity like the above one, the scale is considered to be perfectly reproducible. Given the total score of any respondent, one can determine the items that he has agreed with. Those who score 7 must have agreed with seven items while those who score 6, agreed with item number 2 to 7, those who scored 5, agreed with items 3-7, and so on in that order.

Practically, perfect scales are rare to come by, as most scales are characterized by response error like those in the table above. Guttman's formulae, coefficient of Reproducibility is equal to 1. The number errors can be used to determine the extent to which a scale can be reproduced.

Imperfect scale

Respondent	1	2	3	4	5	6	Score
1		-					5
2	-				-		4
3	-	-	-				3
4	-	-	-	-		-	2
5	-	-	-	-	-		1

In the above scale, the number of errors is 3, while the number of responses is 30 (i.e. number of items multiplied by number of respondents)

The coefficient of reproducibility is  $1 - \frac{3}{30}$ , which is equal to 0.9. This shows that the scale is not reproducible. If a scale yields a coefficient of 1.0, it is perfectly reproducible, but if then coefficient is 0.0, the scale is totally irreproducible, since every response on the scale constitutes an error.

- 4) **Socio-metric Techniques:** Socio-metric techniques are used for studying the organization of social groups. It entails measurement to bring out and to assess interaction pattern between close associates in a variety of groups. For example, in conducting socio-metric measurement in a school, each of the children in a reading group may be asked to choose two other children whom they would like to study with, sit next to, eat lunch with or play with after school. The socio-metric method is essentially a study of choices made by each person in a group. This can generate answers that can be represented in a socio-gram which shows the pattern of interpersonal relations in a group.

It is not widely used except for research in social psychology and in educational research especially when dealing with person one on one. It can be used to study mental ability achievement and teacher's preferences for children.

### 3.5 Errors of Measurement

In the course of carrying out a research work (study), for data collection, the instrument used in measuring could be biased. For example if same test is taken twice, they will seldom perform exactly the same (i.e. their scores or answers will not usually be

identical). This may be due to some factors ranging from difference in motivation, energy, anxiety, different testing situation and so on.

There are two identified sources of measurement error, namely, systematic error and random error.

Systematic error is a situation in which respondents reactions are due to socially and or culturally desirable. When this error occurs, it means that respondents are not giving their true opinions. When this happens consistently, then researchers fail to measure what they intended to measure.

Random error occur when measurement vary (for a number of reasons). Such factor that may directly affect measurement consistency are:

- i) Some respondents are tired or ill
- ii) Some respondents found the presence of the researcher threatening
- iii) The researcher has a monetary lapse in correlation.
- iv) The research equipment (e.g. tape recorder) mal functions.

### **3.6 Validation of Instrument**

Validation is a way of ensuring that a research instrument is of good quality. (i.e. it reveals the extent to which an instrument measure what it is supposed to measure). Validity tries to ascertain whether the instrument measures precisely the characteristics, tracts, or whatever for which it was intended.

Validity is one of the main concerns with research “Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings” (Seliger & Shohamy 1989, 95). Controlling all possible factors that threaten the research’s validity is a primary responsibility of every good researcher.

Validity therefore, refers to the appropriateness of the interpretation of the results of a test or inventory, and it is specific to the intended use. These are possibility of a test being highly valid for certain situations and not valid for others. There are two major approaches to determining the validity of an instrument namely logical analysis and criterion.

The first approach of determining the validity of an instrument is through a logical analysis of the content or a logical analysis of those things which make up an educational traits, constructs, or characteristics. It can also be referred to as judgement analysis. The second approach uses criterion measurement, of which the criterion may be some sort of standard or desired outcome. The criterion being measured may be performance on a

task or test, or a measure of job performance. Therefore, validity is a measure of correlation between the test validated and the criterion measured.

The traditional view of validity is that there are basically three different types, namely: content, criterion, and construct. This view which has two variations of criterion validity – concurrent and predictive. A more current perception is that validity is a unitary concept. However, there are different types of evidence of validity while the procedures for determining validity are the same.

### **3.7 Reliability Testing**

Reliability is another way of ensuring that an instrument used in a research study is of good quality. It is essential to conduct test(s) to determine the extent to which the research instrument is reliable. Reliability therefore, means the extent to which an instrument measures consistently whatever it was designed to measure. It is the extent to which an instrument will give similar results for the same individual at different times. In a conceptual sense, an observer's score could be seen in two ways. The individual's 'true' score and an 'error' score that is due to inaccuracy of the measurement. Reliability is related to the two views. If scores have large error components, the reliability will be low, but if there is little error in the scores, the reliability will be high.

Reliability is a statistical concept that is based on association between two sets of scores representing the measurement obtained from the instrument when it was used with a group of individuals. Reliability coefficients could be in the range from 0 to 1.0 inclusive. Conceptually, if the reliability coefficient of an instrument is 0, there would be no 'correct' component in the observed score. The observed score would be made of complete error. If however, the reliability coefficient were 1.0, the observed score would contain no error; it would consist entirely of the true score. It is expedient to obtain high-reliability coefficients, even though the coefficient of 1.0 is very rare to come by.

Methods of testing for Reliability

The reliability coefficient of a research study can be estimated through the following procedures with each of them having a computational formula:

- a) Split – half: This procedure requires that the test be administered just once. In calculating the split-half reliability, the test items are divided into two halves, with the items of the two halves matched in content and difficulty. The halves are then scored independently. If the test is reliable, the scores on the two halves have a high positive relationship. Somebody who scores high on one half would tend to score high on the other half, and vice versa. The Pearson-Brown prophecy formula can be used for computation, that is:

$$r_t = \frac{2r}{1+r}$$

Rulon's formula can also be used, that is:

$$r_t = \frac{S_{h1}^2 + S_{h2}^2}{S_t^2}$$

where:

$S_{h1}^2$  = Variance of 1<sup>st</sup> half test

$S_{h2}^2$  = Variance of 2<sup>nd</sup> half test; and

$S_t^2$  = Variance of the whole instrument

- b) Kuder–Richardson Procedures
- c) K – R method applies to instrument which are score (i.e. pas or fail/all or none).
- d)  $\sum pq$  = sum of the variances of the individual items
  
- e) Parallel forms of Alternate forms  
 This procedure entails the use of two or more equivalent forms of the test. The two or more forms are administered to a group of individuals with a short time interval between the administrations. If the test is reliable, the patterns of scores for individuals should be virtually the same for the two or more forms of the test. There should be a high positive association between the scores. Pearson product moment correlation or Rank-order correlation can be used for computation.
  
- f) Test-Retest  
 This involves administering the same test on two or more occasions to the same individuals. Again if the test is reliable, there will be a high positive relationship between the scores. The Pearson product moment Correlation can also be used for computation.
- g) Cronbach Alpha  
 This formula was developed by Croubach (1951) based on two or more parts of the test.

The formula is stated below:

$$r_t = \frac{k}{k-1} \left( 1 - \frac{\sum si^2}{S_t^2} \right)$$

Where: K = number of items

$S_t^2$  = variance of a single item

$S_t^2$  = variance of the whole instrument



When two or more parallel forms of the test are used, the reliability coefficient is a coefficient of equivalence – the extent to which the forms are equivalent. Using the test-retest procedure gives a reliability coefficient that is a coefficient of stability – the extent to which the scores on the single test remain stable. Coefficients of equivalence and stability are based on more than one test administration.

#### **4.0 CONCLUSION**

Measurement and scaling are essential tools required for data collation and analysis in a research study. They also determine the quality and effectiveness of research instrument(s) used for data collection and at the same time, a central part of analyzing research instrument, testing hypothesis theoretical assumption and interpreting data obtained from the field. The type of measuring scale adopted is usually determined by what is to be measured, with necessary consideration given to legal and ethical issues while collecting, collating analyzing and interpreting data.

#### **5.0 SUMMARY**

In this unit, concept of measurement and scaling were extensively discussed. Meaning of measurement, types of measuring scales, functions of measurement as well as errors of measurement were explained. Importance of validation of instrument coupled with reliability of the instrument used in collecting data, analyzing data, together with interpretation of findings were not left out. The importance of acknowledging all sources of data is also very necessary in social sciences study.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

1. What do you understand by the concept measurement?
2. Of what importance is measurement to research study?
3. Enumerate and briefly explain types of measurement scales you have learnt
4. What is scaling in research?
5. Mention types of scaling and discuss any two of them
6. Why do you scale in research?

#### **7.0 REFERENCES/FURTHER READING**

Conradu, H. (2004). Research Methodology University of South Africa Pretoria.

Collins, K.J. (2000). Research in Social Science University of South Africa Pretoria

Kerlinger, F. N. (1992). *Foundation of Behavioral Research*, Florida, USA: Harcourt Brace College Publishers, P. 391 – 434.

Nworgu, B.G. (1991). *Educational Research: Basic Issues and Methodology*, Ibadan: Wisdom Publishers Limited, P.81 – 111

Osiko, J. O. (2006). “Use of A. Research Questionnaire” in A. I. Olayinka; V. O. Taiwo; A. Raji – Oyelade, and I. P. Farai (Eds): *Methodology of Basic and applied Research*, Ibadan, Ibadan, pp. 133-149.

Olusala, (E. C. (2001). *Introduction to research methodology* Africana-Fep Publishers Ltd. Nigeria.

Wersma, W. (1994). *Research Methods in Education: An Introduction*, Boston: Allyn and Bacon, p272-305.

## **UNIT 3                      VALIDITY AND RELIABILITY**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition/Meaning of Validity
  - 3.2 Types of Validity
  - 3.3 Meaning of Reliability
  - 3.4 Types of Reliability
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Each and every research studies make use of one data gathering instrument or the other, which must be capable or able to discriminate between subjects with respect to a certain characteristics. Also, all studies are designed to either test hypothesis or answer research questions. And for research tools or instrument used could be meaningful, they must satisfy two basic criteria; they must be reliable and valid.

Although, the concept validity is complex and controversial but of great importance to research. Reliability can be studied without inquiring into the meaning of variable but it is impossible to study validity without inquiring into the nature and meaning of the researcher's variables.

### **2.0 OBJECTIVES**

By the end f this unit and relevant readings, you should be able:

- Define validity
- Explain different types of validity
- State what reliability is
- Discuss various forms or types of reliability.

### **3.0 MAIN CONTENT**

#### **3.1 Definition/Meaning of Validity**

- Validity is an indication of how sound your research is.

- It is indication of the extent to which a measuring instrument measures what it is supposed to measure.
- Validity is another essential characteristic of measurement. It is the proper to being genuine, a true reflection of attitudes, behavior or characteristics (Scolt and Marshall 2005).

More specifically, validity applies to both the design and the methods of you findings. Validity in data collection means that your findings truly represent the phenomenon you are claiming to measure. Valid claims are sold claims. Validity is one of the main concerns with research. “Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings” (Seliger & Shohamy 1989,95) controlling all possible factors that threaten the research’s validity is a primary responsibility of every good researcher.

Validity also refers to the appropriateness of the interpretation of the results of a test or inventory and it is specific to the intended use (Wiersma 1995).

Validity is always specific to the particular purpose for which the instrument is being used. For example, a test that has validity in one situation and for one purpose may not be valid in a different situation or for a different purpose. The purpose for which the test is being used is also a major factor in validity. The different purposes of tests require different types of evidence to support the validity of that particular use.

### **3.1.1 Internal Validity**

This is affected by flaws within the study itself such as not controlling some of the major variables (a design problem), or problems with the research instrument (a data collection problem).

“Finding can be said to be internally invalid because they may have been affected by factors other than those thought to have caused them, or because the interpretation of the data by the researcher is not clearly supportable” (Seliger & Shohamy 1988, 95).

Some of the factors which affect internal validity are the followings:

- Subject variability
- Size of subject population
- Time given for the data collection or experimental treatment
- History
- Attrition

- Maturation
- Instrument/task sensitivity

### **3.1.2 External Validity**

Is the extent to which you can generalize your findings to a larger group or other contexts. If your research lacks external validity, the findings cannot be applied to contexts other than the one in which you carried out your research. For example, if the subjects are all males from one ethnic group, your findings might not apply to females or other ethnic groups (O<sub>5</sub>, if you conducted your research in a highly controlled laboratory environment, your findings may not faithfully represent what might happen in the real world.

“Findings can be said to be externally invalid because (they) cannot be extended or applied to contexts outside those in which the research took place” (Seliger & Shohamy 1989, 95).

The following are seven important factors that affect external validity:

- Population characteristics (subjects)
- Interaction of subject selection and research
- Description explicitness of the independent variable
- The effect of the research environment
- Researcher or experimenter effects
- Data collection methodology
- The effect of time.

## **3.2 Types of Validity**

There are four basic approaches used in determining the validity of an instrument. These include; predictive, concurrent, content, and construct validity.

### **3.2.1 (1) Predictive Validity**

This is a form of criterion validity whereby an indicator predicts future events that are logically related to a construct. Or it is the ability of an instrument to predict some future event(s). It cannot be used for all measures. The measure and the action predicted must be distinct from but must indicate the same construct. Predictive measurement validity should not be confused with prediction in hypothesis testing, where one variable predicts a different variable in the future.

The predictive validity of an instrument may vary depending upon such factors. Sometimes, prediction based on scores of one test may be imperfect but predictions based on a combination of several test scores will invariably be more accurate. Predictive validity is usually obtained by computing the correlation coefficient between a distribution of the test scores obtained at an earlier time against a distribution of score on some later criterion measure. Gay 1987 stated that the procedure for determining predictive validity as follows:

- i) Administer the test, (the predictor or variable to a group)
- ii) Wait until the behavior to be predicted, the criterion variable occurs
- iii) Obtain measures of the criterion for the same group
- iv) Correlate the two sets of scores
- v) Evaluate the result.

### **3.2.2 (2) Concurrent Validity**

There are times the criterion data are collected about the same time the predictor tests are also collected. Under this condition, concurrent validity is established by correlating the predictor and the criterion scores. It is usually measured by calculating correlation coefficient between the distribution of test score and some concurrently existing criterion measure. The steps involved in determining concurrent validity are thus:

- i) Administer the new test to a defined group of individuals.
- ii) Administer a previously established valid test (or acquire such scores of already available) to the same group, at the same time or shortly thereafter.
- iii) Correlate the two sets of scores
- iv) Evaluate the results.

### **3.2.3 (3) Content Validity**

This has to do with the extent to which a text or instrument adequately covers the domain of behavior it intends to measure.

- It is the process of establishing the representativeness of the items with respect to the domain of skills, tasks, knowledge etc of whatever is being measured. (Wierma 1995).
- It is a logical analysis of the items determining their representativeness. It requires both item validity and sampling validity. Item validity is concerned with whether the test items represent measurement in the intended content area and sampling validity is concerned with how well the test sample the total content area. For example, an investigator or a researcher conducting a test on PCR III, the researcher must define the purpose and the subject matter to be covered. It means

the whole content of the course material have to be sampled and the sample would form the basis for inferences about the student's understanding and assimilation of the entire course.

- Content validity should not be confused with face validity. Face validity refers only to how test appears to the perceiver, that is, validity by impression; and in the real sense it is not validity while content validity is.

### **3.2.4 (4) Construct Validity**

A construct can be defined as an ability, aptitude, trait, attribute or characteristics that is hypothesized to explain some aspect of behavior such as mechanical ability, intelligence, anxiety or extraversion. Construct also refers to something that is not itself directly measurable but that explains observable effects. Construct validity determines to what extent a test is consistent with a given theory or hypothesis under consideration – to what extent it taps what is implied by the theoretical definition.

In construct validation, three steps are involved which are as follows:

- i) The first step defines the meaning of the construct, deduce certain consequences in a wide variety of situations that should and should not be observable if the construct that has been hypothesized does exist.
- ii) Secondly, the researcher gathers data to test these hypotheses
- iii) Third, he makes an inference as to whether the theory is adequate to explain the data based on the evidence derived.

In most cases, construct validation takes place during the development and tryout of a test and is based on accumulation of evidence from diverse sources.

### **3.3 Reliability**

- Reliability is the extent to which a test or procedure produces similar results under constant conditions on all occasions.
- It is the degree of stability or consistency of a measurement.
- The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring.
- Reliability means dependability or trustworthiness

For example, a measuring instrument that gives the same or very similar measurement or result each time it is used under the same condition or characteristics is considered to be reliable while a device that does not do so lacks perfect reliability and contains

measurement error. Conceptually, an observed score can be viewed from two perspectives:

- i) The individual true score
- ii) An error score

Reliability is related to either of the two parts. If scores have large error components, the reliability is low but if little error is observed in the scores, reliability is high. This is a statistical concept based on the association between two sets of scores representing the measurement obtained from the instrument when it is used with a group of individuals.

The reliability of an instrument can be measured or assessed in many ways by making use of statistical method called correlation coefficient symbol. Reliability coefficients can take on value from 0 to 1.0 inclusive. Conceptually, if a reliability coefficient is 0, there would be no true component in the observed score. The observed score would entirely be consisting of error. On the other hand, if the reliability coefficient were to be 1.0, the observed score would contain no error; it would consist of true score entirely.

### **3.4 Types of Reliability**

There are different types of reliability, each is determined in a different manner and each deals with a different kind of consistency or each with a distractive source of error in measurement. These include:

#### **3.4.1 (1) Test – Retest Reliability**

It is also referred to as the coefficient of stability which is the degree at which scores are consistent overtime. It is obtained by administering the same test to the same group of individuals on two occasions and correlates the paired scores. The correlation coefficient obtained by this procedure is called a test-retest reliability coefficient. For example, a physical fitness test may be given again the following week. If the test is reliable, each individual's relative position on the second administration of the test will be near his or her relative position on the first administration of the test. The reliability coefficient ( $r_{xx}$ ) will be near 1. Any change in relative position from one occasion to the next is considered as error. If the test contains considerable error, the  $r_{xx}$  will be nearer 0. The procedure for determining test-retest reliability is as simple as follows:

- i) Administer the test to an appropriate group
- ii) After some time has passed, like two weeks, administer the same test to the same group.
- iii) Correlate the two sets of scores
- iv) Evaluate the results.



### 3.4.2 (2) Equivalent-Forms Reliability

This equivalent-form technique of estimating reliability is also known as the alternate – or *parallel-forms technique*. It is applied or used when it is probable that subjects will recall their responses to the test items. Instead of correlating the results of two administrations of the same test to the same group, one correlates the result of equivalent forms of the test administered to the same individuals. If the two forms are administered at essentially the same time (in immediate succession), the resulting reliability coefficient is called the coefficient of equivalence.

If subjects are tested with one form on one occasion and with another form on a second occasion and their scores on the two forms are correlated. Then the test is reliable and there will be high positive association between the scores. The major problem associated with this technique of estimating reliability is the difficulty in designing alternate forms of test that are truly equivalent. Lack of equivalence is a source of measurement error. The equivalent-forms technique is therefore recommended when one wish to avoid the problem of recall or practice effect and in situations when one has available a large number of test items from which to select equivalent samples.

### 3.4.3 (3) Split-Half Reliability

Split-half artificially splits the test into two halves and correlates the individuals' scores on the two forms. That is, test is administered to a group, and later the items are divided into two halves, scores are obtained for each individual on the two forms, and a coefficient of correlation is calculated. This split-half reliability coefficient reflects fluctuations of equivalence because it reflects fluctuations from one sample of items to another. If each subject has a very similar position on the two forms, the test has high reliability. But if there is little consistency in positions, the reliability is low. The method requires only one form of a test, there is n time lag involved, and the same physical and mental influences will be operating on the subjects as they take the two sections.

Longer tests are more reliable than shorter tests if everything else is equal. To transform the split-half correlation into an appropriate reliability estimate for the entire test, the spearman – Brown prophency formula is employed

$$\gamma_{xx} = \frac{2 r_{1/2}^{1/2}}{1+r_{1/2}^{1/2}}$$

Where

$\gamma_{xx}$  = the estimated reliability of the entire test

$r_{1/2}^{1/2}$  = the Pearson  $\gamma$  correlation between the two halves.

### 3.4.4 (4) Rationale Equivalence Reliability

It is also called internal consistency reliability used in estimating the reliability of an instrument through the application of Kuder-Richardson formulas from a single administration of a single form of a test without splitting the test in half for scoring purposes.

These formulas are applicable to items scored dichotomously, for example, right or wrong, passed or failed, true or false etc. The formulas for estimating reliability are:

- 1) K-R-20 provides the means of all possible split-half coefficients
- 2) K-R-21 may be substituted for K-R 20, if it can be assumed that each item be scored dichotomously that is, correct or incorrect, 1 or 0.

Crombach Alpha ( $\alpha$ ) is a formula developed by Crombach (1951), based on two or more parts of the test requires only one administration of the test. It is also referred to as coefficient alpha. It is another widely measure of homogeneity. It is a general formula of which K-R 20 formula is a special case.

The formula for alpha is

$$\alpha \text{ or } \alpha = \left( \frac{k}{k-1} \right) \left( \frac{S_x^2 - \sum s_1^2}{S_x^2} \right)$$

Where K = number of items on the test

$\sum s_1^2$  = Sum of the variances of the items scores

$S_x^2$  = variance of the test scores (an k items)

The formula for alpha is similar to the k-R 20 except that  $\sum s_1^2$  is replaced by  $\sum s_1^2$ , the sum of the variance of the item scores. Crombach alpha is used when measures have multiply scored items such as attitude scales or essay tests.

### 3.4.5 (5) Inter Rater Reliability

This is another type of reliability used in measuring instruments that require ratings or observation of individual by other individual(s). It is an index of the extent to which different judges/observers give similar ratings to the same behavior. One should ensure that ratings assigned are not influenced by the observers own values, attitudes, and other personality characteristics. The procedure of assessing this type of reliability requires that two or more raters observe or rate, the same behavior. To determine the degree or extent of agreement among the judges, the judges' ratings are usually correlated. The resulting correlation is therefore referred to as the inter-rater reliability index. It is also referred to as inter-observer reliability.

## **4.0 CONCLUSION**

Validity and reliability are regarded as central issues in all scientific research measurement that concerned with how concrete measures, or indicators are developed for constructs. Both are salient in social research because constructs in social research are often ambiguous, diffuse and not directly observable. Perfect reliability and validity are very difficult or impossible to achieve. Despite this, they are what researchers strive for. They try as much as possible to maximize the reliability and validity of indicators.

## **5.0 SUMMARY**

In this unit, you learned about how a researcher measures a construct through the application of reliability and validity. In addition you learned about different types of validity and reliability and the principles of reliability and validity are used in all forms of measurement. They are used to avoid common errors that create unreliability and invalidity and to evaluate your measure. Both also help you become aware of specific instances in which pitfalls are likely to occur in measure of concepts.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- 1) What do you understand by the concept validity?
- 2) What is reliability?
- 3) Briefly explain the word validity and discuss three types known to you
- 4) Compare and contrast validity and reliability
- 5) Enumerate and briefly explain different types of reliability.

## **7.0 REFERENCES/FURTHER READING**

Babbie, E (2001) *The Practice of social Research USA* Thomas Learning Inc.

Fraenkel, J. R. and Wallen, N. E (1996) *How to design and Evaluate Research in Education USA* Mc-Graw Hill

Gay, L. R. (1992) *Educational Research, Competences for Analysis and Application USA* Macmillan Publishing company.

Pattern, M. L. (2005) *understanding Research Methods, An overview of the essential USA* Publishing

## **UNIT4      IMPORTANCE OF THE USE OF STATISTICS IN RESEARCH**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning/Definition of Statistics
  - 3.2 Types of Statistics
  - 3.3 Relevance/Importance of Statistics to Research
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

A large number of people or researchers are usually afraid of or intimidated by quantitative research because of the fact that they lack or do not have in-depth knowledge of mathematics and statistics. In as much as research is regarded as the application of the scientific method(s) to the study of a problem(s). Questions/hypothesis are thought of in an attempt to find a solution to the problem at hand. In order to gather information or data, instruments must be put in place. The data collected are not useful because they are referred to as raw data or using appropriate statistical tools. In this unit, we will examine the meaning of statistics, types of statistics, the relevance of statistics in research, scale of measurement and experimental design and statistical procedures are two sides of a coin because if the design of research is faulty no amount of statistical manipulation can lead to the drawing of valid inference that are basic components of statistics.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define statistics
- Mention and explain types of statistics
- Enumerate the relevance of statistics into social research
- State scale of measurement

### **3.0 MAIN CONTENT**

#### **3.1 Meaning/Definition of Statistics**

The word statistics has two major meanings: Statistical data and statistical methods. When statistics is used in the context of data, it refers to the quantitative aspects of things or numerical description /collection of numerical facts and figures. A typical example of this is learning by gender (male or female) or by class level (100, 200, 300 or 400 levels, monthly wages distribution of either academics or non-academics staff in a University, annual production figures of a manufacturing company, etc.

On the other hand, the word statistics from statistical method point of view is refers to a body theories and techniques employed in transforming raw data into useful and meaningful information for making logical tenable and rational decisions and conclusion.

It is also the science of dealing with statistical data. It involves the following:

- i) Collection of Data
- ii) Analysis of data
- iii) Inference or decision making

#### **3.2 Types of Statistics**

Statistics can be very broadly classified into two categories, viz,

- ii. Descriptive statistics
- iii. Inferential statistics

##### **i) Description Statistics**

This is an aspect or type rising summarizing and describing quantitative data.

It is used to describe the basic feature of the data un a study. They provide simple summaries about the sample and the measures. Example of descriptive statistics are graphs, charts (pie charts), columnal charts, bar charts histograms etc), pictograms, tables and any form whereby data are displayed for easier understanding. Other examples are measures of central tendency (mode, mean, median), correlation coefficient (degree of relationship), Kurtosis, skewness. Etc.

Description of how data is prepared tend to be brief and to focus on the more unique aspects of your study, such as specific data transformations that are performed. Descriptive statistics can be voluminous. In most write-ups, these are carefully selected and organized into summary tables and graphs that only show the relevant or important information.

## ii) Inferential Statistics

It deals with the methods by which inferences are made on the population on the basis of the observations made on the smaller sample. Inferential statistics rest on the strength of deductive reasoning. This investigates questions, models and hypothesis. In many cases, the conclusions from inferential statistics extend beyond the immediate data alone.

Any procedure of making a generalization that goes beyond the original data is called inferential statistics obtained when data are collected. It this uses probability that is, the chance of an event occurring. An essential component of ensuring data integrity is the accurate and appropriate analysis of research findings. Improper statistical analyses distort scientific findings, and mislead casual readers (Shepard, 2002), and may negatively influence the public perception of research. Integrity issues are just as relevant to analysis is non-statistical data ad well.

Examples of inferential statistical tools are student to-test, Analysis of variance, Analysis to covariance, correlation Analysis, multiple regression, multivariate Analysis of Variance, etc.

Relationship among variables can also be determined. Also, by studying past and present data and conditions, it is also possible to make predictions based on this information. It would be observed that descriptive statistics consists of the collection, organization, summarization, and presentation of data while inferential statistics on the other hand, consists of generalizing from samples to populations, performing estimation and hypothesis testing, determining relationships among variables and making predictions.

### **3.3 Relevance of Statistics to Research**

Statistics helps the researcher in quantitative research to:

- acquire the techniques of data collection
- understand statistical procedures or methods for analyzing data
- acquire competence in planning and carrying out research.

### **3.4 The Need for Statistical Analysis**

Statistical analysis is defined as the process of investigating and evaluating a given set of data and drawing relevant conclusions from the data. It entails the art of data collection, choice of appropriate statistical methods and the conduct of analysis.

The statistical analysis is essential because of the following reasons.

- Statistical analysis helps to reduce a complex mass of data to a few easily understandable quantities. Complex data may be reduced to totals, averages, percentages, groups, and so on and presented graphically, diagrammatically or in a tabular form.
- It makes use of descriptive language which is more efficient and exact in communication. It guards against any vague conclusions and emphasizes arriving at definite ones.
- It allows drawing of generalizations and making less with similar facts under different conditions, locations or period.
- It enhances the presentation of results in a summarised, more meaningful and self-explaining form, thus emphasizing the hidden information in the raw data.
- It reduces or minimizes the uncertainties in conclusions on data
- It gives room for or establishes a level of reliability on conclusions.

### **3.5 Basic Statistical Approach/Procedure**

Statistical approaches to a research problem are categorized as follows:

- 1) **Collection of fact (data)**  
This is the first step in the statistical treatment of a research problem. The raw material upon which the researcher is to work is referred to as numerical data. The quality of data collected will determine the validity of statistical conclusions, among other considerations. Data collection should be undertaken in a planned manner because without proper planning, the facts/data collected may not be suitable for the intended purpose and a lot of time and money expended may be wasted.
- 2) **Organisation of data**  
In most cases, data collected are a huge mass of facts running into hundreds and thousands of figures. Effort must be made such that irregularities in the data and the bulk are reduced. This will involve organization, classification, tabulation and presentation of data in a suitable form.
- 3) **Statistical Analysis of data**  
The statistical analysis method to be used should be conceived right from the data collection stage. It includes such things as measures of central tendency, measures of dispersion or variability, test of independence and associations' comparative test and explanation of the nature of relationships. At this stage, raw data are transformed into useful information.

#### 4) Interpretation of Results

This stage is known to be the final phase of the statistical technique. It entails those methods by which judgments are formed and inferences drawn. A good knowledge of the statistical method(s) used by the research is essential for proper interpretation of the results.

### 3.6 Data Preparation

It is important to find out if the respondents provided useful information that could be used to trace their responses long after they have finished responding to the research instruments. The first thing to do is to enumerate all the copies of the questionnaire collected from the field serially. In addition, demographical data should also be checked to make sure there are no empty spaces. For example, if a respondent forgets or decides not to include his/her gender, but responded that she had been pregnant before, this would give us a clue that the respondent is female.

Also, if a respondent decided not to indicate that his/her socio-economic status (in terms of high or low) but indicated that he/she has 4 cars, and has built a house in a high class reserved area or estate, this may also help the researcher to identify the respondent as a high SES respondent.

#### Scale of Measurement

There are various ways by which numbers or values are assigned to variables. In some cases, simple classification is done while in others we arrange in order of size. These are four (4) different scales of measurement, which are Nominal scale, ordinal scale, interval scale and Ratio scale.

##### 1) Norminal Scale

Norminal scale is used for identification or categorization purposes. Data in norminal scale do not have magnitude, equal interval or absolute zero. For example, in a basketball or football match, players wear jerseys with different numbers. That a player wears jersey number 1 does not make the best or the worst among his/her mates. Also, we usually categorize and make frequency counts on the group e.g. categorization based on sex (male and female) as M and F or by assigning numbers like 1 and 2. Another example is brands of electronics which can also be grouped or categorized like 1-LG, 2 = Benz, 3 = Toyota, 4 = Nissan. The value attached to each of these brands of electronics or cars does not have serious meaning because we cannot authoritatively conclude that LG or the Jeep are the best or worst electronics or vehicles because we only assign nominal data or we are just using nominal data.



## 2) **Ordinal Scale**

In ordinal scale, the order or arrangement is important. The order is more than a mere listing. It is progression from the highest to the lowest or from lowest to the highest.

Example of average scores

1.	78.6	1
2.	78.4	2
3.	75.2	3
4.	71.0	4
5.	67.0	5

Ordering is done by ranking in the above table. It has magnitude but lack equal interval and absolute zero. In ordinal scale of measurement, we have ranks to indicate positions which do not give any information about distance/interval between points on the scale.

## 3) **Interval Scale**

Here, the differences between successive points on the scale are equal. Hence, they have equal intervals. For example, the difference between 15 years and 20 years of respondent is 5 years. It is possible because equal interval are used in the measurement and there is no absolute zero points. In an examination measurement, there is a difference of 10 between a pupil who scored 60 and another who scored 70. the assumption is that the result obtained from the instrument used in measuring these student's ability is reliable (error is minimized). This is usually difficult and that is why it is emphasized that instruments used in any research work should be valid and reliable.

## 4) **Ratio Scale**

A ratio scale is made up of all the quantities such as absolute zero and equal intervals. For example, in the thermometer the absolute zero is 273 kelvin. This makes comparison between points in the scale possible and valid.

## **Types of Data organization**

### i) **Frequency Distribution**

A frequency distribution is a list showing the number of times each score value (or interval of score value) occurs in a distribution. It provides a summary of test scores in a form which accurately depicts the group as a whole.

How to construct frequency distribution

- Arrange the data in descending order
- Use a letter to symbolize a score value (e.g. x)
- Make a tally against each occurrence of the score value (i.e. frequency). Frequency is represented by the letter f.

The purpose of a frequency table is to reduce the number of entries or entities to deal with, then the score can be grouped together into broader categories. Each of these new categories is referred to as a class interval which covers the same range of scores on the scale of measurement.

ii) Measures of central Tendency

A measure of central tendency is an index whose value depicts the typical performance of the whole class. The three (3) common indices of central tendency are the mean, median and mode.

When to use Mean, Median and Mode

The mean score is used as a typical score representing an entire distribution when the distribution is not skewed. This condition can be illustrated by using the following distribution i.e. (3,4,5,6,6,7,8,8,9)

$$\text{Mean} = \frac{3+4+5+6+6+7+8+8+9}{9} = \frac{56}{9} = 6.22$$

$$\therefore \text{mean} = 6.22$$

Median and Mode = 6

Since the distribution is not skewed, it is best to use the mean as a measure central tendency of the distribution.

When the distribution is skewed, however, the median is used. The modal score is rarely used as a typical score representing an entire distribution. It should be used to supplement any information from the mean or median especially when the distribution has more than one mode.

### Concept of Dispersion

The concept dispersion also known as variability refers to the extent to which scores in a distribution deviate from each other and their central tendency. There are different measures of variability namely: range, semi-interquartile range, variance and standard deviation.

**a) The Range**

Range only takes into consideration the two extreme scores and therefore it is not a true reflection of the variability of all the scores in the distribution. Again, all other scores may be changed provided the change does not affect both the upper and the lower scores. Therefore, we do not have a reflection of the variability of all the scores in the distribution.

**b) Standard Deviation**

Standard deviation also known as semi-interquartile range belongs to the same group of statistics as the median. Like the median it does not involve all other scores in the distribution in its computation other than taking note of their positions and presence. It is a kind of average of all the deviation of scores from the mean.

For example, let us consider the following illustration with 2 distributions A and B

(15, 18, 21, 24, 27) = A

(5, 13, 21, 29, 37) = B

These two distributions have the same mean (a value of 21). However, the difference between any two scores in distribution A is 3 where as in distribution B it is 8. distribution A disperses less than distribution B. Again, though the mean value of both is 21, the distributions have different deviations from their central tendency measures.

Standard Deviations computations are as follows:

Distribution A	Deviation form Mean	Distribution B	Deviation from Mean
15	6	5	16
18	3	13	18
21	0	21	0
24	3	29	8
27	6	37	16
	Total deviation = 18		Total deviation = 48

**Correlation**

Correlation is a compound word i.e. co and relation. Co means joint while relation means association. Therefore, correlation means joint association.

Correlations can also be defined as a measure of the relation between two or more variables. It shows the strength and direction of a linear relationship between two random variables.

There are three (3) possible considerations for correlation – positive, negative and zero

Positive: examples are height and weight (as height increases weight also increases). Time and temperature, I.Q. and achievement, age and fertility, area and radius of circle.

Negative: examples are the age of a car and resale value, force of attraction and distance etc.

Zero: examples of things that are not related are shoe sizes and income, weight and I.Q, height and I.Q etc

When two things are related, it does not mean that one causes the other. There are also two things to note about a correlation index. They are the strength or magnitude of the correlation index and direction (sign either +ve or – ve) of the correlation index.

### **Uses of Correlation Index**

- i) It helps to predict the performance of students.
- ii) It helps to ascertain the reliability of a test is i.e. how stable and consistent the student's performance is with time over a test. This is done by test – retest method and this determines stability coefficient.
- iii) It is also used to test for equivalence. Through this, the coefficient of Equivalence tells us how comparable the two (2) tests are.
- iv) It is also used to determine the internal consistency of a test. This can be done by split-half reliability. This in turn tells us how each item in a part is related to another item in another part of the test.

## **4.0 CONCLUSION**

As earlier discussed, statistics is an important tool in research study, but not an end. This means the a researcher or a student intending to carry out a research work (study) should tool (right tool) should be adopted or chosen early at the time the researcher is clarifying his or her research idea or topic.

## **5.0 SUMMARY**

In this unit, you were made to understand that statistics is a tool, not an end. This implies that a conscious choice of the right tool should be made. You learned about the meaning and types of statistics being used in analyzing data. We also discussed relevance of statistics to research, the need for statistical analysis, basic statistical approach, and data preparation. In addition you learned about scale of measurement as well as type of data organization and concept of dispersion. The choice of statistical tool or equation(s) to be use for the research analysis should be made early at the time of designing the research or at the time the researcher is clarifying his or her research data.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. What is statistic and of what important is statistics to research work?

## **7.0 REFERENCES/FURTHER READING**

Aggarwal, Y. P. (1998). Statistical Methods: Concepts, Application and computation sterling publishers private limited.

Bluman, A.G (1990) Elementary Statistics. Mc Graw Hill, Higher Education, New York.

Dixon, W. J. and F.J Massey (1983). Introduction to statistical Analysis (4<sup>th</sup> Edition). Mc Graw-Hills, New York.

Gupta, C. B. and V. Gupta (1973). An introduction to statistical Methods. Vikas Publishing House PVT Limited, New Dehli.

John, P.W.M (1971). Statistical Design and Analysis of Experiments. Wiley New York

## **MODULE 5 TYPES OF RESEARCH AND DATA ANALYSIS**

### **UNIT 1 QUALITATIVE RESEARCH**

#### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Meaning of Qualitative Research
  - 3.2 Characteristics of Qualitative Research
  - 3.3 Reasons for Conducting Qualitative Research
  - 3.4 Merits and demerits of Qualitative Research
  - 3.5 Types of Qualitative Research
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

#### **1.0 INTRODUCTION**

In the social research, we usually systematically collect and analyse empirical evidence in order to understand and explain social life. But in the course of embarking on such study, it is either we adopt qualitative research method or quantitative method. The most obvious difference is that in qualitative research method, the objective of research is not to generate qualitative data, but to use a technique of data collection which can yield very useful but non-quantifiable data.

Qualitative methods are subjective and exploratory; but can offer useful explanation especially when they are used in conjunction with quantitative methods; either as a preliminary approach, or as a complimentary phrase.

#### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define the concept qualitative research
- Explain nature of qualitative research
- State characteristics of qualitative research
- Enumerate reasons for conducting qualitative research
- List merits and demerits of qualitative research methods.

### **3.0 Main Content**

#### **3.1 Qualitative Research**

Qualitative research is a type of research sharing similar or same characteristics with scientific research which consists of an investigation that:

- Seeks answers to a question
- Systematically uses a predefined set of procedures evidence(s)
- Produces findings that were not determined in advance
- Procedures finding that are applicable beyond the immediate boundaries of the study.

Creswell (1994) defines qualitative research as an inquiry process of understanding based on distinct methodological traditions of enquiry that explore a social or human problem.

The researcher builds a complex, holistic picture, analyses words, reports detailed views of information, and conduct the study in a natural settings.

Creswell (1994) divides qualitative research into five (5) main Qualitative Research Types and identifies the key challenges of each mode of inquiry.

- The Biography
- Phenomenology
- Grounded Theory
- Ethnography
- Case Study

Denzin and Lincoln (1994) define qualitative research:

Qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials case study, personal experience, introspective, life story interview, observational, historical interactional, and usual tests – that describe routine and problematic moments and meaning in individuals' lives.

Qualitative research shares the theoretical assumptions of the interpretative paradigm, which is based on the notion that social reality is created and sustained through the subjective experience of people involved in communication (Morgan, 1980). Qualitative researchers are concerned in their research with attempting to accurately describe, decode, and interpret the meanings of phenomena occurring in their normal social

contexts (Fryer, 1991). The researchers operating within the framework of the interpretative paradigm are focused on investigating the complexity, authenticity, contextualization, shared subjectivity of the researcher and the researched and minimization of illusion (Fryer, 1991).

Qualitative research in general is more likely to take place in a natural setting (Denzin, 1971; Lincoln and Guba, 1985; Marshall & Rossman, 1989). This means that topics for study focus on everyday activity as “defined, enacted, smoothed, and made problematic by persons going about their normal routines” (Van Maanen, 1983, p. 255). Qualitative research is less likely to impose restrictive a priori classification on the collection of data. It is less driven by very specific hypotheses and categorical frameworks and more concerned with emergent themes and idiographic descriptions (Cassell and Symon, 1994).

### **3.2 Characteristics of Qualitative Research**

- i) Qualitative research is the study of symbolic discourse that consists of the study of texts and conversations.
- ii) Is the study of the interpretive principles that people use to make sense of their symbolic activities.
- iii) Is the study of contextual principle, such as the roles of the participants, the physical settings and a set of situational events, that guide the interpretation of discourse.
- iv) It lays emphasis on ‘human- as – instrument’
- v) It is an exploratory and descriptive focus
- vi) The researcher identifies studies and employs one or more tradition of inquiry.
- vii) It entails rigorous qualitative methods of data collection. The researcher collects multiple forms spends adequate time on the field.
- viii) The information, writing or report is so persuasive such that reader experiences the study as though he was present in it.
- ix) It gives clear, engaging and unexpected ideas such that the findings become believable, realistic and accurately reflecting all the complexities that exist in real situation.



- x) We analyze data using multiple levels of obstruction. Writers often present their studies in stages, or employ early and on-going inductive.

### **3.3 Reasons for Conducting Qualitative Research**

- 1) Researchers undertake a qualitative research study because of the nature of the research question often starts with a how or what so that initial forays into the topic describe what is going on.
- 2) We choose a qualitative study because the topic needs to be explored since variables cannot be easily identified, theories are not available to explain behavior of participants or their population of study and theories need to be developed.
- 3) Qualitative study is used because of the need to present a detailed view of the topic
- 4) Qualitative approach is chosen in order to study natural setting
- 5) A researcher might select a qualitative approach because of his/her interest in a literary style; by bringing himself or herself into the study, the personal pronoun "I" is used, or perhaps the writer engages a storytelling form of narration. Or because it captures the language and imagery of phenomenon being studied and the need to write in a literary style.
- 6) It has longer duration especially in a situation where there is sufficient time and resources to spend on extensive data collection in the field and detailed analysis of "text" information.
- 7) It is adopted because audiences are receptive to qualitative research.
- 8) Qualitative approach is employed to emphasize the researcher's role as an active learner who can tell the story from the participants' view rather than as an "expert" who passes judgment on participant. (Cresswell, 1994).

### **3.4 Merits and /demerits of Qualitative Method**

#### **3.4.1 Merits of Qualitative Methods**

- i) It gives room for obtaining a more realistic feel of the world that cannot be experienced in the numerical data and statistical analysis used in qualitative research

- ii) It provides flexible ways to perform data collection, subsequent analysis, and interpretation of collected information
- iii) It provides a holistic view of the phenomena under investigation (Bogdan & Taylor, 1975; Patton, 1980)
- iv) It gives the researcher, ability to interact with the research subjects in their own language and on their own terms (Kirk & Miller, 1886).
- v) It allows descriptive capability based on primary and unstructured data.
- vi) It allows researcher to observe events that may be too risky or dangerous to create in the laboratory
- vii) It allows us to explore the generalizability of the laboratory findings in order to ascertain whether changing the context changes the phenomenon.

### **3.4.2 Demerits of Qualitative Method**

- i) It can bring about departing from the original objectives of the research in response to the changing nature of the context (Cassell & Symon,1994)
- ii) It can lead to arriving at different conclusions based on the same information depending on the personal characteristics of the researcher.
- iii) Inability to investigate causality between different phenomenon
- iv) Difficulty in explaining the difference in the quality and quantity of information obtained from different respondents and arriving at different, non-consistent conclusion
- v) It requires a high level of experiences from the researcher to obtain the targeted information from the respondent.
- vi) It lacks consistency and reliability because the researcher can employ different probing techniques and the respondent can choose to tell some particular stories and ignore others.
- vii) It can entertain biases that might have an impact on the study.

### **3.5 Types of Qualitative Research**

Cresswell (1994) divides qualitative research into five (5) main types such as:

- 1) The Biography
- 2) Phenomenology
- 3) Grounded theory
- 4) Ethnography
- 5) Case Study

#### **3.5.1 (1) The Biography**

Biography is a method or type of qualitative research that involves a detailed, or comprehensive first-hand report/information of the inner experiences of individuals with

reference to the way in which they describe, interpret, and comprehend the world around them (Schurik 1988)

It is the study of an individual experiences as told the researcher or found in documents and the archival records. The life course stage may be childhood, adulthood or old age written chronologically or experiences such as education, marriage and employment. Biographies are usually lengthy personal documents compiled by researcher in respect of those parts of an individual's life that are relevant to the research he or she is conducting.

Howard (1985) explains that there are many types of biographies including medical, psychiatric and psychological profiles. In addition, there are cases histories relating to careers, as well as criminal case, court records, correspondence, notes, contracts, minutes, memoranda, diaries, memoirs, reports and autobiographies are referred to as documents sources of biographies. This research method is unique in the sense that it enables the researcher to review the individual's life in its totality. It also suitable for exposing the confusion, contradictions and ambiguities embedded in human behavior.

Challenges of Biography (Cresswell, 1994)

- The researcher needs to collect extensive information from and about the subject of the biography.
- The investigator needs to have a clear understanding of historical, contextual material to position the subject within the larger trends in society or in the culture.
- It takes a keen eye to determine the particular stories, slant, or angle that “works” in writing a biography and to uncover the “figure under the carpet” (Edel, 1984) that explains the multilayered context of a life.
- The writer, using an interpretive approach, needs to be able to bring himself or herself into the narrative.

### **3.5.2 (2) Phenomenology**

This is the first major approach to qualitative research (i.e., the descriptive study of how individuals experience a phenomenon). Phenomenology is a 20<sup>th</sup> Century philosophical movement dedicated to describing the structures of experience as they present themselves to consciousness, without recourse to theory, deduction, or assumptions from other disciplines such as the natural sciences phenomenology is both a philosophy and a research method. The purpose of phenomenological research is to describe experiences as they are lived in phenomenological terms (i.e. to capture the “lived experience” of study participants). The philosophers from which phenomenology emerged include Husserl, Kierkegaard, Heidegger, Jean Paul Sartre etc.

## **Philosophical orientation**

The phenomenologists view the person as integral with the environment. The focus of phenomenological research is people's experience in regard to a phenomenon and how they interpret their experiences. All phenomenologists agreed that there is no a single reality; each individual has his or her own reality. This is considered true even of the researcher's experience in collecting data and analyzing it. "Truth is an interpretation of some phenomenon; the more shared that interpretation is the more factual it seems to be, yet it remains temporal and cultural" (Munhall, 1989).

There are four aspects of the human experience, which are of interest to the phenomenological researcher:

- i) Lived space (spatiality)
- ii) Lived body (corporeality)
- iii) Lived human relationships (relationality)
- iv) Lived time (temporality)

All of these aspects are taken into consideration we must be aware that people see different realities in different situations, in the company of different people and at different times.

## **Research method/Procedure in Phenomenology**

The foundational questions in phenomenology are "what is the meaning, structure, and essence of the lived experience of this phenomenon by an individual or by many individuals"?

**Methodology:** The researcher tries to gain access to individuals' life-worlds, which is their world of experience; it is where the consciousness exists. Understanding, human behavior or experience requires that the person (respondent) interpret the action or experience for the researcher, and then the researcher must interpret the explanation/information provided by the person.

**Developing Research Questions:** The first step to be taken or considered in conducting a phenomenological study is to identify the phenomenon to explore. The researcher will then develop research question(s):

- What are the necessary constituents of this feeling or experience?
- What does the existence of this feeling or experience indicate concerning the nature of the human being?

**Sampling:** After developing the research question(s) the researcher identifies the sources of the phenomenon being studied and from these sources seeks individuals who are willing to describe their experience(s) with the phenomenon in question. These individuals must understand and be willing to express their inner feelings and describe any (psychological, physical or physiological) experiences that occur with the feelings. For examples, refugees, combatants, war victims, raped victims during war/crisis situation.

The researcher searches for the invariant structures of individuals' experiences (also called the essences of their experiences) and also searches for commonalities across individuals rather than focusing on what is unique to a single individual. For example, what are the essences of peoples' experience of the death of a loved one during crisis/war? Here is another example: What are the essences of peoples' experiences of rape/sexual assault during crisis?

**Data Collection and Analysis:** Data or information are collected through a variety of means: observation interactive interviews, videotape, and written description by subjects. The data is typically collected by in-depth conversations in which the researcher and the subject (informant) are fully interactive. When the first data are collected, analysis begins and will guide decisions related to further data collection. The meaning attached to the data is expressed within the phenomenological philosophy.

After analyzing your phenomenological research data, you should write a report that provides such description and a "vicarious experience" of being there for the reader of the report. The outcome of the analysis is a theoretical statement responding to the research questions. The statement is validated by examples of the data, often direct quotes from the subjects.

### **Challenges of a phenomenology study**

- The researcher requires solid grounding precepts of phenomenology.
- The participants in the study need to be carefully chosen to be individuals who have experienced the phenomenon.
- Bracketing personal experiences by the researcher may be difficult.
- The researcher needs to decide how and in what way his or her personal experiences will be introduced into the study.

### **3.5.3 (3) Grounded Theory**

This is another major approach to qualitative research which is (development of an inductive technique, "bottom-up", theory that is "grounded" directly in the empirical data). The term grounded means that the theory developed from the research has its roots in the data from which it was derived.

**Philosophical Orientation:** Grounded theory is based on symbolic interaction theory. This theory holds many views in common with phenomenology. George Herbert Mead (1934), a social psychologist was a leader in the development of this theory. The theory of symbolic interactionism is not a topic for full discussion here but is explored more fully in the sociology. Though, symbolic interactionism explores how people define reality and how their beliefs are related to their actions. Reality is created by people through attaching meaning to situations. Meaning is expressed by symbols such as words, religious objects, and clothing. These symbolic meanings are the basis for actions and interactions. Unfortunately, symbolic meanings are different for each individual. Symbolic meanings may be shared by groups such as football supporters, ethnic groups etc. these shared meanings are then transferred to new members by socialization.

**Methodology:** The steps of grounded theory research occur simultaneously. The researcher will be observing, collecting data, organizing data, and forming theory from the data at the same time. An important methodological technique in grounded theory research is the constant comparative process in which every piece of data is compared with every other piece.

### **Data Collection and Analysis Techniques**

Data may be collected by interview, observation, records, or a combination of these. Data collection usually results interview transcripts, or video/audio taped conversations that contain multiple pieces of data to be sorted and analyzed. This process is initiated by coding and categorizing the data.

#### **Data analysis often follows three steps:**

- i) Open Coding (i.e., reading transcripts line-by-line and identifying and coding the concepts found in the data).
- ii) Axial Coding (i.e., organizing the concepts and making them more abstract).
- iii) Selective Coding (i.e. focusing on the main ideas, developing the story and finalizing the grounded theory.)

#### **Outcome:**

The outcome is a theory explaining the phenomenon under study. Here is the foundational question in grounded theory: what theory or explanation emerges from an analysis of the data collected about this phenomenon? It is usually used to theory, remember what theories tell you “How” and “why” something operates as it does; theories provide explanations.

Grounded theory can also be used to test or elaborate upon previously grounded theories, as long as the approach continues to be one of constantly grounding any changes in the new data.

The research report presents the theory supported by examples from the data. The literature review and numerical results are not used in then report. The report tends to be narrative discussions of the study process ad findings.

The grounded theory process is “complete” when occurs (i.e., when no new concepts are emerging from the data and the theory is well validated).

The final report should include a detailed and clear description of the grounded theory.

### **Challenges of Grounded Theory**

- The researcher or investigator need to set aside, as much as possible, theoretical ideas or notions so that the analytic, substantive theory can emerge.
- Despite the evolving, inductive nature of this form of qualitative inquiry, the researcher must recognize that this is a systematic approach to research with specific steps in data analysis.
- The researcher faces the difficulty of determining when categories are saturated or when the theory is sufficiently detailed
- The researcher needs to recognize that the primary outcome of this study is a theory with specific components: a central phenomenon, causal conditions, strategies, conditions and context, and consequences. These are prescribed categories of information in the theory.

### **3.5.4 (4) Ethnography**

Another major approach to qualitative research is ethnography (i.e., the discovery and description of the culture of a group of people). Alternatively, it may focus on more narrowly defined ones (e.g., the culture of people, the culture of violence, the culture of an organization) referred to as micro-ethnography. The underlying assumption of an ethnographer is that every human group eventually evolves a culture that guides the members view of the world and they way they structure their experiences.

The aim of the ethnographer is to learn from (rather than to study) members of a cultural group – to understand their world view as they define it. Ethnographic researchers sometimes refer to emic and etic perspectives. An Emic perspective refers to the way the members of the culture envision their world – it is the insiders view.

The Etic perspective, by contrast, is the outsiders’ interpretation of the experiences of that culture. Ethnographers strive to acquire an emic perspective of a culture under study.

Moreover, they strive to reveal what has been referred to as tacit knowledge. Information about the culture that is so deeply embedded in cultural experiences that members do not talk about it or may not even be consciously aware of it.

Ethnographers almost invariably undertake extensive fieldwork to learn about the cultural group in which they are interested. Ethnographic research is typically a labour – intensive endeavour that requires long periods of time in the field months and even years of fieldwork may be required. In most cases, the researcher strives to actively participate in cultural events and activities. The study of culture requires a certain level of intimacy with members of the cultural group and such intimacy can only be developed over time and by working directly with those members as an active participant. The concept of researcher as instrument is frequently used by anthropologists to describe the significant role the ethnographer plays in analyzing and interpreting a culture.

The foundational question in ethnography is: What are the cultural characteristics of this group of people or of this cultural scene? Because ethnography originates in the discipline of Anthropology, the concept of culture is of central importance. Culture is the system of shared beliefs, values, practices, language, norms, values, rituals and material things that group members use to understand their world.

There are two additional or specialized types of ethnography.

- 1) Ethnology (the comparative study of cultural groups)
- 2) Ethno-history (the study of the cultural past of a group of people). An ethno-history is often done in the early stages of a standard ethnography in order to get a sense of the group's cultural history.

Here are some more concepts that are commonly used by ethnographers:

- Ethnocentrism (i.e., judging others based on your cultural standards). You must avoid this problem if you are to be a successful ethnographer, even a researcher in order to guard against bias!
- Going Native (i.e., Identifying so completely with the group being studied that you are unable to be objective).
- Holism (i.e., the idea that the whole is greater than the sum of its parts; it involves describing the group as a whole unit, in addition to its parts and their interrelationships).

### **Methodology**

As previously mentioned there are two basic research approaches in anthropology, emic and etic. The emic approach to research involves studying behavior from within the culture. The etic approach involves studying behavior from outside the culture and



examining similarities and differences across cultures. The steps ethnographic research includes the following:

- 1) Identification of the culture to be studied,
- 2) Identifying the significant variables in/of the culture.
- 3) Literature review
- 4) Gaining entrance
- 5) Cultural immersion
- 6) Acquiring information
- 7) Gathering data
- 8) Analysis of data
- 9) Description of then culture
- 10) Theory development

**Data collection and Analysis:** Data collection involves primarily observation and interview. The researcher may become a participant/observer in the culture during the course of the study. Analysis involves identifying the meanings attributed to objects and events by members of the culture. These meanings are often validated by members of the culture before finalizing the results.

The final ethnography (i.e., the report) should provide a rich and holistic description of the culture of the group under study.

### **Challenges facing Ethnography**

- The researcher needs to be grounded in cultural anthropology and the meaning of socio-cultural system as well as the concepts typically explored by ethnographers.
- The time to collect data is extensive, involving prolonged time in the field.
- In many ethnographies, the narrative are written in a literary, almost story telling approach, which may limit the audience for the work and may be challenging for authors accustomed to traditional approaches to writing social and human science research.
- There is a possibility that the research will “go native” and be unable to complete the study or be compromised in the study. This is but one issue in the complex away of field work issues facing ethnographers who venture into an unfamiliar cultural group or systems.

### **3.5.5 Case Study**

Another import approach to qualitative research is case study research (i.e., the detailed account and analysis of one or more cases). The foundational question in case study research is: What are the characteristics of this single case or of these comparison cases? A case is a bounded system (e.g., a person, a group, an activity, an event, a process).

Many different concepts and theories can be used to describe and explain the case being studied, because the roots of case study are interdisciplinary in nature.

### **Classes of Case study**

Robert stake classifies case study research into three types namely:

- 1) Intrinsic Case Study (where the interest is only in understanding the particulars of the case)
- 2) Instrumental Case Study (this is a situation where the interest is in understanding something more general than the case).
- 3) Collective Case Study (it has to do with the situation where interest is in studying and comparing multiple cases in a single research study)

**Methodology:** Multiple methods of data collection are often in case study research (i.e., interviews, observation, documents, questionnaires).

**Analysis/Interpretation:** The case study final report should provide a rich (i.e., vivid and detailed) and holistic (i.e., describes the whole and its parts) description of the case and its context.

### **Challenges of Case Study**

- The study of more than one case dilutes the overall analysis; the more cases an individual studies, the greater the lack of depth in any single case. The researcher therefore must consider whether to study a single case or multiple cases.

## **4.0 CONCLUSION**

Having been introduced to the fundamental elements of a qualitative approach to research and extensively discussed five types of qualitative research identified by Cresswell couple with the key challenges facing each mode of enquiry. An intending or a prospective qualitative researcher would have understood the basic procedural rudiment of qualitative research and would have become proficient in the use/application of qualitative methods in exploring a social or human problem(s).

## **5.0 SUMMARY**

This unit focused on the qualitative research methods by defining the concept from different perspectives as postulated by different scholars in the field. Characteristics of

qualitative research were broadly discussed together with the reasons for conducting qualitative research. Merits and demerits of the concept were not left out undiscussed in order to appreciate the strength and weakness of the concept.

Also specific ways of conducting qualitative research were discussed so that we can understand and appreciate the strength of each in their own terms.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- 1) Define qualitative research. Of what importance is qualitative methods to research?
- 2) Briefly explain or define qualitative research method and state some of its Characteristics.
- 3) Enumerate and explain three (3) specific ways of conducting qualitative research.
- 4) What is qualitative researcher method? State at least five (5) merits and demerits of qualitative research method each.

## **7.0 REFERENCES/FURTHER READING**

Balsley H. L. (1970). *Qualitative Research Methods for Business and Economics*. New York: Random House.

Bernard, H. R. (1995). *Research Methods in Anthropology, Second Edition*. London: Sage Publication.

Bogdan, R. & Taylor, S. J. (1975). *Introduction to Qualitative Research Methods*. New York: John Wiley.

Cassel, C. & Symon, G. (1994). *Qualitative Research in Work Contexts*. In C. Cassell, & G. Symon (Eds. ), *Qualitative Methods in Organisational Research* (pp. 1-13). Thousand Oaks, CA: Sage Publication.

Denzin, N. K. Lincoln, Y. S. (2000) (eds). *Handbook of Qualitative Research* London: Sage Publications.

Frankfort-Nachmias, C., & Nachmias, D. (1992). *Research Methods in the Social Sciences*. (4<sup>th</sup> ed). New York: St. Martin's Press.

Kirk, J. & Miller, M.L. (1986) *Reliability and Validity in Qualitative Research*. *Qualitative Research Methods Series, I*. Beverly Hills, CA: Sage Publications.

Marshall P.A. (2003). Human Subjects Protections Institutional Review Boards, and Cultural Anthropological Research. *Anthropol Q* 2003; 76(2): 269-85.

Morgan, G. & Smircich, L. (1980). The case for Qualitative Research. *Academy of Management Review*, 5, 491 – 500.

Nwi, P., Nyamongo, I., Ryan, G. (2001). *Field Research into social Issues: Methodological Guidelines*. Washington, DC: UNESCO

Patton, M.Q. (1980). *Qualitative Evaluation Methods*. Newbury Park, CA: Sage.

Pope, C. & Mays, N. (2000). *Research in Health Care*. London: BMJ Books.

Van Maanen, J. (1983). *Qualitative Methodology* Beverly Hills, CA: Sage Publication.

## **UNIT 2      QUANTITATIVE RESEARCH**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Quantitative Research Methods
  - 3.2 Characteristics of Quantitative Research
  - 3.3 Reasons for conducting Quantitative Research
  - 3.4 Characteristics and Nature of Quantitative Research Report
  - 3.5 Types of Quantitative Research
  - 3.6 Merits and demerits of Quantitative Research
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

With the sufficient knowledge and understanding of the major paradigm of qualitative research methods acquired in the previous module, it is also very important to learn the paradigm of quantitative research methods in order to be able to provide a basis for examination of your preferred method. As you are aware of the fact that length, breadth, and height are measured by the use of ruler or tape, and weight by the scale, but in social sciences setting, there are no social tapes or scales to measure social phenomena or events. What constitutes the measuring instrument in social research therefore is the application of quantitative research methods in gathering data or information about social phenomena or events. Social scientific research therefore, demands and relies on very carefully designed and constructed research instrument to enable the researcher move from the level of empirical measurement to the level of theoretical construct. Quantitative research is used widely in social sciences such as psychology, economics, sociology, political science, peace studies, and less frequently in anthropology and history.

### **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- Define quantitative research
- Enumerate characteristics of Quantitative research
- State reasons for conducting quantitative research
- Explain characteristics and nature of quantitative research
- List and discuss different types of qualitative research

- Itemize merits and demerits of quantitative research

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Quantitative Research**

Quantitative research in the social sciences refers to the systematic empirical investigation of social phenomena via statistical, mathematical or computational techniques.

It is a type of research that is concerned with the numeric relevance of various kinds of behaviour, issues, phenomena or the generation of numerical data that can be converted into numbers using statistical methods to count and measure outcome of a research study.

The objective of quantitative research is to develop and employ mathematical models, theories and or hypotheses pertaining to phenomena.

In the social sciences, the term relates to empirical methods, originating in both philosophical positivism and the history of statistics. The functional or positivist paradigm that guides the quantitative mode of inquiry is based on the assumption that social reality has an objective ontological structure and individuals are responding agents to this objective environment (Morgan & Smircich, 1980). Quantitative research involves counting and measuring of events and performing the statistical analysis of a body of numerical data (Smith, 1988). The assumption behind the positivist paradigm is that there is an objective truth existing in the world that can be measured and explained scientifically. The main concerns of the quantitative paradigm are that measurement is reliable, valid, and generalisable in its clear prediction of cause and effect (Cassell & Symon, 1994).

Quantitative research being deductive and particularistic is based upon formulating the research hypothesis and verifying them empirically on a specific set of data (Frankfort Nachmias & Nachmias, 1992). Scientific hypotheses are value-free; the researchers own values, biases, and subjective preferences have no place in the quantitative approach.

#### **3.2 Characteristics of Quantitative Research**

1. It is usually presented in quantities or number (slae, statistics)
2. It classifies features, count them and construct statistical model to explain what is observed or the data/information collected
3. Quantitative researcher knows clearly what he/she is looking for in advance
4. Deductive reasoning approach is used in quantitative research study

5. All suspects of the study are carefully designed before data collection
6. Large samples are used with equal chances of being selected in the population
7. quantitative data are more efficient and are able to test hypothesis but may miss contextual detail
8. It seeks precise measurement and analysis of target concepts e.g. use of survey, questionnaire et.

### **3.3 Reasons for Conducting Quantitative Research**

Researcher conducts quantitative research because of the following reasons:

1. It is used to make comparison between or among different variables (things) we study
2. It is used study relationship that exist between or among variables
3. It enables the researcher to study statistics involving multi-ways tables and significance test for different groups of phenomena
4. It is the most suitable method of studying problems with a fairly well developed theory to guide the designing and utilization of standardized data collection procedure and structured research instrument.
5. It is used in studying relationship between the numbers of periods.
6. It is used for verifying generalizable findings or study
7. It is the most appropriate when the outcome of a research sought after a general pattern than a process motives.

### **3.4 Characteristics and Nature of Qualitative Report Research**

There exist five main characteristics and nature of quantitative research which are as follows:

#### **3.4.1 Hypothesis:-**

This form one of the major characteristics of quantitative research. Hypothesis is a formal affirmative statement predicting a single research outcome, or a tentative explanation of the relationship between two or more variables. In qualitative research, immediately a research problem has been identified, formulation of hypothesis becomes imperative to either support it or contradict it. Hypothesis is divided into two: (a) a Null Hypothesis (which usually indicates no effect or change and (b) An Alternative hypothesis (which is usually our experimental hypothesis). To test hypothesis, a researcher would have to collect data. Which usually contain evidence that either agrees with the alternative hypothesis or the Null hypothesis.

### **3.4.2 Causality or Cause and Effect**

The cause and effect relationship between variable concerned with the purpose of explaining and predicting phenomena. To predict outcome of an event, we have to identify different types of variables. A variable is an event or condition that the researcher observes or measures or plan to investigate and that is liable to variation or (change), (Rosnow and Rosenthal 1996). Two other terms for variables that are frequently mentioned in literature are independent and dependent variables.

### **3.4.3 Generalizability**

Generalizability is another characteristic of quantitative research that involves the extent to which the results of a study can be generalized (applied) beyond the sample to the larger population. Researchers are said to generalize when they apply the findings of a particular study of people or settings used in the study. The whole notion of science is built on the idea of generalization. Every science seeks to find basic principles or laws that can be applied to great variety of situation and in case of social sciences, to a large number of people. Population generalizability refers to the degree to which a sample represents the population of interest. A representative sample is usually employed because the conduct of a study takes a considerable amount of time, energy (frequently) and money. Researchers usually want the results of an investigation to be as widely applicable as possible.

### **3.4.4 Reliability or Internal Validity**

The concept reliability in everyday English means dependability or trustworthiness. The term means the degree of consistency that the instrument or procedure demonstrates, whatever it is measuring, it does so consistently. It means the consistency and dependency of a measurement. It means that a reliable test should produce the same results on successive trials. For example, if a researcher tested the causes or more different times. He/she should expect to obtain very close to the same results each time. Or if a researcher tries to know ascertain to cause(s) regular kidnapping in the Niger Delta area of Nigeria. Reliability is usually expressed numerically as a coefficient: a high coefficient indicates high reliability.

### **3.4.5 Statistical Analysis**

Once the gathered data have been prepared for analysis, the choice of statistical procedures to be applied is not only determined by the researcher hypothesis and design but also by the type of measurement scale represented by the data. Although, statistical



analysis can be undertaken manually but for easy, timely, efficient and effective purposes, computer softwares are usually employed.

In social sciences, the best well used package for data analysis is SPSS (statistical package for the social sciences) which is specifically designed to deal with data and generate statistics. Excel is used for simple calculations and some statistics especially for generating graphics to illustrate your results.

### **3.5 Types of Quantitative Research**

The following are the different types of quantitative research methods:

- Survey research
- Descriptive research
- Correlational research
- Causal – comparative research
- Experimental research

#### **1. Survey Research:**

Survey research is a non-experimental and social scientific approach that studies small and large population. It draws a sample of a population, study the sample, and then make inferences to the population from the sample data only rarely, however do research or study whole population. The purpose of survey is to describe the attitudes, beliefs, opinion, motivation and behaviours of a population. The survey researcher is interested in the accurate assessment of the characteristics of whole population of people. It attempts to determine the incidence, distribution and interrelations among sociological and psychological variables.

The term survey is not synonymous with questionnaire alone but with the methods such as interview method and observational method. Survey not only uncovers data but also interpret, synthesize, and interpret data and print to implications and interrelationship. The survey research applies no control or manipulation of the variables in the studied subject. Samples tend to be large in survey because of the need to make generalization.

Survey research is likened to be the best method available to the social scientist interested in collecting original data for describing a population too large to observe directly.

According to Fawole et al (2008), Survey research is used for many different applied purposes such as:

- To help select the behaviour to be changed by an or through intervention

- To choose the largest population best suited for an intervention
- To profile a population
- To determine the best channel to reach a population

## **Features of Survey Research**

Survey research involves research in which:

- Data are collected from members of a sample that represents a known population
- A systematic technique is used to collect data (e.g. questionnaire and interview).
- The researcher manipulates no independent variables
- Data are sought directly from the respondents
- Subjects provide data in natural settings
- Responses of subjects are assumed to be largely unaffected by the context in which they are elicited
- Influences of confounding variables are controlled statistically
- The purpose of the research may range from explanation of phenomena to hypothesis testing

## **Advantages of Survey**

- The methods and procedure can be made visible and accessible to other parties (i.e. it promotes transparency and accountability).
- It is useful or used in describing the characteristics of a large population
- Standardized questionnaires have an important strength with regard to measurement generally
- Data collection takes place in natural setting and are obtained directly from respondents
- Surveys (especially self administered ones) make very large sample visible
- Results are accurate because of large sample sizes and generally low sampling error.
- It is made up of varieties of systematic data collection methods (e.g. interviews, questionnaires and observation) which can be used jointly (combined) or separately.

## **Disadvantages**

- Standardization requirement of ten seems to result into filling of round pegs into square holes, leading to enforcement of respondents to subscribe to statement they don't fully endorse

2. Survey research is very expensive in term of total cost, because of large administrative or personnel costs.
3. It seldomly deal with the context of social life where the respondents are thinking and acting
4. Survey research is generally weak on validity and strong on reliability.
5. Questionnaire and or interview measures may be poor indicants of the construct studied by a researcher using the sample survey method.
6. Causal inferences from sample survey generated data are difficult to justify because no independent variable are manipulated by the researcher using this method

## **2. Descriptive Research**

This type of research involves collecting data in order to test hypothesis or answer questions concerning the current status of the subject of the study. No manipulation of variables is attempted but only descriptions of variables and their relationships as they naturally occur.

According to Best and Kalm (2006), descriptive research studies have all of the following characteristics distinguishing them from the type previously described.

1. They involves hypothesis formulation and testing
2. They use the logical methods of inductive – deductive reasoning to arrive at generalization
3. Method of randomization is often employed so that error may be estimated when population characteristics are inferred from observations of sample.
4. Both the variables and procedures are described as accurately and completely as possible so that the study can be replicated by other researchers. Descriptive research method range from survey which describes the status que of variables to the correlational study, which investigates the relationship between variables. They are non-experimental because they deal with relationships among non manipulated variables.

Descriptive research seeks to find answers to questions through the analysis of variable relationships. What factors seem to be associated with certain occurrences, outcomes, conditions or types of behaviours?

### **3.6 Merits and Demerits of Quantitative Research**

#### **3.6.1 Merits of Quantitative Research**

The advantages of quantitative research include:

1. Stating the research problem in very specific and set terms (Frankfort – Nachmias & Nachmias, 1995).
2. It clearly and precisely specifies both the independent and the dependent variables under investigation.
3. It follows firmly the original set of research goals, arriving at more objective conclusions, testing hypothesis, determining the issues of causality.
4. It facilitates achieving high levels of reliability of gathered data due to controlled observations, laboratory experiments, mass surveys, or other form of research manipulations (Balsley, 1970).
5. It promotes or encouraged elimination and minimization of subjectivity of judgement (kealey & Protheroe, 1996).
6. It allows or gives room for longitudinal measures of subsequent performance of research subjects.

#### **3.6.2 Demerits of Quantitative Research**

The disadvantages or weaknesses of quantitative research method are as follow:

1. It fails to provide the researcher with information on the context of the situation where the studied phenomenon occurs
2. Inability to control the environment where the respondents provide the answers to the questioning the survey
3. There are limited outcomes to only those outlined in the original research proposal due to closed type questions and the structured format.
4. It does not encourage the evolving and continuous investigation of a research phenomenon.

### **4.0 CONCLUSION**

Having learned about the quantitative research components that are based on positivist approach to research that is more particular or concerned about the variables, causal relations and hypothesis that are language of quantitative research. It was also revealed that we should begin such a research with a general topic, narrow it down to research questions and hypothesis, and finally test hypothesis against empirical evidences. The

importance of theoretical explanation and concepts as critical part of research design in quantitative research was also appreciated.

## **5.0 SUMMARY**

In this unit meaning of quantitative research method was well explained and its characteristics stated. Reasons for conducting quantitative research coupled with the nature and characteristics of quantitative research report. Such as (hypothesis, causality or causes and effect, generalizability, reliability and statistical analysis) were also discussed. We also discussed extensively different types of quantitative research (i.e. survey research descriptive research, correlational research, causal-comparative research and experimental research. The advantages and disadvantages of quantitative research were also well stated or enumerated for our consumption.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1. What is quantitative research method?
2. Briefly discuss characteristic and nature of quantitative research report.
3. List five (5) types quantitative research and explain three of your choice
4. Define the concept quantitative research and enumerate five of its merits and demerits each.
5. Compare and contrast quantitative research and qualitative research methods.

## **7.0 REFERENCES/FURTHER READING**

Rosnow, R.L and Rosenthal, R. (1996) Beginning Behavioral Research. A Conceptual Primer. New Jersey Prentice Hill.

Best, J.W. and Kahn, J.V. (2006) Research in Education Boston Pearson Education Inc.

Fraenkel J.R. and Wallen, N.E. (1996) How to Design and Evaluate Research in Education New York Mc Graw – Hill Inc.

Gay, L.R. (1981) Educational Research Competencies for Analysis and Application Ohio, Charles E Merrill Publishing Co.

Nachmias, F. and Nachmias, D. (1996) Research Methods Social Sciences 5<sup>th</sup> Edition, New York, St. Martin's Press.

Creswell, J.W. (1994): Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, C.A: Sage Publications.

## **UNIT 3      Qualitative Data Collation and Analysis**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definitions of Data Collation and Data Analysis
  - 3.2 Process of Qualitative Analysis
  - 3.3 Types of Qualitative Data Analysis
  - 3.4 Procedures for Qualitative Data Analysis
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 Introduction**

Before any social problems or challenge(s) could be solved, a researcher is required to set up a research design capable of providing the data or information that can bring about solution to the research problems. Having identified the statement of the research problem, map out the research design to be used in preferring solution the problem and obtained relevant data or information from the subjects, the researcher would now be in the best position to carry out data analysis. This will enable him/her to determine the extent to which information (data) at hand can assist in testing the hypothesis or provide answers to the relevant questions raised in the research problems. In the course of carrying out data analysis, the use of statistics by the researcher becomes imperative because statistics is for the fundamental purpose of description and analysis, and its proper application for the provision of information necessary to answer questions or test hypothesis, determination of statistical methodology to be used and to ascertain conclusions, deductions or inferences that can be validly drawn from the analysis of the data.

### **2.0 Objectives**

By the end of this unit and relevant readings, you should be able to:

- Define Data collation, Analysis and qualitative data analysis
- Explain some concepts

- List and explain different types of qualitative data analysis
- Discuss procedures for qualitative data analysis

### **3.0 Main Content**

**3.1.1 Definition of Data Collation:** - Is the process by which data are collected from the sources a researcher has selected and presented in a lucid, straight forward, summarized and tabulated forms for easy interpretation and analysis.

Is the transfer of collected data to coded form for further processing through the use of data processing instruments (e.g. computer) in research method.

**3.1.2 Definition of Data Analysis:** - Is the process of looking at and summarizing data with the intent to extract useful information and develop conclusions.

Etymologically, it means the process of breaking down.

Socially, it is the process of simplifying complex phenomena to aid personal or collective decision making.

Scientifically, it is the complete process of processing data obtained previously, whether in a primary context or in a secondary manner, for the purpose of making sense of the data so collected.

### **3.1.3 Meaning of Qualitative Data Analysis**

Qualitative Data Analysis (QDA) is the range of processes and procedures whereby we move from the qualitative data that have collected into some form of explanation, understanding or interpretation of the people, situations, events or phenomena investigated. OR

Refers to the process of summarizing and describing the mass of words generated by interviews, observational data collected, video, audio recording, images, documents (reports, meeting minutes, e-mails, field notes (notes taken in the field being studied) during a field investigation.

Qualitative data are forms of information gathered in a numerical form.

### **3.2 Process of Qualitative Analysis**

The process of QDA usually involves two things, writing and the identification of themes. Writing of some kind is found in almost all forms of QDA. In contrast, some approaches, such as discourse analysis or conversation analysis may not require the identification of themes. Nevertheless finding themes is part of the overwhelming majority of QDA carried out today.

**Writing:** - writing involves writing about the data and what you find there. In many cases what you write may be analytic ideas. In other case it may be some form of précis or summary of the data, though this usually contains some analytic ideas.

#### **Coding into Themes**

Looking for Themes involves Coding. This is the identification of passages of text (or other meaningful phenomena, such as part of images) and applying labels to them that indicates they are examples of some thematic idea. At its simplest, this labeling or coding process enables researchers to quickly retrieve and collect together all the text and other data that they have associated with some thematic idea so that they can be examined together and different cases can be compared in that respect.

#### **Interpreting**

It is easy, when starting QDA both to write and code in ways that are nothing more than descriptive summaries of what participants have said or done. Inevitably, even description involves some level of interpretation though the trick is to move away from the kinds of description and interpretations that people would use in the milieu, community or setting you are investigating to a categorization and analytic understanding that begins to explain why things are as you have found them.

#### **Organizing**

The data sets used in qualitative data analysis tend to be very. Though samples may be quite small compared with those used quantitative approaches such as surveys, the kinds of meaningful data collected (field notes, video recordings and interviews, for example) tend to be very lengthy and require the kind of intensive examinations, understanding and reading that only humans can do. In order to keep a clear mind and not become overwhelmed by the sheer amount of data and analytic writings, the analyst needs to be organized.



### **3.3 Types of Qualitative Data Analysis**

The following are the types of qualitative data analysis:

#### **1. Manual Method:**

In qualitative manual data analysis, notes and interviews are transcribed and transcripts and images etc. are copied. The researcher then uses folders, filing cabinets, wallets etc, to gather together materials that are examples of similar themes or analytic ideas. This facilitates easy retrieval of such linked materials but necessitates two things:

- i. Making multiple copies of the original data as the same data may represent two or more themes or analytical ideas
- ii. A careful method of labeling of the material in the folders or files so that it is possible to check back and examine the broader context in which that data occurred. The analyst needs to know where the snippets of data in the files came from so that they can be re-contextualized

#### **2. Ethnographic Summaries:**

David Morgan (1988) lists this as one of the most familiar means of analyzing qualitative data. It involves the use of quoted (phenomenological or emic) statements to capture a more elaborate or comprehensive range of ideas.

#### **3. Computer Assisted Qualitative Data Analysis (CAQDA)**

With the advent of the personal computer that proved excellent at manipulating text, it was clear that with the right software much of the manual organization could be done efficiently with a pc. More than twenty CAQDA programmes are available for analyzing qualitative data. CAQDA programmes automate procedures of analysis that have been in use for generations by ethnographers while others use linked coding schemes, hypertext, and case based hypothesis of testing. CAQDA is associated with analysis of aggregate (quantitative) data according to the tenets of logical positivism and the constructed category of "quantitative research" rather than the constructed category of "qualitative research".

This day, many researchers have replaced physical files and cabinets with computer based directories and files along with the use of word processors to write and annotate texts. The CAQDA packages being used by analysts not only make the coding and

retrieval of text easy to do, but can add other functions like searching that computers do quickly but which takes human ages to do or in some cases, which humans have never done. At first the focus of CAQDA was on text since that was easy to handle on PCs, but now that much audio and video is in digital form too, software has been developed to support the analysis of audio and video data.

Therefore, computer-assisted analysis carries the connotation of hard data, computation and objectivity. It feeds the tensions between positivists and non-positivists – in other words, it is the quantification of data, which on their own represent the quality (not quantity) of human social experience. It also provides a context for synthesis between quantitative and qualitative research methods and data.

### **3.4 Procedures for Qualitative Data Analysis**

There are no 'quick fix' techniques in qualitative analysis because "there are probably as many different ways of analyzing qualitative data as there are qualitative researchers doing it!" (Lacey and Luff, 2001:3).

The procedures are as follows:

#### **i. Broad Levels of Analysis**

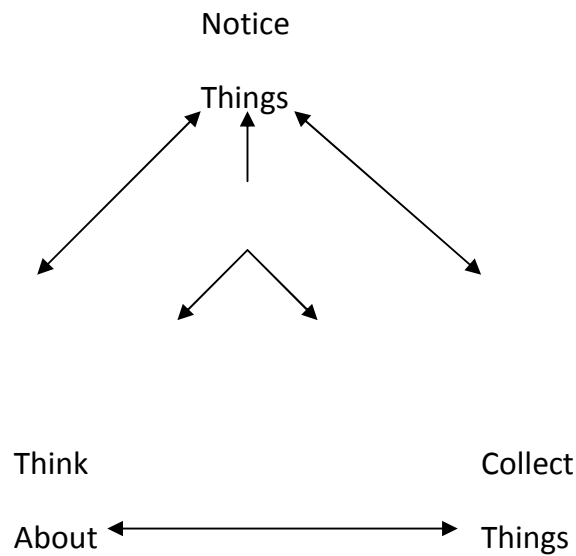
Simple counting of the frequency with which certain words or phrases occur (sometimes called content analysis, although this term refers more accurately to Beverly Hancock's use of it as 'thematic analysis') (Lacey and Luff, 2001:4).

#### **ii. Thematic Analysis**

Beyond words, we move to sentences or paragraphs dealing with particular words or concepts. Deeper questions are asked and deeper enquiries made.

#### **iii. Noticing, Collecting and Thinking Model**

Seidel (1998) developed a useful model to explain the basic process of qualitative data analysis. The model consists of 3 parts: Noticing, Collecting, and Thinking about interesting. These parts are interlinked and cyclical. For example while thinking about things you notice further things and collect them. Seidel likens the process to solving a jigsaw puzzle. Noticing interesting things in the data and assigning 'code' to them, based on topic or theme, potentially breaks the data into fragments. Code which have been applied to the data then act as sorting and collecting devices.



The Data Analysis Process (Seidel, 1998)

#### iv. Noticing and Coding

In Kelle and Seidel (1995) codes are differentiated in two basic ways; they can act as “objective, transparent representation of facts” or they are heuristic tools to enable further investigation and discovery. At one level the codes are acting as collection points for significant data. At another level the code labels themselves are acting as markers or pointers to the way you rationalize what it is that you think is happening. At a third level they enable you to continue to make discoveries about deeper realities in the data that is referenced by codes.

#### v. Development of Codes

The way codes are developed and the timing of this process will depend on whether your research project and your approach is inductive or deductive. This will be one implication of the methodology used in your research project. If your approach is deductive you may be seeking to test existing theories or expand on them. In this case you may develop codes which represent the sensitizing ideas concepts and themes within that theory, before you start assigning passages of the data to those codes.

Basic Steps, Stages or Procedures

These levels of analysis proceed from the simple to the complex but they are undergirded by the following steps, stages or procedures.

- Familiarization with data (review, listening, reading)
- Transcription of tape recorded material
- Organization and Indexing of data for easy retrieval and identification
- Anonymising of sensitive data coding (including indexing).
- Thematisation (identification of themes)
- Recording
- Development of provisional categories
- Exploration of relationships among categories
- Illustration of relationships in domain analysis
- Refinement of hypothesis and categories
- Development of theory and incorporation of pre-existing knowledge
- Testing of theory against data
- Report writing, including quotes where appropriate

However, it is important to know or note that the above steps are not strait jackets and should be followed blindly. The analysis of qualitative data should proceed from the same vital openness and flexibility with which the data had been collected in the first place. Reporting the findings should also attempt to capture or retain some of this vitality.

#### **4.0 Conclusion**

Despite the explanation given above, we have to be cognizant of the fact that in the course of analyzing qualitative data in terms of themes, concepts, ideas, or interactions or the processes, you have to do the thinking and the analysis yourself because there is no software that can actually do the thinking and interpretation of the collected data for you.

#### **5.0 Summary**

In this unit, you have learned how researchers analyse qualitative data. Data collection, data analysis and qualitative data analysis were briefly defined and process of QDA discussed. You also learned about the types of qualitative data analysis and procedures for qualitative data analysis. However, it has been revealed that qualitative data are more

difficult deal with than data in form of numbers. Mathematical properties are usually assigned to numbers that let a researcher use statistical procedures. But qualitative analysis requires more effort by an individual researcher to read and reread data notes, reflect on what is read, and then make comparisons based on logic and judgement.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. How does process conceptualization in qualitative research differs from unit of qualitative research.
- ii. Enumerate five differences between quantitative and qualitative data analysis.
- iii. Is data analysis necessary in qualitative research? Discuss.

## **7.0 REFERENCES/FURTHER READING**

Creswell, J.W. (1994). *Research Design: Qualitative and Quantitative Approaches* Thousand Oaks, C.A.: Sage Publications.

Coffey, A.B. Holbrook and P. Atkinson (1996): *Qualitative Data Analysis: Technologies and Representations: Sociological Research On line: Vol. 1, no. 1.* Available on line at: <http://www.socresonline.org.uk/1/1/4.html>

Gibbs, G.R. (2002) *Qualitative Data Analysis: Explorations with Nvivo.* Buckingham; Open University Press.

Seidel, J.& Kelle, U. (1995) 'Different Functions of Coding in the Analysis of Textual Data' in U. Kelle (editor) *Computer Aided Qualitative Data Analysis: Theory, Methods and Practice.* London: Sage.

Seidel, J (1998) *Qualitative Data Analysis. The Ethnograph v5 Manual, Appendix E.* Available online at: <http://www.qualisresearch.com>.

## **UNIT 4 QUANTITATIVE DATA ANALYSIS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Quantitative Data Analysis
  - 3.2 Fundamentals of Quantitative Data Collation
  - 3.3 Data Cleaning
  - 3.4 Types of Techniques of Quantitative Data Analysis
  - 3.5 Data Interpretation Data Reporting
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

At the completion of research observation by a researcher on the subjects and has obtained relevant information or data (e.g. administration of questionnaires, interview schedules etc.) the data have to be carefully checked through, edited and appropriately sorted out. This exercise is referred to as data processing which sets the stage for data analysis. Data analysis is more than number crunching. It is an activity that permeates all stages of a research study. Concern with analysis should (i) begin during the design of a study, (2) continue as detailed plans are made to collect data in different forms, (3) become the focus of attention after data are collected, and (4) be completed any during the report writing and reviewing stages. But the form and quality of the data determine what analysis can be performed and what can be interred from them.

### **2.0 OBJECTIVES**

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

- 4.0 Define quantitative data analysis
- 5.0 Explain some fundamentals of Data collation
- 6.0 Discuss data cleaning
- 7.0 State types of techniques of quantitative data analysis

8.0 Discuss data interpretation data reporting

### **3.0 MAIN CONTENT**

#### **3.1 Data Analysis**

Data analysis is the process of summarizing the data in a meaning manner that would provide answers to research questions. For example, in the case of research involving field work the data could be summarized in terms of the total number of subjects (respondents) and their distribution by sex, age, marital status, level of education, income level, number of children, religion (etc as the case may be). The analysis could reveal or show the number and characteristics of subjects who responded to specific questions, and the pattern of response. It involves ordering the data for statistical representation in terms of frequency distribution and statistical computations (e.g. mode, mean, standard deviation etc.), and construction of tables and cross tabulations. It is at the level of data analysis that the research data are related to the specific hypothesis of the study in order to highlight the findings of the research.

Data analysis could be handled manually and/or mechanically. The process is usually very tedious, cumbersome and lacking in accuracy. The use of small calculator could be helpful. It is however preferable and indeed, strongly recommended to handle the data mechanically by the use of the computer. The computer machine has the capability and facilities to handle even very complex computations, construction of tables, and the written text with speed, accuracy and versatility.

##### **3.1.1 Required Skills in Data Analysis**

Several skills or series of skills are required when analyzing data, some of which are conceptual charity, field experience, adequate knowledge of statistical technique and ability to use computer to manipulate data.

##### **3.1.2 Methods of Data Analysis**

The methods of data analysis include statistical, mathematical, cartographic, mapping (involves the use of GIS), and other methods researchers can utilize in analyzing data. A decision concerning the types of quantitative or qualitative analytical methods to be used by a researcher depends largely on the hypothesis and the types of data that are available. Soon, after collating the data, it is often useful to think of ways of constructing a frequency distribution tables and or graphs. It is quite possible to make use of your

spreadsheet package to produce graphs to help at this stage. The important point is to select the most appropriate chart that will present the data's properties clearly.

### **3.2 Fundamentals of Data Collection**

For easy interpretation and analysis of data, data collection is very important because it involves a summary and tabulation of collected information (data).

Data collection entails coding of data, followed by data entry into machine-readable format, preliminary cleaning of data and ends with the production of raw data files containing all the information recorded in the questionnaires. The data collection stages are as follows:

#### **3.2.1 Coding of Data**

Coding of data is the final phase in the data collection process. It converts the observations or measurements made into the form suitable for SPSS or other analytical packages to ensure clarity. Data coding is referred to as the process of grouping responses either from questionnaires or interviewees into categories that bring together the similar ideas, concept or themes that have been discovered into a process. A researcher can code for names, evidences, themes, time sequences and hesitations, signs of emotion and indications of fear or amusement. The print out of the database with an explanation of the codes is referred to as "data coding sheet". An experienced researcher can decide to code on anything which he/she considers may be of help in the data analysis.

#### **3.2.2 Coding Stages**

Coding of data proceeds in stages which is usually suggested by the original reading of the questionnaires, or interviews and the intended purposes of the research report. It is very important that appropriate codes are assigned or should be assigned to all the variables under study. For example, educational qualification can be coded (EDU), religion affiliation can be given (RelAfl), marital status (Msta), household size could be given (Hsz), Urban area may be given a code (Uare) etc.

However, it should be noted that not all data use the actual values especially of such data is made up of categorized variables. For instance, if a question about age is asked and possible responses are categorised as "less than 18years old". "18 to 35", "36 to 50", "51 to 65" and "over 65 years of age". For these data to be coded, we can make use of the following codes: less than 18 = 1, 18 to 35 = 2, 36 to 50 = 3, 51 – 65 = 4 and 65 years and above = 5. A similar coding system could be applied for gender, ethnicity (ethnic group)



or religious affiliation. For gender we might use 1 for female and 2 for male. It should always be at the back of our mind that we need to enter numbers.

SPSS package allows you to enter “Male” and “Female” by changing the type of variable from Numerical to a String, but makes you very limited in the sort of analyses you can then conduct.

There are times we observe that questions are not given any response by the subject or may simply inadvertently skip a question and making it becomes missing data.

Sometimes you collect data using open ended questions such as: “What do you think is lacking in the programme”? Respondent then write in their answers. In a situation like this, one would review a number of responses and then develop a code such as: the facilitator = 1, content = 2, the methods used = 3, the time allocated = 4, the day of the week = 5 etc. We should try as much as possible to either use actual or pre-coded values for the variables of interest, because post-coding of open-ended items is time consuming and some subjectivity becomes inevitable in translating written responses into coded numerical values.

It is very important for you to develop a code manual (guide) that indicates how each variable is to be coded before entering your data into a computer for processing which could be actual or coded values and in what field it appears.

### **3.2.3 Data Entry Programmes**

The programmers that are available to aid researchers in data entry include:

#### **i. Statistical software packages**

These include SPSS, Microsoft Access, Microsoft Excel, ISSA, SATA etc. They are specifically designed for this purpose and they generate data sets in the form required for analysis.

#### **ii. Database Packages**

Database packages such as dbase, paradox and Microsoft access, allow the user to create screen forms with validity and consistency checks. Screen can mimic the questionnaire closely. They are capable of dealing with several different units of analysis at once (e.g. the household and the household members).

### iii. Custom Programme

It is possible for competent programmers to write a programme in a language such as FORTRAN, C-language, Visual Basic to perform data entry. The main advantage is that, it can be completely tailored to the specific requirements of the questionnaire. Although, it takes time to write, test and debug the programme and one largely depends upon a single person if anything goes wrong.

#### 3.2.4 Data Entry or Data Capture

Data entry covers the initial computerized log-in of the completed questionnaire. Basically, data entry process involves five elements. These are data entry screens, validity checking, consistency checking, data combination and transformation, and data base organisation which are briefly described as follows:

- (a) **Data Entry Equipment:** A very good computer comprising screen, key board, central processing unit and a printer is required for data entry. The computer could either be desktop laptop which must be in good working condition with relevant or needed programmes already installed on it.
- (b) **Validity Checking:** A good data entry programme should make checks on the values and codes entered in each field as the data are keyed in. Ideally, this checking process should take place as soon as you press a key (usually Enter or Tab) to move on to the next field, and any error would be flagged immediately. Alternatively, the check may take place after each case (questionnaire) has been entered. Checking schemes that operate only after data entry is completed are much less efficient as you will have to physically locate each questionnaire again to check on the correct data. Validity checks are required to ensure that the field is not left blank, that only meaningful codes are used for the field, to check for values possibility.
- (c) **Consistency Checking:** It examines the interrelationship between 2 or more fields. For example, consistency checks in a household questionnaire might include: household size is equal to the number of persons in the household roster; age of household head must at least be is years.
- (d) **Data Combination and Transformation:** A computer can be used to combine or transform the data in a number of ways. But while most statistical packages provide the means of doing this, it may make sense to carry out some transformation at the data entry time. For instance, coding some fields like

occupation, using the look-up table, and applying a set of rules to derive a new variable such as household type.

- (e) **Data Base Organisation:** Immediately the data have been entered, they must be organized in the form in which they will be analysed. For example, data in each questionnaire can be divided among a number of different units of analysis: household level data, money-earning activities etc. The database must then be exported from the data entry programme in a form, which can be read and understood by the programme which will be used for statistical analysis.

### 3.3 Data Cleaning

Once the data have been entered completely, the next process is to examine it and produce tables and pinpoint problems that require checking. All incorrect or suspicious values must be examined, the original questionnaires checked, and the data either confirmed or corrected.

Data cleaning also referred to as data cleansing or scrubbing, deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. During data cleansing, records are checked for accuracy and consistency, and either corrected, or deleted as necessary. Data cleansing can occur within a single set of records, or between multiple sets of data which need to be merged, or which will work together. Data quality problems are present in single data collections, such as files and databases (e.g. due to misspellings during data entry, missing information or other invalid data).

A data cleaning approach is expected to satisfy these several requirements. First and foremost, it should detect and remove all major errors and inconsistencies both in individual data sources and when integrating multiple sources. The approach should be supported by tools to limit manual inspection and programming effort and be extensible to easily cover additional sources. It should also not be performed in isolation but together with schema-related data transformations based on comprehensive metadata. Each time a lot of data are being stored, errors are bound to creep into the system. The goal of data cleansing is to minimize these errors, and to make the data as useful and meaningful as possible. Without regular data cleansing, mistakes and errors can add up, leading to less efficient work and more complications down the road.

### 3.4 Types of Techniques of Data Analysis

Various techniques are often used or employed in carrying out simple data analysis and comparative analysis. The common methods used in analyzing data through inferential and descriptive statistics have been discussed under relevance of the use of statistics in research.

### 3.5 Data Interpretation

This is the process of giving flesh to the research data in terms of the meaning and implications of the findings. It involves the following.

- (i) **Description of the data** – to find out what is typical about the sample, and the determination of the interrelationship of the different variables in the study.
- (ii) **Drawing of Inferences** – this relates to the use of statistics to determine the relationship among variables, and how the relationship is affected by other variables presumed in the study (as intervening or antecedent variables). It involves testing hypotheses and explaining the results of the research.
- (iii) **Making generalization** – indicating the implications of the findings of the study for the population or the phenomenon studied; for similar populations and phenomena; and for the wider society. It involves giving opinion that might apply to a larger number of cases, resulting from the consideration of particular facts or cases. It is in the light of the implications of the results of the study for society that suggestions and/or recommendations are made for better knowledge and understanding of the phenomenon studied, and for improvement of life in the society.

### 3.6 Data Reporting

The research report is the climax of the research enterprise. It is important in the sense that unless the findings of a study are communicated to others by way of report, nothing is known about the research. The research report therefore, is the medium for the dissemination of information and advancement of knowledge. In preparing the report, the audience and the fora to be addressed, the purpose of the report and the language of the discipline, among other things, should be taken into consideration. The considerations are important because they would influence what is presented and how it is presented. Research report should be clearly understood and capable of replication, if need be. To meet following outline:

- (i) **Statement of the Problem:** The research problem should be briefly but clearly stated. The rationale for the study and the objective should be clearly indicated, and the significance of the research explained in terms of the practical and theoretical importance of the study. There should be a brief review of other relevant studies, which could provide the background for the study. In this section, the hypotheses of the research, if any, should be stated and the major concepts employed defined.
- (ii) **The Research Procedures:** The research report should give sufficient information on how the study was carried out. This includes a discussion of the research design, the sample and sampling techniques, and the methods of data collection and analysis.
- (iii) **The Results:** This section of the research report presents the findings of the study. The data should be adequately interpreted and attention drawn to new developments and insights which might have been gained in the process of the study.
- (iv) **The Implications:** In the preparation of research report the implications of research findings could be handled along as part of the presentation and interpretation of data, or it be discussed separately. It includes making inferences and generalizations as might be deemed necessary, as well as drawing attention to the limitations of the study in terms of some unanswered or new questions, and making suggestions for future research.

Ideally the report could start with an abstract, and/or end with a summary which highlights the main elements of the research and its major findings.

#### **4.0 CONCLUSION**

In as much as the goal of scientific research is to produce knowledge that truly neglects the social world. A good researcher should try as much as possible to guide against possible errors or obstacles that can enter into the research process at many places such: research design, measurement, data collection, coding, calculating statistics and constructing tables, or interpreting results.

## **5.0 SUMMARY**

In this unit you learned about organizing quantitative data to prepare them for analysis, and analyzing them (organizing them into charts, or tables, or summarizing them with statistical measures). Statistical analyses are used by the researcher to test hypothesis and answer research questions. You also learned how data must be coded first and then analyse using univariate or bivariate statistics.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- i. How do researchers clean data and check their coding
- ii. What is a code book and how is it used in research?

## **7.0 REFERENCES/FURTHER READING**

Rosnow, R.L and Rosenthal, R. (1996) *Beginning Behavioral Research. A Conceptual Primer*. New Jersey Prentice Hill.

Best, J.W. and Kahn, J.V. (2006) *Research in Education* Boston Pearson Education Inc.

Fraenkel J.R. and Wallen, N.E. (1996) *How to Design and Evaluate Research in Education* New York Mc Graw – Hill Inc.

Gay, L.R. (1981) *Educational Research Competencies for Analysis and Application* Ohio, Charles E Merrill Publishing Co.

Nachmias, F. and Nachmias, D. (1996) *Research Methods Social Sciences 5<sup>th</sup> Edition*, New York, St. Martin's Press.

Creswell, J.W. (1994): *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks, C.A: Sage Publications.

## **UNIT 5            CONFLICT ANALYSIS**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Conflict Analysis
  - 3.2 Definition, Categories and Criteria for Determining Primary Stakeholders
  - 3.3 Pre-Intervention Conflict Analysis
  - 3.4 Definition of “Conflict Mapping” and “Tracking”
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 REFERENCES/FURTHER READING

### **1.0 INTRODUCTION**

As a peace studies and conflict resolution professional or student, it very important for you to carry out thorough analysis of any type of conflict you intend or you are writing your project/thesis on ever before you embark on data analysis.

Therefore, it is imperative for you to acquire necessary knowledge and skills required to enable such a person gain an insight into the hidden issues in conflict. The issues ranging from the causes of the conflict, stages/phases of conflict, the stakeholders (parties in conflict), and the conflict analytical tools and techniques necessary for proper understanding of conflict analysis in view of proffering sustainable solution to the conflict. Analysis is usually accompanied by “conflict mapping” and “tracking” both of which are very important at giving the conflict management practitioner a clear picture of what is happening, what is at stake and what could be done to manage the “difficult” situation.

## **2.0 OBJECTIVES**

By the end of this unit and relevant readings, you should be able to:

- define concept of conflict analysis
- explain the meaning of stakeholders, categorise stakeholders and itemize criteria for determining stakeholders
- state pre-intervention conflict analysis
- define conflict mapping and tracking
- identify conventions used in mapping relationships
- enumerate different conflict analytical tools.

## **3.0 MAIN CONTENT**

### **3.1 Definition of Conflict Analysis**

Conflict analysis is a critical review, interpretation and explanation of what is observed and recorded about the conflict situation. Or A process by which the root causes, dynamics, issues, and – other – fundamentals of conflict are examined, reviewed and unraveled through the use of various mechanisms for proper and better – understanding of the conflict from several perspectives.

Conflict analysis enables peace expert intervening in a conflict the opportunity of gathering necessary data or information that will facilitate easy bringing together of parties in dispute and reveal a dependable, reliable and effective direction on the choice of strategies and action to be adopted for a successful intervention and termination of conflict.

### **3.2 Definition of Stakeholder**

A stakeholder is defined as those men and women, group or parties who are directly or indirectly involved in the conflict and have a significant stake in the outcome.

#### **3.2.1 Categories of Stakeholders**

##### **a. Primary Stakeholders**

They are those whose goals are, or are perceived by them to be incompatible and who interact directly in pursuit of their respective goals. They are the direct investors in the conflict.



**b. Secondary Stakeholders**

Are affected directly by the outcome of the conflict but who do not feel themselves to be directly involved. As the conflict progresses, they may become primary and primary may become secondary.

**c. Interested Stakeholders**

These parties have an interest in the conflict. They stand to benefit from the outcomes whether peaceful or conflictual. The difference between interested and secondary stakeholders is that the interested stakeholders suffer no direct impact of the conflict in the short and medium term.

**3.2.2 Criteria for Determining Primary-Stakeholders**

Determining where stakeholders should be put is both political and fluid. The following often determines the decisions of interveners in selecting the stakeholders to engage.

**i. Functional**

This suggests those who directly wage the conflict. Their legitimacy on the negotiating table is their capacity and ability to perpetuate the conflict. They are the embodiment of the conflict. Observers believe they have the power to end the conflict.

**ii. Representativity**

This is political aspect of stakeholders' categorization. Stakeholders are primary because they represent a large number of people who are directly affected by the conflict. These people also have the means to wage conflict or build peace.

**iii. Moral Authority**

Primary Stakeholders can also be determined because their moral authority carries the vision of post-conflict society. These include religious leaders, civil society organizations including women's organizations, traditional leaders. Earlier, this category was only confined to the secondary level.

### **Five (5) Elements Required to Structure Analysis of Stakeholders**

- Relationship - What is the interaction between the stakeholders?
- Agenda/power - What are the agendas of key stakeholders for conflict and for peace?
- Needs - What are the needs of the different stakeholders? Which needs are opposing and overlapping?
- Action - What actions are the different stakeholders undertaking to promote peace or conflict? What is the cumulative power of actions for peace or conflict?

### **3.3 Pre-Intervention Conflict Analysis**

Entering into conflict situations by a researcher or conflict management practitioner is often an unpredictable task which requires a critical careful conflict analysis. It is not enough for him/her to just note the positions of the stakeholders (parties) in the conflict but s/he must have a thorough understanding of their interests, values and needs as well.

The following model suggests a way for the intervenor to gather data and increase the certainty that his/her entry will be constructive to the disputing parties. It is the responsibility of an intervenor to develop a comprehensive picture of the conflict by identifying its key element. The pre-intervention information gathered usually points the intervenor in a certain direction, suggesting ways to engage the parties to reduce tensions and work together to find solution to the problems that they face on one hand. Additional information or data collected during the course of intervention should also be incorporated into the conflict analysis. This may help you determine why an issue is so hard to resolve or it may suggest an alternative approach to conflict management.

#### **1. History of the Conflict**

It is important for a conflict analyst to understand the significant events that has happened in the past between the parties. It reveals the genesis of the conflict and whether they have had previous disputes. History also enables the intervenor to ask the following questions. What has been the pattern of their relationship? Was there a recent change in the relationship? Did the conflict abate at one time before re-escalating? What past efforts have been made to resolve it and why they failed?

Preferring answers to these questions might require visiting local, state and native archives for documentary evidence. Oral interviews might also be used to gather necessary information.

## **2. Context of Conflict**

It is also necessary to know how the parties are currently trying to resolve their differences. What is the physical environment of the conflict? That is the social, economic and political environment of the conflict, as well as the dimensions of the external situations (state, sub-regional and global). How do the parties communicate and make decisions?

## **3. Primary Parties**

Identify the parties involved in the conflict, what are the parties positions and underlying interest? What are their values and perceptions of the other parties? Do the parties have settlement authority? What interest, goals, or needs do the parties share in common?

## **4. Power Relations**

This has to do with the ability to influence or control other events, which could be in form of physical strength, status, control of resources, persuasive ability, support of allies, and so on. There are two major types of power that can be exercised by either of the parties in conflict which are: hard power which is usually associated with violent conflict while the other is soft power that is identified with positive conflict. The following questions are usually being asked under power relation: Is there balance of power between the disputants? What is/are the source(s) of the parties' power? What resources are at the disposal of each party? How often do the parties use their power and what are the consequences of such power? Are there any untapped power bases of the parties? What method of peace process is suitable for the success of the intervention?

## **5. Other Parties/Stakeholders**

Apart from the already mentioned primary parties, under this, we have secondary parties and shadow parties that must be considered and their link or relationships with the primary parties ought to be carefully examined in order to understand the overall underlying problems associated with a conflict. Secondary parties can easily be

identified compared to shadow parties because most times. Shadow parties hide their identities but supply primary parties resources required for the prosecution of conflict.

The roles these parties play in the conflict must be ascertained. You should know whether they align with either of the primary parties or neutral. When and how these parties can be involved in the peace agencies or organizations availability and involvement in the process of conflict resolution cannot be underestimated.

## **6. Issues**

- a. What are the primary issues as identified by the parties?
- b. Are there hidden or secondary issues not stated by the parties that are needed to be identified?
- c. What kind of intervention procedures is necessary for the types if issues are identified?
- d. Is the conflict genuine in its own right or is it merely a symptom of other unresolved conflict(s).
- e. If the latter or former, how much time and efforts must be expended on the conflict in order to reach or arrive at a reasonable and sustainable resolution.

## **7. The Immediate Situation**

What is happening now? (Should the first step be efforts to move towards negotiations, or are short – term violence reduction strategies called for? It is the responsibility of the intervenor to determine the most effective and reliable conflict management strategy to adopt in accordance with the urgency and demand of the conflict situation. For example, if the conflict is at a violent stage, definitely, the intervenor may be compelled to adopt some violence reduction strategies to reduce the rate of likely casualty that may arise.

## **8 Stages of Conflict**

- a. We have to ascertain whether the conflict is escalating or stabilizing, and ask why?
- b. If the conflict is escalating, what is happening: Are issues moving from specific to general? Is there an increase in issues or resources used to wage the conflict? Has disagreement turned to antagonism? Is there an increase in the level of power being used by either parties? Are the parties

polarized? Has extremist leadership arisen? Is communication affected or being distorted? Are parties engaged in propaganda campaigns?

- c. If the conflict is stabilizing, what is happening? Are safety-value mechanisms put in place? Is there a fear of escalation? Are there agreements on norms and values? Are there social bonds, friendships, cross-cutting memberships among party members?
- d. Are there other third party intervenors or external interference or threat? Are there time constraints or other limitations on the further use of resources?

## **9. Timing**

- a. To ascertain the actual and right time of intervention.
- b. Determine the most profitable and successful time of the intervention.
- c. To know the party that is likely to benefit from immediate intervention.

## **10. Possible Options of Intervention/Settlement**

- a. The level of knowledge and understanding of the parties alternatives should be considered.
- b. Level of parties awareness of each other's alternatives or option should be considered.
- c. Examine the efforts made so far by the conflicting parties in the accomplishment of their options.
- d. Evaluate the realistic nature of the parties.

### **3.4 Definitions of Conflict Mapping and Tracking**

#### **Conflict Mapping:**

Wehr (1979:18) describes conflict mapping or the "first step in intervening to manage a particular conflict".

Conflict mapping can also be defined as graphical representation of the conflict in which the conflicting parties are placed in relation to the situation on ground.

Maps are used for a variety of purposes to understand conflict situation better, to ascertain where power lies, to examine conflict clearly from one viewpoint, to look for

openings (way out) or new strategies, to know where our allies or potential allies are placed, to find our own niche, to evaluate what has been done and for many other reasons.

### **Conflict Tracking:**

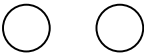
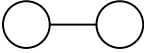
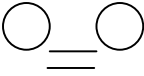
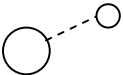
Is the process which involves monitoring, observing and recording the trend of change and continuity in the conflict process. What to keep of could include:

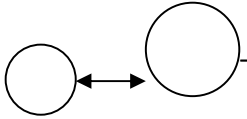
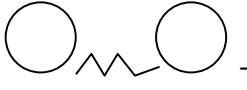
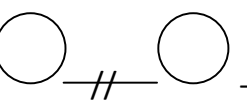
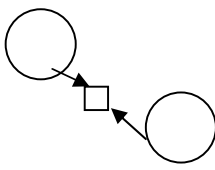

Conflict parties, including internal leadership struggles, varying prospect for military success and the reading of general population to express support for a settlement; possible ways of re-defining goals and finding alternative means of resolving differences including suggested step towards settlement and eventual transformation; likely constraints on these, and how these might be overcome .

It is very important for the person keeping track of the conflict to pay careful attention to the minutest details about the issue and circumstances around him.

#### **3.4.1 Conventions for Mapping Relationship.**

The following are the particular conventions we use in mapping relationships existing between or among the stakeholders (parties) involved in a conflict situation.

1.  - The circles indicate parties to the situation. The size of the circle indicates power relations of the parties.
2.  - Straight lines indicate direct relationship between the parties when communication is at its best.
3.  - Double connecting lines indicate an alliance
4.  - Dotted lines indicate informal weak or intermittent relationship.

5.  - Arrows indicate the predominant direction of influence or activity.
6.  - Lines like lightning indicate discord or conflict.
7.  - A double line like a wall across lines indicates a broken relationship.
8.  - A square or rectangle indicates an issue, topic or some thing other than people.
9.  - Shadows show external parties which have influence but are not directly involved.

## **Conflict Resolution Stakeholders' Network (CRESNET)**

### **Training Manual 2001.**

#### **3.5 Conflict Analytical Tools**

Conflict mapping tracking and analysis processes are the essential ingredients required in pre-third party intervention for the collection of essential and comprehensive information/data by a mediator or conflict intervenor to discover purposeful tool(s) and techniques that can be used or adopted to suit their needs.

Through such data, Moore (1996:114) notes, that a mediator would:

- Develop a mediation plan or conflict strategy that meets the requirements of the specific situation and the needs of all parties.

- Avoid entering a dispute with a conflict resolution or management procedure that is appropriate for the stage of development or level of intensity that the dispute has reached.
- Operate from an accurate information base that will prevent unnecessary conflicts due to mis-communication, mis-perception, or misleading data.
- Clarify which issues and interests are most important.
- Identify the key people involved and the dynamics of their relationships.

As mentioned above, some of the techniques or tools may look familiar or may be unfamiliar. However, all have been tried and used repeatedly and successfully by people from many different types of conflict situations. In many cases, groups have adapted them to suit the particular needs they have or based on the perceptions of the people who work on it.

These are some of the available tools/techniques

## **A. Timeline**

### **Definition**

Timeline is a graph that shows events plotted against a particular time-scale.

Timeline shows different views of history in a conflict: helps to clarify and understand each side's perception of events and also facilitate easy identification of events that are most important to each side. It lists dates (years, month, or day, depending on the scale) and depicts events in chronological order.

In a conflict situation, groups of people often have completely different experiences and perceptions: they see and understand the conflict in quite distinct ways. They often have different histories. People on opposing sides of the conflict may note or emphasize different events, describe them differently, and attach contrasting emotions to them.

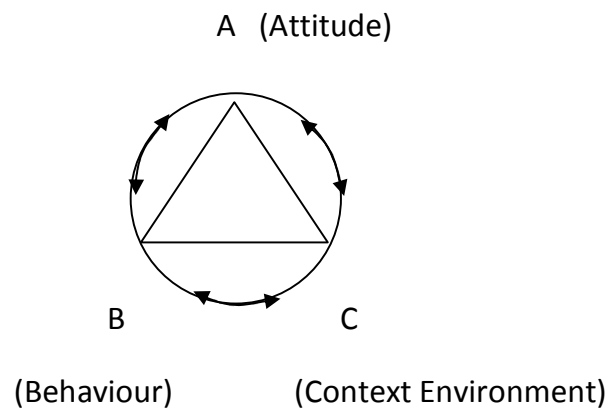
### **Using the Timeline**

Timeline is not a research tool per say as mentioned above, but a way to prompt discussion and learning. In conflict situation, it is usually used early in a process along with either analytical tools or later in the process to help in strategy building. It is also used when people disagree about events or don't know each other's history and as a way of helping people to accept their own perspective as only part of the "truth". Variation in use: it is used by parties themselves and shared with each other; it is



followed by a discussion about events that are highlighted by each side and adding a line for peace initiatives during the same time period.

### ABC TRIANGLE METHODS OF ANALYSIS



Attitudes (willingness to change, fixed position)

Behaviour (agitation, demand, pleas, violence)

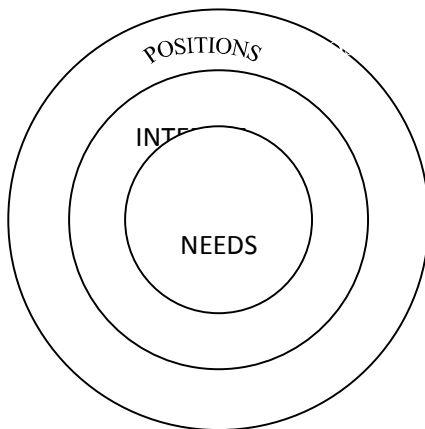
Context (the background)

ABC analytical tool sees conflict having three above mentioned elements, which affect one another.

The third party intervenor or peacemaker in a conflict, uses this tool by drawing up a separate ABC Triangle for each of the major stakeholders in the conflict. He lists key issues relating to attitude, behaviour and context from the parties viewpoint, identify the most important need and fears, and inform each of the parties, his needs and fear as you think, and place these in the middle of the triangle of each of them. You later compare and contrast the perception of the parties for detecting the major object of conflict and then pay attention on the majority. The causes and issues, which are the products of the parties differences, will be addressed, while intervenor will make the parties see reasons on why they should do away with negative perceptions and embrace peace in order to bring about positive and sustainable peace.

## The Onion/Doughnut Method of Analysis

This is a graphic tool based upon the analogy of an onion and its layers. The outer layer contains the positions (parties' wants). Underlying these are the interests of the parties in conflict (what parties want to achieve from the situation concerned). The third layer is the core cause at the conflict situation, that is; the most important needs to be satisfied. It is important for intervenor to carry out or do this "onion" analysis for each of the parties involved.



When times are stable, relationships good, and trust high, our actions and strategies may stem from our most basic needs. We may be willing to disclose these needs to others, and discuss them openly, if we trust them, and they may be able, through analysis and empathy, to grasp our needs even before we disclose them.

In more volatile or dangerous situations, and when there is mistrust between people, we may want to keep our basic needs hidden. To let others know our needs would reveal our vulnerability, and perhaps give them extra power to hurt us. If all of us are hidden from each other, they are also less likely to be able to grasp our needs through analysis or empathy because of lack of knowledge and because our mistrust changes our perceptions of each other.

In such a situation of conflict and instability, actions may no longer come directly from needs. People may look at more collective and abstract level of interests, and base their actions on these. When the interests are under attack, they may take up and defend a position, which is still further removed from their original needs.

This type of analysis enables intervenor to understand the dynamic of a conflict situation, and prepare dialogue facilitation between groups in a conflict. The analysis is most useful in a mediation or negotiation processes when parties involved in either of the processes which to clarify for themselves their own needs, interests and positions.

As they plan their strategies for negotiation, they can decide how much of the interior “layers” – interests and needs – they want to reveal to the other parties involved.

### **Force – Field Analysis**

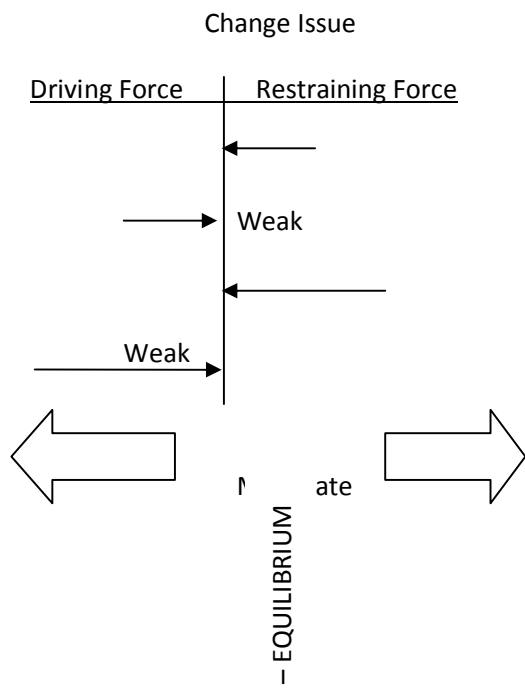
This tool can be used to identify the different, forces influencing a conflict. It is used to analyse both positive and negative forces in a conflict. Whenever action is being taken to bring about change, there will be other forces that are either supporting or hindering what you are trying to achieve. This tool offers a way of identifying these positive and negative forces and trying to assess their strengths and weaknesses. It can also help you to see more clearly what is maintaining the status-quo.

### **How to use this tool**

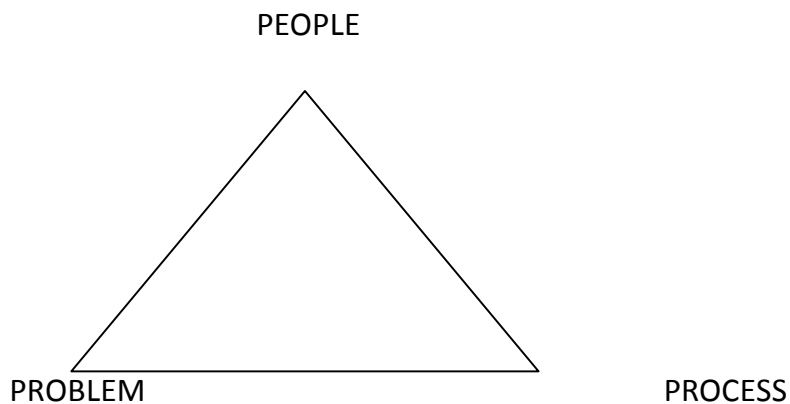
- i. First and foremost, you begin by naming your specific objective that is the action you intend to take or the change you desire to achieve. Write this objective at the top of the page and draw a line down the centre of the page.
- ii. On one side of the line, list all the forces that seem to support and assist the action or change to happen. Next to each one draw an arrow towards the centre, varying the length and/or thickness of each arrow to indicate the relative strength of each force. These are pointing in the direction of the desired change.
- iii. On the other side of the line, list all the forces that seem to retrain or hinder the desired action or to minimize in some way the negative force, in order to facilitate increase in the likelihood of the desired change happening.
  
- iv. At this stage, you may want to examine your plan of action and make modifications in your strategy if necessary in order to build upon the strengths of the positive forces and then try to reduce or even remove the effects of the negative forces.

The Force Field Analysis was developed by an American Social Psychologist Kurt Lewin (1951) as a useful tool built on the premise that forces are often driven by human habits, customs, and attitudes that can affect the change process.

## Force Field Diagram



## **PPP MODEL**



### **PEOPLE**

- Who are the individuals and groups directly involved?
- Who will be affected by or can influence the outcome?
- What leadership and structure does each group have?
- How does each view the situation?
- How is each affected?
- What particular feelings, issues etc characterize each?
- What are the main discrepancies in perception?
- What communication, connections links does each have with the others?

### **PROCESS**

- What have been the sparking issues?
- Is there a historic pattern to their interaction?
- What is the process each would want to follow?
- As the conflict developed, what additional problems or issues emerged?
- What degree of polarization is there between each party?
- What activities of each party have and are intensifying the conflict?
- What role do more moderate individuals and groups have?

### **PROBLEM**

- What are the interests, needs and values of each party?
- What do they propose or pursue to meet them?

- What shared basic needs underlie the conflict? (Security? Self esteem? Food? Rights? Land? etc).
- What are the minimal essential outcomes each party might be satisfied with?
- What are the basic areas of agreement and disagreement?
- What resources are there for dealing with this conflict? (within the parties? others).
- What stage has the conflict reached – is it ripe for resolution/transformation?

This tool can be used to analyse conflict by proffering answers to the several questions put forward above. If reasonable answers were proffered, then the conflict intervenor would be able know the stage of the conflict, the parties involved, their positions, basic needs, values perceptions and differences. Having known all these, you will then be able to decide on the method or process to be adopted in facilitating reconciliation (peace agreement) between the aggrieved parties, so as to bring about enduring/sustainable peace to the previously troubled society.

#### **DPT MODEL**

D – Diagnosis:            Investigating the history of sickness

P – Progress:            Establish the present state of success and where it could be in future.

T – Therapy:            The prescription or treatment.

This analytical tool is based on the premise that any individual or society that is in conflict is sick and therefore they need to see a doctor.

This means that there is a direct relationship between conflict and our physical, emotional and spiritual well being. Negative conflict expression reduces our overall capacity to build a healthy society.

Therefore, for a healthy society to be built, it is now the responsibilities of the conflict manager together with concerned authority or parties to bring about drastic reduction or removal of perceived sickness by proffering or prescribing lasting and sustainable treatment for sickness. Having carried out a proper diagnosis/examination of cause and trend at the conflict, appropriate measures/treatment can now be adopted for the removal or eradication of the sickness and its cause.

## PILLARS

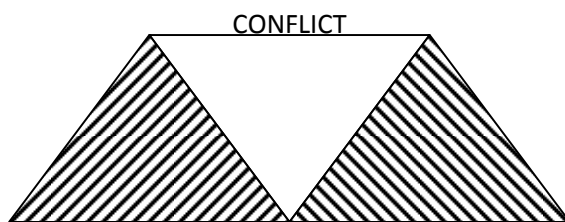
This is a graphic tool that is built on the premise that some situations are not really stable, but are being “held up” by a range of factors or forces, which are the “pillars”. If the pillars can be identified and then find ways of removing them or minimizing their effects on the situation we will be able to topple a negative situation and replace it with a positive one.

How to use this tool

The tool can be made use of by following these below trends:

- i. Identify the unstable situation (conflict, problem or injustice) and show this as an inverted triangle standing on one point.
- ii. Then identify the forces or factors that are likely to be maintaining this situation and show these as the “pillars” on either side of the triangle holding it up.
- iii. Put into consideration how each of these pillars might be weakened or removed from the situation. List your strategies briefly for each of the pillar.
- iv. Also consider what stable situation could replace this unstable one.

Example of a Pillars Analysis



## 4.0 CONCLUSION

With all the above discussions, we can now see that before any conflict can be prevented or resolved amicably from degenerating into a violent one it is important for

a conflict manager or intervenor to be well equipped and versatile in conflict analysis techniques or tools so as to afford him the opportunity of understanding the conflict situation, and knowing the stakeholders, causes of conflict , the parties views, perceptions, interests, values before embarking on conflict resolution/management process that will bring about positive and sustainable peace.

## **5.0 SUMMARY**

This unit explained/defined conflict analysis, stakeholders, categories of stakeholders, and criteria for determining primary stakeholders. The unit also defined “conflict mapping” and “tracking” and showed conventions used in mapping relationships. Different tools of conflict analysis that can facilitate proper and better understanding of conflict situation and types of relationship existing between/among stakeholders in relation to sustainable conflict resolution were extensively discussed.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1.
  - i. What is conflict analysis?
  - ii. Discuss any four (4) conflict analysis tools.
2.
  - i. Define conflict mapping and tracking.
  - ii. Draw or show different conventions used in mapping of relationship and indicate their meanings.
3.
  - i. Who are stakeholders?
  - ii. Explain different categories of stakeholders.



## 7.0 REFERENCES/FURTHER READING

Azar, Edward (1990). *The Management of Protracted Social Conflict: Theory and Cases*. Worcester: Dartmouth.

Burton, John (1990). *Human Needs Theory*. London: Macmillan.

Fisher, Simon, et al. (2000). *Working With Conflict: Skills and Strategies for Action*. London: Zed.

Mitchell, Chris (1988). *The Structure of International Conflict*. London, Macmillan.

Otite, Onigu and Albert, Isaac A. (1999). *Community Conflict in Nigeria*. Ibadan: Spectrum, Academic Associates Peace Works.