NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ARTS AND SOCIAL SCIENCES

COURSE CODE: CSS 753

COURSE TITLE: RESEARCH METHODS IN CRIMINOLOGY

COURSE GUIDE

CSS 753
RESEARCH METHODS IN CRIMINOLOGY

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INTRODUCTION

This course is a three-credit unit course for all students of Social Sciences. The course is suitable for a foundation course on the subject matter of executing a research project.

There are compulsory prerequisites for this course. The course guide enables you to know what the course is all about, what you ought to know in each unit, what course material you need to use and how you can work your way through the course. It also highlights the necessity for tutor-marked assignments. Periodic tutorial classes are also very sacrosanct to this course.

COURSE AIMS

The basic aim of CSS 753: Research Method in Criminology is to expose students of Social Sciences to the rudiments of scientific research, its techniques and processes. This broad aim will be achieved through:

- knowing the concepts of social research, and the basic principles of research
- demonstrating how these basic principles can be applied; and
- the ethics of the research project**.**

COURSE OBJECTIVES

In each of the unit, there are specific objectives. It is advised that you go through these objectives, before reading through the unit. In doing this, you could be sure that you have covered the prerequisites of that unit.

But to achieve the aim set out in this course, we would emphasize the overall objectives for the course as a whole.

On successful completion of the course, you should be able to:

- define and know the meaning of social research;
- enumerate and discuss the processes and fields of social research;
- understand the formulation of social problem
- describe research perspectives
- understand the basic concepts in social research
- know the principles of social research
- discuss Research Planning and Designs
- discuss qualitative and quantitative techniques
- explain the concepts of measurement
- distinguish the various levels of measurement
- discuss the accuracy of measurement
- define sampling;
- enumerate and discuss sampling techniques

- ❖ discuss research applications
- ❖ discuss the ethics of research
- ❖ describe a typical documentation of social research
- ❖ discuss footnotes and endnotes
- ❖ explain bibliography and abbreviations of certain documentations.

WORKING THROUGH THIS COURSE

To complete the course, you are required to read the study units and other related materials. Each unit contains self-assessment exercises and tutor-marked assignments. These exercises are to aid you in understanding the concepts of the course by testing your understanding of discussions set out in the main content section of each unit. You are required to submit the Tutor-Marked Assignments for assessment purposes. At the end of the course, you will be required to write the final examination. Below are the components of the course and what you are expected to do.

COURSE MATERIALS

- Course Guide
- Study Units
- Assignment file
- Relevant textbooks including the ones listed under each unit

STUDY UNITS

There are twenty two units (of five Modules) in this course. They are listed below:

Module 1

Unit 1	Science and Research
Unit 2	Processes of Social Research
Unit 3	Research Design
Unit 4	Foundation of Social Research
Unit 5	Measuring Crime and Delinquency

Module 2

Unit 1 Sampling and Sampling Framework
Unit 2 Types of Sampling I
Unit 3 Types of Sampling II
Unit 4 Validity and Reliability
Unit 5 Hypothesis

Module 3

Unit 1 Quantitative Research
Unit 2 Qualitative Research

Module 4

Unit 1 Data Collection
Unit 2 Questionnaire
Unit 3 Interview

Module 5

Unit 1 Meaning and Importance of Measurement
Unit 2 Levels of Measurement
Unit 3 Accuracies and Errors in Measurement
Unit 4 Scaling

Module 6

Unit 1 Ethics
Unit 2 Data Analysis
Unit 3 Report Writing

REFERENCES/FURTHER READING

Some books and web sites have been recommended in each of the units. You may wish to purchase the books for further reading.

ASSESSMENT

There are two types of assessment in this course. The first one is the assignment file. In this file, you will find all the details of the work you must submit to your tutor for marking. The marks you obtain in these assignments will make up your final marks. The assignments must be submitted to your tutor for formal Assessment in accordance with the deadline stated in the presentation schedule and the assignment file. The assignments submitted to your tutor will account for 30% of your total score. The

second one is the written examination. This will be discussed in details in the section on Final Examination and Grading.

TUTOR-MARKED ASSIGNMENT (TMA)

There are twenty two TMAs in this course. Every unit has a TMA. You will be assessed on four of them but the best three performances from the TMAs will be used for your 30% grading. The assignments for the units in the course are contained in the Assignment file. When each assignment is completed, send it together with a TMA form to your tutor. Ensure that each assignment reaches your tutor on or before the deadline given in the Assignment file. If for any reason you cannot complete your work on time, contact your tutor before the assignment is due, to discuss the possibility of an extension. Extensions will not be granted after the due date unless there are exceptional circumstances warranting such.

FINAL EXAMINATION AND GRADING

The final examination for CSS 231: Methods of Social Research will be of three hours duration and have a value of 70% of the total course grade. All areas of the course will be examined. Find time to read the units all over before your examination. The examination will consist of questions, which reflect the kind of SELF-ASSESSMENT Exercises and TMA you have previously encountered.

COURSE MARKING SCHEME

TABLE 1: COURSE MARKING SCHEME

ASSESSMENTS	**MARKS**
Assignments	Four submitted, best three account for 30% of course marks.
Final Examination	70% of overall course marks.
Total	100% of Course Marks

PRESENTATION SCHEDULE

The dates for submission of all assignments will be communicated to the student. The student will also be told the date for completing the study units and dates for examinations.

COURSE OVERVIEW AND PRESENTATION SCHEDULE

Unit	Title of Work	Weeks Activity	TMA
Module 1			
Unit 1	Science and Research	Week 1	Assignment 1
Unit 2	Research Design	Week 2	Assignment 2
Unit 3	Processes of Social Research	Week 3	Assignment 3
Unit 4	Foundation of Social Research	Week 4	Assignment 4
Unit 5	Measuring Crime and Delinquency	Week 5	Assignment 5
Module 2			
Unit 1	Sampling and Sampling Techniques	Week 5	Assignment 1
Unit 2 & 3	Types of Sampling 1&2	Week 6	Assignment 2 &3
Unit 4	Validity, Reliability	Week 7	Assignment 4
Unit 5	Hypothesis	Week 8	Assignment 5
Module 3			
Unit 1	Qualitative Research	Week 9	Assignment 1
Unit 2	Quantitative Research	Week 10	Assignment 2
Unit 3	Data Collection	Week 11	Assignment 1
Unit 4 & 5	***Questionnaire and Interview***	Week 12	Assignment 2&3
Module 5			
Unit 1 & 2	Measurement & Level of Measurement	Week 13	Assignment 1&2
Unit 3	Accuracy and Errors of Measurement	Week 14	Assignment 3
Unit 4	Scaling	Week 15	Assignment 4
Module 6			
Unit 1	Ethics	Week 16	Assignment 1
Unit 2	Data Analysis	Week 17	Assignment 2
Unit 3	Report Writing	Week 18	Assignment 3
	Revision	1	
	Examination	1	
	Total	**20**	

HOW TO GET THE MOST FROM THIS COURSE

In distance learning programmes, the study units replace the university classroom lectures. This is one of the great advantages of distance learning. You can read and work through specially designed study materials at your own pace, and at a time and place that suits you best. Think of it as reading the lecture instead of listening to the lecturer. In the same way a lecturer might give you some reading to do, the study units tell you when to read, and which are your text materials or reference books. You are provided exercises to do at appropriate points, just as a lecturer might give you an in-class exercise. Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit, and how a particular unit is integrated with other units and the course as a whole. Next to this is a set of learning objectives. These objectives allow you to know what you should be able to do by the time you have completed the unit. The learning objectives are meant to guide your study. The moment you are through with reading and learning the lecture in a unit, you must go back and check whether you have achieved the objectives of that unit. If you make this a habit, you will significantly improve your chances of passing the course. The main body of each unit guides you through the required reading from other sources. This will usually be either from the reference books or from a reading section.

The following is a practical strategy for working through the course. If you run into any trouble, telephone your tutor. Remember that your tutor's job is to help you. When you need assistance, do not hesitate to call and ask your tutor to provide assistance.

Read this course guide thoroughly, it is your first assignment .Organize a study schedule. Design "Course Overview" to guide you through the course. Note the time you are expected to spend on each unit and how the assignments relate to the units. Whatever method you choose to use, you should decide on and write in your own dates and schedule of work for each unit.

- Once you have created your own study schedule, do everything possible to stay faithful to it. The major reason that students fail is that they get behind with their course work. If you get into difficulties with your schedule please, let your tutor know before it is too late to get help.
- Turn to Unit 1, read the introduction and objectives for the unit.
- Assemble the study materials. You will need your textbooks and the unit you are studying at every point in time.
- Work through the unit. As you work through the unit, you will know what sources to consult for further information.
- Up-to-date course information will be continuously available there.
- Well before the relevant due dates (about 4 weeks before due dates), access the Assignment file on the NOUN website and download your next required assignment. Keep in mind that you will learn a lot by doing the assignment

carefully. They have been designed to help you pass the examination. Submit all assignments not later than the due date.

- Review the objectives for each study unit to confirm that you have achieved them. If you feel unsure about any of the objectives, review the study materials or consult your tutor.
- When you are confident that you have achieved a unit's objectives, you can start the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.
- When you have submitted an assignment to your tutor for marking, do not wait for its return before starting on the next unit. Keep to your schedule when the assignment is returned; pay particular attention to your tutor's comments, both on the Tutor-Marked Assignment form and the written comments on the ordinary Assignments.
- After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (listed at the beginning of each unit) and the course objectives (listed in the Course Guide).

TUTORS AND TUTORIALS

You will be notified of the dates, times and location of these tutorials, together with the name and phone numbers of your tutor. Your tutor will mark and comment on your assignments. Keep a close watch on your progress and on any difficulties you might encounter and provide assistance to you during the course. You must take your Tutor-Marked Assignments to the Study Centre well before the due date (at least two working days are required). They will be marked by your tutor and returned to you as soon as possible. Do not hesitate to contact your tutor on telephone or e-mail for help. Contact your tutor if:

- You do not understand any part of the study units or the assigned readings.
- You have difficulty with the exercises.
- You have a question or problem with an Assignment or with your tutor's comments on an assignment or with the grading of an Assignment.

You should try your best to attend the tutorials. This is the only chance to have face-to-face contact with your tutor and ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from course tutorials, prepare a questions list before attending to them. You will learn a lot from participating in discussion activity.

SUMMARY

This course guide gives you an overview of what is expected of you in the course of this study. The course teaches you the basic principles of research methods and how

these principles could be applied in the field of social research techniques. It also establishes the ethical roles guiding your duty as a social researcher.

We wish you success in the course and hope that you will find it interesting and useful.

MAIN COURSE

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MODULE 1

UNIT 1 SCIENCE AND RESEARCH

CONTENTS

1.0 INTRODUCTION

Research is a science. The term science is a set of general principles that guide consciously and unconsciously in search of a new knowledge. In carrying out research, social scientists use scientific methods. In this unit, we shall focus on Science and research.

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

3.1 Descriptions of Science and Research

Science is a familiar word used by everyone, yet it has different meaning to different people. Some people consider science as mathematics, for others it is white coats and laboratories. Sometimes, it is often confused with technology or equated with difficult college 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 (theory) for what we observe.

Science is sometimes characterized as logico-empirical. This ugly term carries an important message. The two pillars of science are (1) logic or rationality and (2) observation. A scientific understanding of the world must make sense and correspond with what we observed.

The word research is made up of 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). *The 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 a certain logical approach 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 sciences implies, as the *Encyclopedia of Social Sciences* point out, the manipulation of things, concepts or symbols, for the purpose of generalising to extend, correct or verify knowledge, whether that knowledge aid in the construction of a theory or in the practice of an art (Offongodon 1999).

SELF ASSESSMENT EXERCISE 1

What is Science?

3.2 Sources of General Knowledge

According to Rubin and Babbie (1992), there are two realities in the world we live in. Part of what you know could be called your experimental 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 bothers the 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 experience and agreement reality, for example, as a policeman you participated as schedule on road patrol hence the incidents that occur on the road 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.

Science offers an approach to both agreement and experimental reality.
The following are sources of general knowledge

1. **Tradition** Each group of individuals in society has a culture. Culture is defined as the clause, 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 are spared the enormous task of starting from scratch in 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, encouragement and affirmation lead to cooperation between people, why should we disregard this and begin our own experiments of finding out what leads to cooperation.

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

2. **Authority** This mode of knowledge is sought by socially or politically looked upon people as having knowledge (especially training, 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 Socrates, Aristotle as authority. In Nigeria, people like Professor Wole Soyinka, late Obafemi Awolowo, Late Sardauna 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 experts speaking outside their realm of expertise. For example,

consider the political or religious leaders lacking in any medical sciences expertise who declare abortion medically dangerous.

3. **Mystification** Here, it is the belief that knowledge is 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 custodians of mystical knowledge. This type of knowledge depends on our irrational feelings by using rituals, ceremonies, emotional 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 acquired 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 or 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 turned the world into a 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 the concept of social reality according to what they see, hear and read in the mass media.

SELF-ASSESSMENT EXERCISE 2

List and explain sources of knowledge.

3.3 Errors in Human Inquiry

Rubbin and Babbie (1992) list the following types of errors and the ways in which science provides safeguards 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 the 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 to observe things right in front of us and mistakenly observe things that aren't so.
In contrast to our ordinary inquiries, scientific observation is a conscious activity. In science, one observes events deliberatively. Also there are both simple and complex measurement devices to help prevent us making inaccurate observations.

Overgeneralisation

When we observe events or people, we reach conclusion or pass general comments. Sometimes, we use few, similar events to arrive at a conclusion where we over generalize. There is tendency for us to over generalize especially under pressure to arrive at a conclusion. Yet it also occurs casually in the absence of pressure. Anytime we over generalize, it impedes or misdirects inquiry for example, if a researcher conducted inquiry by sampling only the Christian Union members on the campus.
Scientists guard against over generalization 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 over generalizing and coming to incorrect conclusion.

3. 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 overlook 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).

4. Made up Information

After you have reached a general conclusion, if there is contradiction, what would you do? Suppose, for example, you had decided that all the Ibo traders were dishonest and that you came across the ones 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. Maybe the Ibo trader isn't brought up in Igboland after all.
Scientists also engage 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 the surprise.

5. Ego Involvement in Understanding

The search for regularities and generalized understanding is both personal and intellectual. Our understanding is both personal and intellectual. Our understanding of events and conditions is often of specific psychological significance to us. In countless ways, we link our understanding with 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 generally not okay.

Scientific norms guard 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 scientists to evaluate the research etc. thereby exposing any personal bias or ego involvement brought to the work.

6. The Premature Closure of Inquiry

The listed errors above, over generalization, selective observation, made up 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 other events and issues before that understanding is complete. For example, in sociology, the line of understanding of society has been a gradual process and up till today it is a continuous process.

Science guards against the premature closure of inquiry by a though review of 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.

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 chose the subject or objects of study, observes and measures 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 is certain accepted language to be used. It has become a convention to use certain terms (terminology) for explanations in scientific inquiry. Scientific concepts such as theories and hypothesis, research design and data analyses are used as language of science. You should 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, your interpretation of findings and even the kind of questions you formulate in research.

4. **Perceptibility (Understandability)** Perceptibility is the key in scientific research. It is only when the 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.

5. **Limitations** Scientific investigation is subject 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 limitation between the researcher and 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 of research and science are many, for instance you learnt that, we use research to help us solve the problems that human beings encounter on daily basis. In fact, human beings achieve rapid development in trade, communication, etc with the help of research and science.

5.0 SUMMARY

In this unit, we have been able to describe what is science and research; we identified sources of knowledge, types of error in human inquiry and characteristics of the scientific method.

6.0 TUTOR-MARKED ASSIGNMENT

List 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 2 PROCESS OF SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

How do social researchers tackle empirical social reality – a reality that is always changing. Careful planning at the initial stage of the research project is crucial for the eventual success. In this unit, you will see how research is planned and systematically organized as an ongoing process consisting of a number of closely related and continuously overlapping activities.

2.0 OBJECTIVES

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

- discuss the process of carrying out social research
- choose a topic and formulate research problems
- develop the aim and objectives of the research
- collect data for a chosen research topic
- discuss how data are organized and analysed
- discuss how to write good recommendation and conclusion.

3.0 MAIN CONTENT

3.1 Research Process

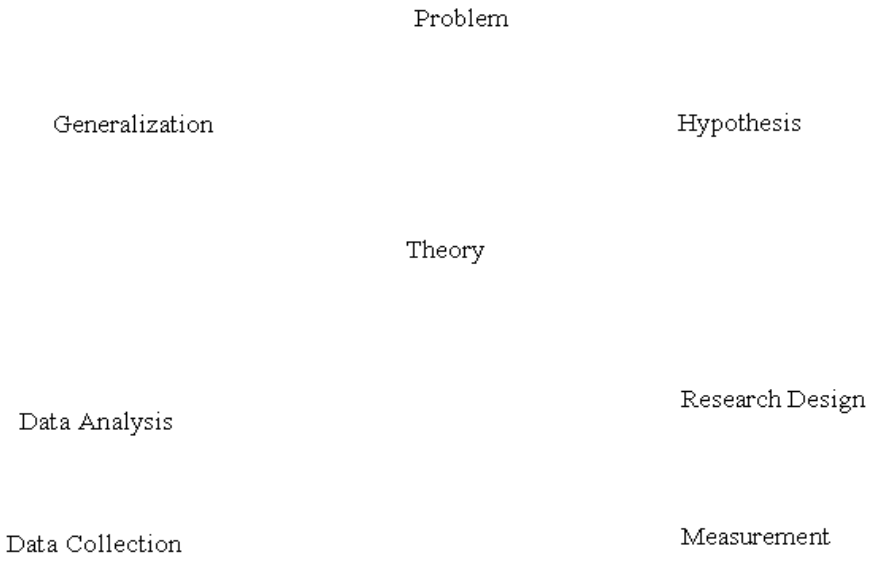
A typical research starts with reason and experience (observation of a particular problem.) Scientists employ the criteria of logical validity and empirical validation to evaluate claims for knowledge. The research process is the overall scheme of activities in which scientists engage in order to produce knowledge. It is referred to as paradigm of scientific inquiry.

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).

The research process is also self-correcting. Scientists test tentative generalization or hypothesis about research problem logically and empirically. If they reject this generalization, they formulate and test new ones. In the process of reformulation, scientists re-evaluate all the research operations because a tentative generalization may be rejected not because it is invalid but because of errors in the research operations performed.

The research process consists of seven main stages - the research problem, hypothesis, research design, measurements, data collection, data analysis and generalization.

The main stages of the Research process



3.2 Choosing a Research Topic

Choosing a research topic is usually difficult for students and some academics. Beginners are likely to select a topic that is much too broad in scope. This may be due to their lack of understanding of the nature of research and systematic problem-solving activity. It may also be due to their enthusiastic but naive desire to quickly and immediately start a research.

Research topics come from either practical situations or intellectual curiosity (Selltiz et al, 1996). 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 of phenomena. The researcher who chooses such a topic may end up explaining areas about which very little is currently known. (Merrian and Simpson1984).

An important consideration in selecting the research topic is the part values play in the process (Seltiz et al, 1976). The topic a researcher selects is dictated, to a large extent, by what one considers worth pursuing. It must not be allowed to influence the outcome of research. It is defined as "Perplexes and Challenges the mind" (Guba, 1978).

According to Merrian and Simpson, 1984, a problem is a situation resulting from the interaction or juxtaposition of two or more factors (e.g. givens, constraints, conditions, desires, etc) which yields:

a) a perplexing or enigmatic state (a conceptual problem)
b) a conflict which renders the choice from among alternative courses of action moot (an action problem) or
c) an undesirable consequence (a value problem).

The process of identifying a research problem can be facilitated through such activities as reading widely, on the topic of interest, talking with other people, especially those who are familiar with the area, observing closely a situation pertinent to the problem, taking notes as thoughts on the topic occur and most importantly, adopting a critical stance that permeates all the above activities.

A researcher should be attuned to the multiple of sources from which ideas can be generated such as current journals, class work, dissertation, 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.

3.3 Defining a Research Problem

Sometimes, it is difficult to come up with a researchable problem. A problem is an intellectual stimulus or something that puzzles the mind, calling for an answer in the form of scientific enquiry.

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 or area of concern. For most people, determining an area of interest is easy. The difficulty step is to perceive a problem within the area of interest that is significant, of manageable size and is systematically 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.

Characteristics of Research Problem

1. A research problem must be empirically grounded that is, data could be collected concerning that problem for analysis.
2. It must be clear and specifically articulated. It must not be ambiguous, that is, lending itself to many interpretations. For example, what incentive leads to energy conservation. The incentive is not specific as it concerns economic, social factors, etc and also the word energy should be defined.
3. The problem must be of interest to the researcher and is also likely to arouse the curiosity of other researchers.
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 congested areas.
5. The research problem should be such that could be executed or completed within the limit of available 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.

3.4 Selecting the Ultimate Subject Matter for Enquiry

In social sciences, serious consideration has to be given to the unit of analysis during the formulation of the research problem. Units of analysis are activities to which our concepts pertained and which influence research design, data collection and analysis.

Generally, before a topic is fully clarified, the researcher has in mind the type of subjects he or she will need to study. Most commonly, social researchers take individuals as their subjects. Remember, however, that people are not the only subjects of study in social research. You may study groups, programmes, organizations, larger

communities (states, nations) artifacts as well as individuals. These social entities whose social characteristics are the focus of the study would be the units of analysis.

While there are no limitations in the selection of unit of analysis, subsequent research operation, which is level of theorizing are consequent to the unit selected. When the unit of analysis is an individual, the research focus must be with the individual in various roles disregarding the various groups to which that individual belongs. For example: Are urban residents more likely to vote PDP more than rural residents? When the unit of analysis is the group, the individuals who compose it are disregarded. For example, Are socially coercive groups non hierarchical?

Although data representing individual units of analysis can be aggregated into group units if this is desired, once the units of analysis have been determined for a particular analysis, it is important to fix them clearly in mind as the analysis progresses.

Sometimes, researchers make mistakes in analyzing groups instead of individuals. This is called ecological fallacy. An ecological fallacy occurs when evidence from a group level of analysis is used to reach conclusions about individuals for example to count the percentage of individuals who agree with particular statement on democracy and conclude that this represents the degree to which the system is democratic.

3.5 Problem Statement and Definitions

The formulation of a research problem statement involves both a progressive sharpening of concepts and a progressive narrowing of scope. The problem statement is usually a paragraph within the discussion of the problem that pin points the primary question the researcher is asking.

3.6 Statement of Objective

Objectives are those things a researcher intends to accomplish at the end of the research and they may range from description, comparism, assess relationship between: Statements of objectives can be divided into two:

1) **General Objective:** It is the complete statement that shows overall aim and direction of the study. It must be seen to be directly derived from the statement of the problem that the researcher made.
2) **Specific objective:** It is the statement which breaks down the general objectives into more specific operational objectives. The number should be reasonable and manageable; probably within five. They should be clear enough for execution and evaluation; that is, what the researcher wants to measure specifically. They should also cover the research problem adequately and be such as would help collectively in answering the research problem and investigating the extent to which general objective is being met.

For example: General objective – A critical appraisal of the impact of the Osun State Government's peace initiative towards a sustainable peace in Ife / Modakeke crisis.

Specific objectives

(a) To examine critically the Osun State Government's action in the peace initiative
(b) To ascertain whether both communities involved in the conflict are satisfied with the peace efforts
(c) To ascertain whether the peace efforts of the government are sustainable or whether they might still crumble over time.

3.7 Formulating the Research Questions

One of the more difficult tasks that novice researchers face is coming up with a research question once they have chosen a topic. Research questions are questions posed by the researcher, answers to which would lead to the solution of the problem. Consider as an example this research project: Women and rural poverty: A case study of Tiv tribe in Nigeria.
The following questions were formulated.

1. Is it one's gender that determines one's farm size which tends to determine one's income?
2. Is it one's gender that determines one's access to credit?
3. Is it one's gender that determines one's access to education which tends to determine one's economic position (income level)?

The following steps are important in research question.

First, the researcher must narrow the topic down to a more specific research question on which data can be collected.

Second the researcher refines the topic into a researchable question when he / she can phrase the question in terms of the relationship between two questionably definable variables.

Characteristics of good research questions:

1) The research question 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.
2) The language of the research questions should be clear and unambiguous. Research questions should be formulated in such a way that they should be answered.

3) Although there is no precise rule on the number of research questions to be formulated, the number should not be too small as to exclude very important aspects of the problem or too large as to result in an unmanageable list of research questions.
4) Research question determines what data to collect and how and where to collect them.
5) They should always be related to the problem at hand and represent significance and critical issues in the study.
6) Another characteristic of a good research question is how researchable it is; that is, how easy it is to formulate clear operational definitions of the variables involved.

3.8 Research Hypothesis

Hypotheses are tentative answers to research problems. They are stated in the form of a relationship between independent and dependent variables. Variable is an empirical property that takes two or more values 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 any change in the dependent variable. It is the explanatory variable and is also called predictor variable. Mathematically, a dependent variable is on the left of an equation while an 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.

Hypotheses are tentative because their truth values can only be evaluated after an empirical study. The hypothesis that is rejected after an empirical test gives way to a tentative hypothesis. Hypothesis that is accepted or failed to be rejected may be incorporated into scientific body of knowledge.

Sources of hypotheses are theories, observations, intuitions, literature, previous findings, etc. Certain characteristics are presented in well constructed hypothesis. Effective hypotheses should have the following:

It must

1) be conceptually clear
2) be specific
3) be testable
4) state expected relationship between variables
5) be constant with the existing body of knowledge.

For example, in the case of this research: Perceptions of poverty and its alleviation in Nigeria: A case study of the national poverty eradication programme in Akwa Ibom State.

The following hypothesis are formulated

i) There is no significant difference in the perception of poverty by NAPEP officials and the beneficiaries of the scheme in Akwa Ibom State.
ii) There is no significant difference in the perception of causes of poverty by beneficiaries and NAPEP officials in Akwa Ibom State.
iii) There is no significant difference between poverty alleviation strategy by NAPEP officials and the beneficiaries in Akwa Ibom State.

Conceptualization and Theoretical Framework

Theory has been explained as being a set of interrelated abstract propositions about human affairs and the social world that explain their regularities and relationships, as a proposition about the relationship between things (Brewer, 2000; Dens Combe, 1998).

A theoretical framework is an explanatory device which explains either graphically or in narrative form the main things to be studied, the key factors, constructive 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 thus more useful both to practitioners who seek to implement findings and to researchers who seek to extend the knowledge base.

3.9 Literature Review

It is an exercise in which the researcher needs to identify, locate, read and evaluate previous studies, observations; opinions and comments related to his intended research, it aims at providing the researcher with a good knowledge of research studies previously carried out that relates to the present problems. This is the review of all information in printed, oral or electronic form that is available in the researcher's area of study or indirectly related to the research topic or problems. Only by becoming thoroughly familiar with prior research and theory can you hope to contribute something that others will build upon, thereby extending a discipline's knowledge base.

In social science research, the literature review serves a variety of functions that precede the collecting and analyzing of data.

Functions of Literature Review

1. It helps to introduce the researcher to what others have done in the area and the current state of knowledge in the particular area of study.
2. It facilitates identification of problems, refinement of ideas, specification of research procedure, clarity of measurement and understanding of results.

3. It is also vital in revealing to the consumer of the research what is new, important, believable and useful in the research.
4. It is important for justifying or monitoring additional investigation or replication of a research.
5. It also enables the researcher to investigate new the research with previous works and structure the review so as to extend knowledge.
6. Theoretical linkage is also enhanced 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. Accuracy in citation, completeness in references, detail technical information are all essential in preparation of a professional literature review.

Some Helpful Hints in Writing Literature Review

Merriam and Simpson summarized the hints thus:

1) Read generally for an overview of the problem area before defining the topic precisely.
2) Define the limits of the review. Too broad a search will overwhelm you with material: too narrow a 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. Then move back to bibliographies and abstracts. This will allow you to develop a pool of relevant sources.
4) Establish criteria for selecting materials that you will include in the review.
5) Continue the researches until the resources are saturated and you feel you are an expert on the topic.
6) Copy the material to be reviewed, being especially careful to obtain full bibliographic data.
7) Arrange the material reviewed into categories that are suggested by the material itself.
8) Structure the review into three parts: introductory material, the body of the review and a concluding section.

The following are additional suggestions for writing effective literature reviews.

1. Each paragraph should be organized around a topic.
2. When a number of authors have made the same point they should usually be grouped together in simple reference citation.
3. Consider providing explicit definitions of all important technical terms.
4. Because direct quotations break the flow of a presentation, they should be used sparingly. Quotation normally should be used only for (a) presenting definitions and (b) presenting important points made by notable individuals

5. Clarifying differences of opinion in the literature when seeing the differences in wording (such as the wording of theories) might help readers understand the issues involved.
6. Use transitional terms and phases (e.g. however, as a consequence and indeed) within a paragraph to help readers understand the organization of the paragraph.
7. Follow a particular style manual for citing references carefully and consistently. Pay attention to details such as punctuation order of information in a references citation and so on.

3.10 Methodology

Methodology is another important stage in social investigation research. It entails the following:

1) Types of data required
2) Sources of data required and their function
3) Procedure for data collection
4) Research study design
5) Sample (sample criteria, sample design and sample size)
6) Instrumentation (Field instrument e.g. questionnaire, etc.)
7) Measurement procedures and
8) Data analytical procedures (statistical tools to be used and justifications).

Methodology is sometimes used to refer to the methods and general approach to empirical research of a particular discipline. Methodology supplies the logics, 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 that is evaluated.

A major function of methodology is to facilitate communication between scientists who want to share common experience. It is achieved by making the rules of methodology more explicit, public and accessible which allows for replication or repetition of the same investigation either by the scientists or others.

It also functions as a rule for reasoning. Empirical observation must be related and assembled into systematic logical structure. It explicates the accepted criteria for empirical objectivity and method of verification.
The collection of data, though interesting and inspiring at times to the researcher can be tedious and boring. Consequently, the reward of doing research is seldom considered to be data collection.

The technique or procedure chosen for collecting data is derived from the particular research method. The researcher gathers data –facts, impressions, belief and feelings – that are related to the phenomenon being studied in order to systematically reach conclusion.

Data refers to facts or ideas or knowledge that is useful in answering research problem. These deprivations depend on the type of questions asked and the research design selected e.g. explanatory and descriptive design, case study or survey or long identical studies or cross survey.

In field research, the common ways to obtain data are participant and non participants observation, formal and informal interviewing of key participants within each district, interaction with and observation of key individuals in their work environment, sharing of stories, shadowing professionals during the course of their work, attending meetings and listening to and participating in conversations.

Data can be collected in two major ways namely (a) Primary sources (b) Secondary sources,

a) Primary sources are those sources, which contain a direct account of an event or phenomenon given by someone who actually observed the event or phenomenon. All research report written by the person or persons who conducted the research are primary sources. These include students' reports, research reports published in journals, in magazines, etc.
b) Secondary sources are reports or those materials which contain an account of an event or phenomenon by someone who did not actually witness the event or phenomenon. The author of a secondary source material tries to collect and synthesise a pool of primary materials. In the course of doing this, he brings his own interpretation to bear on the primary materials.

To the extent that one cannot be sure of him much as the secondary author has altered the original or primary materials. Examples of secondary materials include textbooks, review of research reports, encyclopaedia, etc (Vincent et al, 2006).

The next consideration is the research design to be adopted for the purpose of obtaining research data. Is it the qualitative or quantitative research design or multi research design?

Sampling and sampling technique have been discussed in one of the units in the course material. The researcher must decide which of the sampling techniques is to be adopted.
The most widely used methods of gathering data in social research are interviews, questionnaires, panel technique, telephone surveys, etc. The researcher adopts the most suitable method of gathering data out of the listed methods.

After the data have been collected, the researcher has to process and organize them, he must make sure that errors are reduced to the barest minimum. Details of data processing shall be discussed later.

SELF-ASSESSMENT EXERCISE

What is methodology in Social Research?

3.11 Data Presentation

This stage is the last in the process of research methods; it is the level where the data collected, organized and analysed are presented. This also is a stage for the resolution of the question raised in the research and the determination of the theoretical significance of the findings as tables, figures and discussions. At this stage, the data are selectively presented to avoid redundancy and discussions should be as short as possible.

3.12 Conclusion

After all the analyses of all data, the next step in the research process is to draw conclusions about the hypothesis (hypotheses) based on the evidence that has been collected. A sound conclusion is based on a careful analysis and interpretation of the collected data in the light of the basic question that is being investigated.

According to Comradie (2004), the following four basic questions guide the activity of data analysis and interpretation which result in conclusions.

1) What did you ask?
2) What did you find?
3) What exactly do you conclude?
4) What does the conclusion imply?

The researcher has to, therefore, look very critically to avoid misleading conclusions. It is a state where confirmation as to whether the data collected conforms to the theoretical relationship or the model is done.

4.0 CONCLUSION

Where there is no problem, there is no solution. Conversely, a problem will always have at least, a solution. To solve a problem requires a researcher to make enquiries about nature, causes, trend etc. To do this requires a social research process. Hence, in this unit you went through the steps in solving problems.

5.0 SUMMARY

At the end of this unit, you have learnt what research process is. You have equally examined the steps in process of research ranging from defining a research problem and choosing a research topic, characteristics of research problem, selecting the

ultimate subject matter for enquiry, statement of objectives, literature review, methodological stage, data presentation and recommendations and conclusion.

6.0 TUTOR-MARKED ASSIGNMENT

Briefly, discuss the steps in process of Social Research.

7.0 REFERENCES / FURTHER READING

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UNIT 3 RESEARCH DESIGN

CONTENTS

1.0 INTRODUCTION

From our discussions in the previous study units, you know that when we do research our attention is directed towards obtaining information on a particular research question. You have also seen that research can be distinguished from every day observation because in research you have to obtain and analyse your information. Scientifically, in this study we look at how a research design helps you to plan a study that will answer your research question.

2.0 OBJECTIVES

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

- explain what research design is
- explain the components of research design
- differentiate the types of research design
- discuss the strength and weakness of the designs.

3.0 MAIN CONTENT

3.1 Meaning of Research Design

Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall scheme or programme of the research. It is a plan or blueprint or logical model that guides the researcher at the various stages of research. It tells the researcher what to look for, how to look for it and how to analyse the quantitative representation of the observation.

Scott and Marshal (2005) define research design as the strategic plan for a research project or research programme, setting out the broad outline and key features of the work to be undertaken, including the methods of data collection and analysis to be employed and showing how the researcher's strategy addresses the specific aims and objectives of the study. It includes an outline of what the researcher will do from writing the hypothesis and their operational implications to the final analyses of data.

The research design must therefore be adequate, allow the investigator to incorporate contingencies and respond to unforeseen circumstances without abandoning the original research goal.

Research design addresses the planning of scientific inquiry – designing a strategy for finding out something. There are two major aspects of research design. First you must specify precisely what you want to find out, second, you must determine the best way to do that. Ultimately, scientific research comes down to making observations and interpreting what you have observed. You need to determine what you are going to observe and analyse: why and how. That is what research design is all about.

For example, if you are interested in studying corruption in government. You have to specify the area you are interested in. What do you mean by corruption, what kinds of behaviour do you have in mind? And what do you mean by government? Who do you want to study: all public employees? Only civilian employees? Elected officials? Civil servants? Finally, what is your purpose? Do you want to find out how much corruption there is? Do you mean to learn why corruption exists? These are the kinds of questions that need to be answered in the course of research design.

SELF-ASSESSMENT EXERCISE

What do understand by Research Design?

3.2 Characteristics of Research Design

a) Research design is a framework
b) It specifies the types of data to be collected
c) It specifies the sources from which it is to be collected
d) It defines the population and the sample of study
e) It states the procedure for data collection
f) Research design also states the statistical tool to use in the analyses of data
g) Research design shows what exactly direction investigation should follow

3.3 Functions of Research Design

The following are the major functions or research design as enumerated by Vincent et al 2008.

1. Research design helps the investigator obtain answers to the questions of research
2. It also helps the researcher to control the experimental, extraneous and error variances of the particular research problem under study.
3. It provides the research with the necessary framework or blueprint for tackling a particular research problem
4. It gives the direction for the research
5. The contents of research design give financial implication as part from technical information
6. It also gives implication for the subject
7. It makes external validity possible and the extent to which this is possible
8. It helps researcher determines if there is any relationship among the variables,
9. It helps researcher in the process of collection, analyzing and interpreting research data
10. It helps the researcher to draw appropriate cause-effect relationship among variables.

3.4 Types of Research Design

In social sciences, we have the following types of research design.

3.4.1 Descriptive Design

A major purpose of many social scientific studies is to describe situations and events. The researcher observes and then describes what was observed. It aims at giving the specific details of a situation, social environment of relationship. It involves collecting

data in order to test hypotheses or answer questions concerning the current status of subject of the study. A descriptive study determines and reports the way things are. Examples of descriptive research are assessing attitudes or opinions toward individuals, organizations, events or procedures, pre-election political polls and market research survey. Descriptive data are typically collected through a questionnaire, survey, an interview or observation.
Descriptive research is aimed at the following.

1. It assumes a previous knowledge of the problem to be described in contrast with exploration design which does not make such assumption of previous knowledge.
2. It also calls for careful planning to have random sample so as to make the description truly representative of the problem or situation.
3. It focuses on an event that is ongoing or the event that has already taken place; hence research may vary the method of observation not the event.
4. It involves data collection, data analysis, interpretation, contrast, classification and integration of findings.
5. It uses words and number to describe; hence the researcher must be able to use simple descriptive statistics.
6. The main aim of description studies is to describe a dependent variable in the population and also to inform as basis for decision making.
7. It seeks to acquire evidence, norms or baseline information which can be used for comparative purposes or other type of research.

3.4.3 Exploratory Design

As the name implies, exploratory design is providing a beginning familiarity with that topic, that is, going out to look for information or getting preliminary information. The purpose is typical when a researcher is examining a new interest or when the subject of study is itself relatively new and unstudied. They are also appropriate in the case of more persistent phenomena.

Exploratory studies are mostly done for three purposes:

1) To satisfy the researcher's curiosity and desire for better understanding
2) To test the feasibility of undertaking a more careful study; and
3) To develop the methods to be employed in a more careful study.

According to Neuman (1997) exploratory researchers are …. Creative, open minded and flexible: adopt an investigative stance and explore all sources of information and strategic datum that may lead to the development of new theory or expansion of the existing theory. This is called Serenity.
Exploratory research is aimed at:

1) familiarizing yourself with the basic facts, people and problems that need to be addressed.
2) developing a clear picture of the events
3) determining the desirability of doing additional research
4) formulating questions and refining phenomena with a view to achieve more systematic investigations.
5) developing techniques and determining the direction of further investigations.

Exploratory studies are very valuable in social scientific research as they are:

1) essential whenever a researcher is breaking new ground and they can almost always yield new insights into a topic for research
2) also a source of grounded theory.

3.4.3 Historical Research Design

According to Whitney, historical research interprets past trends of attitude, event and fact. It is any integrated narration or description of past events or facts written in a spirit of critical inquiry for the whole truth. Historians are concerned with specific events like descriptive studies; they are not interested in the representativeness. The purpose of this study is to reconstruct the past, systematically and objectivity by collecting data, evaluating them and synthesizing the evidence in order to establish facts and reach verifiable conclusions.

Historical research design deals with determination, evaluation and explanation of past events essentially for the purpose of gaining a better and clearer understanding of the present and making a more liable prediction of the future.

The steps involved in the conducting of a historical research study are essentially the same as for other types of research - definition of a problem, formulation of hypotheses, and systematic definition of data, objective evaluation of data and confirmation or disconfirmation of hypothesis. In conducting a historical study, the researcher can neither manipulate nor control any of the variables. On the other hand, there is no way the researcher can affect events of the past, what has happened has happened. The researcher can, however, apply scientific objectivity in attempting to determine exactly what did happen in the past (Gay 1992).

The purpose of a historical research should be to explain or predict not to relic, it is also used to discover new knowledge or to clarify, correct or expand existing knowledge. The purpose of doing historical research is to gain a clearer perspective of the present. Another motive underlying historical research is the simple scholarly desire of the scientist to arrive at an accurate account of the past.

According to Osuala 2001, the steps of historical research are the following:

1) Identification and delineation of the problem

A. Collection of data may involve anything from digging up ancient ruins to checking on old documents
B. The establishment of the validity of the data involves the dual process of first establishing the authenticity of the source and then the validity of the contents.
C. The interpretation of the data must be made from the stand point of whatever hypothesis or theory the data standpoint of whatever hypothesis or theory the data will most adequately support.

Sources of historical research may include two major categories namely, documents and relics. Documents are usually written whereas relics are generally archaeological or geological remaining, such as tools, etc. Among the various documentary sources are official records, minute of meetings, committee reports, legal documents, attendance rolls, university bulletins, memoirs, biographies, diaries, personal letters, etc.

3.4.4 Longitudinal Studies

Longitudinal studies means when researchers repeatedly measure traits of the subjects over a period of time in order to trace developmental trends. The subjects are observed from time to time within this period for any changes in those particular characteristics under study which may appear within this period. This type of research is predominantly descriptive and explanatory in nature. It is used mainly in applied research and more specifically in evaluative research.

This is also called time-series studies. They involve two or more case studies or the same group with a time lapse between measurements, the longitudinal research design compares different measurements of the same group or thing over a period of time (Dixon et al, 1987). Longitudinal studies can be undertaken, for instance, from sources such as birth registers or official statistics.

Advantages of Longitudinal Research

1. It can point out specific tendencies with great certainty which makes it possible for researchers to make forecasts.
2. It is more indicative to social change.

Disadvantages of Longitudinal Research

1. It is more complex and more expensive
2. It is time consuming.

3.4.5 Cohort Research

Cohort Research as the name implies is observing of a group of people who share a like characteristic over time. Cohort research is carried out by using a category of people who had the same experiences in life over a specific period of time. In other words, the category of people is investigated as a whole in order to determine its most important characteristics.

The emphasis is on cohort or category and not on the specific individual. A group of individuals, with more or less the same data of birth that for cohort research purposes is treated as one group (Plug et al, 1988).

Criminologists, in carrying out studies, frequently investigate records of social organizations, such as hospitals, schools, welfare departments, courts, police departments and prisons. For example, to study the group of offenders, a researcher may look back into their early life experiences by checking their educational family, police and hospital records. Cohort research is extremely difficult, expensive and time consuming to follow over time.

3.4.6 Case Design

A case study is the in-depth investigation of an individual, group or institution. It is thorough understanding of a given social element or unit. It has been used extensively in such area as clinical psychology and developmental psychology. In this study, there is a detailed description and analysis of everything that is in the history or development of a single person, community, event or institution for the purpose of understanding the life or an important part of the life cycle of each element or unit (Vincent et al, 2006).In this type of research extensive use of logical or analytical induction is made.

Case study research is also used to link micro level to the macro level. On the micro level, the behaviour of individuals is studied so that it can be applied to social structures and processes on a large scale (macro level) (Neuman, 1997).

In case study design, data are collected by means of various techniques such as

- observation by the researcher of physical characteristics, social qualities or conduct
- questionnaires
- psychological test
- data reported in newspapers, court and school reports as well as other documents.

A case study can be either quantitative or qualitative or even a combination of both due to the constraints of a sample of one or a single unit being studied, with the restrictions that brings for statistical inferences. Most case studies lies within the reason of qualitative methodology.

The purpose of case studies is as follows:

1. They are very valuable as preliminaries to major investigations
2. Once a case is studied, it can provide insights into the class of events from which the case has been drawn.
3. A case study may refute a universal generalization
4 A case study is preferred when the relevant behaviours cannot be manipulated.
5 A case study may be valued in its own right as a unique case.

The types of case studies are:

(a)	Historical Case Study	(b)	Observational Case Study
(c)	Oral History	(d)	Situational Analysis
(e)	Clinical Case Study	(f)	Multi Case Study.

The major problems with case study are possible observer's bias (the observer sees what he or she wants to see) and lack of generalizability.

3.4.7 Content Analysis

Content analysis is the systematic, description of the composition of the object of study. It may be applied to virtually any form of communication which include books, documents and creative productions such as musical compositions, works of art and photographs.

Content analysis answers the classic question of communication research "who says what, to whom, why, how and what effect?"

It is impossible to observe directly all you are interested in. It is important to adopt sampling technique in content analysis. Content analysis uses material or communication that are coded or classified according to some conceptual framework. For example, newspaper editorials may be coded as liberal or conservation. Novels might be coded as propagandists or not. Recall that terms such as these are subject to many interpretations, and the researcher must specify definitions clearly.

Both inductive and deductive methods are useful in the content analysis method.

For example, newspapers can be studied and analysed to show how the reporters isolate the effects of violence in conflict in Nigeria tribal clashes against children and women. Content analysis of Michael Jackson's music can be done by studying all his music records.

Advantages of Content Analysis

1) The greatest advantage of content analysis is its economy in terms of both time and money.
2) Safety is another advantage. In content analysis it is usually easier to repeat a portion of the study than for other research methods.
3) It permits researcher to study processes occurring over long period of time
4) It seldom has any effect on the subject being studies,

Disadvantages of Content Analysis

1) It is limited to the examination of recorded communications

2) The facts or ideas may be distorted by the newspaper.

3.4.8 Meta Analysis

It was pioneered and developed by Glass and his colleagues. Meta Analysis involves gathering data from a number of previous studies. Compatible information and data are extracted and pooled together. When analysed, the grouped data from several different studies provide a more powerful and valid indicator of relationships than the results provided from a single study.

According to Gay 1992, "Meta analysis is a statistical approach to summarizing the results of many studies which have investigated basically the same problem. It provides a numerical way of expressing the average result".

In Meta analysis, specific procedures are delineated for funding, describing, classifying and coding the research studies to be included in a review and for measuring and analyzing study findings.

For example, recently, criminologists David Ferrington and Brandon Welsh used a systematic review and a Meta analysis in order to study the effects of street lighting on crime. After identifying and analyzing thirteen relevant studies. They found evidence showing that neighbourhoods that improve their lighting do in fact experience a reduction in crime rates.

Criminologists, also rely on many of the basic research methods common to other fields including sociology and psychology. Multiple methods are needed to ensure that the goals of criminological inquiry can be achieved.

Problems Associated with Meta Analysis

1. It has been documented that different authors use different criteria for selecting the studies to be included, use different review strategies and often come to different conclusions.
2. Critics of Meta analysis claim that this strategy results in the inclusion in a review of a number of poor studies.

Advantages of Meta Analysis

Despite its perceived short coming, it still represents a significant improvement over the traditional methods of summarizing literature.

4.0 CONCLUSION

The selection of research design for empirical research is of vital importance in the process of responsible research. In the absence of universally acceptable research

design applicable to research it is important to select a research design that most is suitable for the nature of problem to be studied.

5.0 SUMMARY

In this unit, you have learnt about research design, characteristics of research design, functions of research design and various types of research design ranging from description, exploratory, historical, longitudinal, case study, content analysis and Meta analysis.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss any of the research design you are familiar with.

7.0 REFERENCES / FURTHER READING

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UNIT 4 FOUNDATION OF SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

In social research, researchers should be familiar with some key words which are important such as Hypothesis, Law, Theory, Concept, Variables and Model. The key words force the foundation of social research. In this Unit effort are made to discuss the key words in detail.

2.0 OBJECTIVES

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

- explain some basic terms used in social research
- discuss the differences in the use of these terms for research
- use the concepts correctly.

3.0 MAIN CONTENT

3.1 Social Research

A variable is an event or condition that a researcher observes or measures or plans to investigate. It is liable to variation (or change) (Rosnow and Rosenthal, 1996).

A variable is any characteristic or concept that can change or differ –for example, from time to time from place to place or from one individual or group to another. The rates of homicide, divorce, narcotics addiction, etc varies (Robertson, 1887).

Causation occurs when one variable, such as the quantity of alcohol a driver consumes, influences another variable such as the likelihood of the driver being involved in a traffic accident.

A theory simply attempts to generalize about the influence of the variable on another. Drunken driving contributes to traffic accidents - such statements serve to link variables in a cause and effect relationship.

Variables can be divided into two - the dependent variables and independent variables. An independent variable is one that influences another variable; in other words, it acts as a cause. It is usually symbolized as X which is presumed to 'cause' changes which lead to changes in the dependent variables.

Dependent variable may be defined as a variable that is considered the effect of another variable. It is one that is influenced by another variable; in other words, it is affected. It is symbolized as Y which is the effect (or outcome) in which the researcher is interested.

It is important to recognize however, that any event or condition may be an independent or a dependent variable. How a variable should be labeled depends on its current status.

3.2 Concept

Concepts are the bases of all theories. A concept 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. They are abstractions used as building blocks for the development of hypotheses, 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 for the researchers to visualize the inter-relationship between concepts.

For example, criminologists use concepts to describe criminal deviants, abnormal maladjusted addicts, etc.

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

3.3 Theory

A theory is a more general statement (or set of statements) that explains many different facts by reference to underlying principles and relationships. It is a statement of how

and why specific facts are related. More to the point, the job of theory is to explain social behaviour in the real world.

Theories are thus always based on empirical research and always aim to identify the underlying causes of social behaviour. In addition, they must always be testable and subject to possible reputation. Facts allow researchers to confirm theory while rejecting or modifying others. The ultimate aim of any theory is to be able to make accurate predictions about people's behaviour in the future.

An affective theory may have both explanatory and predictive power, that is, it can help us to see the relationships among seemingly isolated phenomena as well as to understand how one type of change in an environment leads to another.

Law enforcement officials investigating crimes rely on theories heavily. For instance, in homicide cases, the first people generally contacted by detectives are friends, relatives, or acquaintances of the victim. Behind such investigative procedures is the theory that most homicides are committed by people who are socially close to the victims.

Referred to as control theory, this explanation maintains that juvenile delinquency increases when the attachment of young people to the families decreases. According to the control theory, communication reduces delinquency because it affords youth the chance to express their problems to parents before these difficulties explode into delinquency.

3.4 Hypothesis

A hypothesis is a tentative explanation for certain behaviours, phenomena or events that have occurred or will occur. A hypothesis states the researcher's expectations concerning the relationship between the variables in the research problems. It is a tentative answer to a question. It is an educated guess or hunch, generally based on prior research and / or theory, to be 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 supports the hypothesis or do not support it.

It is important that the hypothesis be formulated before data are gathered because it creates unbiased investigation. It is formulated following the review of literature since it is based on the implication of previous research.

A good hypothesis has several basic characteristics according to Best and Kahn (2006) It should be:

1. reasonable
2. consistent with known facts or theories

3. stated in such a way that it can be tested and found to be probably true or probably false.
4. stated in the simplest possible terms.

3.5 Law

A law has varied meaning but within this context it is taken as a hypothesis that is assumed to be universally true. A law has good predictive power, allowing a scientist to model a physical system and predict what will happen under various conditions. A scientific law according Lundberg (1938,) is a generalized and verifiable statement, within a measurable degree of accuracy, of how certain events occur under stated conditions. A law could be said to be a group[of verbal or mathematical symbols, designating an unlimited number of defined events in terms of a limited number of reactions so that the performance of the specific operations always yield predictable result within measurable limits. This means that law contains a generalized statement of some behaviour sequence, a statement of condition under which the generalization is verifiably true and a statement of the degree to which it is verifiably true under these conditions (Adedayo & Adegoke 2009).

3.6 Model

According to the Merrian *Webster Dictionary*, Model is "being a miniature representation of something or an example for imitation or emulation, etc". Model in research is a symbol representation of the interrelation exhibited by a phenomenon within a system or a process. Model is narrower than a theory but broader than a hypothesis (Rosnow and Rosenthal, 1996). The model is presented as a conceptual framework or a theory that explains system or phenomena and allows predictions to be made without individuals or process. A model is analysed to an equation science. Some authors think generally of models as "theorizing that is built on an analogy", although it is quite possible to have a simple model in the form of a flow diagram. One dictionary definition of a model is that it is an "example for comparison" (It is that by which a thing is to be measured or compared and this idea seems to capture what Scientists also means by the term model, including analyses and flow diagram.

4.0 CONCLUSION

At the end of this Unit 1, we have discussed some basis terms that are relevant to the understanding of social research. Some of the terms are model, law, theory, concept etc. it is important that a research student should have a deep knowledge of these terms for his/ her to carry out a robust research outcome.

5.0 SUMMARY

In this unit, you have been introduced to some of the key terms in social research. You learnt the uniqueness of each term and its relevance so that you can have a clear

understanding of the terms and also apply them in your research activities. State and explained their application in social research.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss any three of the following:

a)	Concept	b)	Theory	c)	Model
d)	Law	e)	Hypothesis	f)	Variables

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UNIT 5 MEASURING CRIME AND DELINQUENCY

CONTENTS

1.0 INTRODUCTION

The focus of this unit is crime data. We examine the official and unofficial ways data on crime, criminals and crime victims are collected. Variables affecting the accuracy or crime data, collection include police discretion, reporting methods, victim's cooperation or refusal to cooperate and administration and bureaucratic changes.

2.0 OBJECTIVES

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

- explain what crime is
- measure crime
- explain the factors affecting measurement of crime
- describe sources of crime
- explain crime rate, prevalence and incidence.

3.0 MAIN CONTENT

3.1 What is Crime?

A crime is held to be an offence which goes beyond the personal and into the public sphere, breaking prohibitory rules or laws, to which legitimate punishment or sanctions are attached. (Scott & Marshall, 2005) Crime is a violation of societal rules of behaviour as interpreted and expressed by a criminal legal code created by people holding social and political power. Individuals who violate these rules are subjected to sanctions by state authority, social stigma and loss of status.

3.2 Factors Affecting Measurement of Crime

1) The use of crimes known to the police as a measure of crime may result in a serious underestimation of actual crime. Police do not know about all criminal incidents because many crimes are not reported. Moreover, police departments do not use uniform procedures for coding a complaint. For example, a sexual offence may be coded as rape, sexual battery, assault, etc.

2) Police discretion is another factor that affects accurate measurement of crime. Factors which affect police discretion are: (a) When crimes affect close relations (b) when complainant does not want to press charges (c) when alleged offenders show proper deterrence's when apprehended (d) socio economic status, race, gender or other factors might be influential as well.

3) Victim's cooperation also affects measurement of crime. Many people who have things stolen prefer merely to take the loss rather than participate in a

time-consuming police process. Some victims consider the events to be private in nature, something they can handle privately without involving criminal justice agencies. Other victims do not wish to involve the police because of fear of reprisals from the criminals. Some victims do not wish to have the police investigating anything or anybody close to them for fear that their own behaviours may come under investigation. Victims' decision to report a crime may be influenced by their prior experiences with the police, judges and attorneys.

4) Another factor that may influence official crime data is a change in the administration or organization of police departments.

5) Method of counting crimes may also influence crime data collection. Crime data may be affected by decision such as whether a series of criminal acts by one perpetrator is counted as one crime or as several. For example, if a person raped a girl twice, have two rapes been committed or only one?

3.3 Sources of Crime Data

Measurement of crime today is more sophisticated and more extensive than in earlier times but serious disagreement remains over how crime should be measured. Even official crime data vary according to their sources; and unofficial sources differ from official sources. As we look at crime data, we must keep in mind that data collection methods differ; that they are not always comparable and that conclusions about how much crime exists, what kinds of crimes are committed, who commits them and who is victimized, differ according to the measurement methods used.

Criminologists often use measures of crime produced by law-enforcement agencies to study criminal behaviour and offenders. The following are the sources of crime data:

1) Official Data

Official data on crime refers to those crimes known to, and recorded by the security agencies. Each police station in Nigeria has its own record of the crime committed in the area of its jurisdiction. Apart from police department, we have data generated from EFCC, NDLEA, ICP, etc. In the United States, the practice is different. The Federal Bureau of Investigation's Uniform Crime Report (UCR) is the best known and most widely cited source of official criminal statistics. The FBI receives and compiles records from all police departments serving a majority of US population. It tallies and annually publishes the number of reported offences by city, standard metropolitan statistical area and geographical division of the United States.

2) Victim Surveys

Many reasons have been reported for none reporting of criminal activities by the victims. It makes it very difficult especially in USA for UCR to measure all the criminal activities. To address this issue, the USA sponsors the National Crime Victimization Survey (NCVS), a comprehensive nationwide survey of victimization. Each year, data are obtained from a large nationally representative sample. People are asked to report their victimization experiences with such crimes as rape, sexual assault, robbery assault, theft, household burglary and motor vehicle theft. The NCVS finds that many crimes go unreported to the police.

Siegel (2000) states the problems associated with victim surveys, which are as follows:

a) Over reporting due to victims' misinterpretation of events
b) Under reporting due to its embarrassment of reporting crime to interviewers
c) Inability to record the personal criminal activity of those interviewed, such as drug use or gambling, murder is also not included for obvious reasons.
d) Sampling errors which produce a group of respondents who do not represent the nation as a whole.
e) Inadequate question format that invalidates responses.

3) Self Report Research

Self–reports research requires the collection of standard, quantifiable information from all members of a population or sample. Self–reports are viewed as another research technique mechanism that can help illuminate the dark figures of crime. Most self-response studies in criminology have focused on juvenile delinquency and youth crime, although they are restricted to youth crime. They are also used to examine the offence histories of prison inmates, drug users and other segments of the population. Apart from survey research, developmental follow-up and socio metric are types of self -report research.

Critics of self–report studies frequently suggest that:

(a) It is unreasonable to expect people to candidly admit illegal acts.
(b) Some people may exaggerate their criminal acts, forget some of them or be confused about what is being asked
(c) Comparison between groups can be misleading
(d) Sometimes. self-reports may measure only non-serious, occasional delinquents while ignoring hard–core chronic offenders who may be institutionalized and unavoidable for self-reports.
(e) There is evidence that reporting accuracy differs among racial, ethnic and gender groups.

3.4 Crime Rates

Crime rates are calculated by dividing the number of reported crimes by the number of people in the country and then expressing the result as a rate of crime per 100,000 people. For example, in the United States there were 16,137 recorded cases of murder and none negligent manslaughter in 2004. If the estimate of the population was 293,633,404, the murder rate per 100,000 is then calculated as follows:

$$\frac{16{,}137}{293{,}655{,}404} \times 100{,}000 = 5.5 \text{ per } 100{,}000$$

Expressing the crime rate in this way makes more sense than simply stating how many murder occurred.

Crime rates are used in making comparison between or among countries, states and local governments. Sociological criminology often focuses on crime rates rather than examining and explaining each and every act. It makes more sense to look at rates of crime and seek explanations for variations in crime rates among different social groups.

3.5 Prevalence and Incidence

The per capita rate can be broken down into two components prevalence and incidence. Prevalence refers to the proportion of a population that commits crime in a given time. It is measured by dividing the number of offenders by the size of the population. Incidence is the frequency with which offenders commit crime or the average number of offences per offender. It is measured by dividing the number of offenders by the population.

The formula is, the crime rate is equal to the product of prevalence's and incidence

$$\text{Crime rate} = \frac{\text{offences}}{\text{population}} = \underset{\text{(prevalence)}}{\frac{\text{offenders}}{\text{population}}} \times \underset{\text{(incidence)}}{\frac{\text{offences}}{\text{offenders}}}$$

4.0 CONCLUSION

Knowing how many crimes committed in the society have been very difficult to measure yet we need this data to project and provide ways to check the crime waves. If adequate enlightenment is given for people to report all the criminal activities hence data on crime, criminals and crime victims would be available.

5.0 SUMMARY

In this Unit, we have been able to explain what is crime, factors, affecting measurement of crime, sources of crime data, crime rate prevalence and incidence of crime.

6.0 TUTOR-MARKED ASSIGNMENT

What are the factors affecting measurement of crime?

7.0 REFERENCES / FURTHER READING

Siegel, L. J. (2006). *Criminology***.** Belmont: Thomson Learning Inc.

MODULE 2

UNIT 1 SAMPLE AND SAMPLING

CONTENTS

1.0 INTRODUCTION

Sampling is one of the important steps in the research process. It means any procedure for selecting units of observation. It is sometimes impractical to study an entire population, a sample of the entire population is studied to infer about the true characteristics or feature of the population.

2.0 OBJECTIVES

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

- explain what sampling is
- describe steps in sampling process
- explain sampling functions
- define the sampling population
- describe sampling bias

- explain sampling frame

3.0 MAIN CONTENT

3.1 Sampling

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the group from among a larger group. The individuals selected comprise a sample and the larger group is referred to as a population. The purpose of sampling is to gain information about a population, rarely is a study conducted that includes the total population of interest as subjects. For example, after examination scripts must have been marked, it is the function of the Chief Examiner to vet the scripts; he does this by applying the sampling method. What he does is to pick samples from the marked scripts. This sample will give him information about the whole marked scripts.

SELF-ASSESSMENT EXERCISE

Define sampling.

3.2 Random Sampling

Random sampling is the process of selecting a sample in such a way that all individuals in the defined population have an equal and independent chance of being selected for sample. A random sampling involves what is called probability sampling, which means that every member of the population has a non-zero probability of being selected for the sample. In other words, all members of a population have some chance of being included in the sample.

A simple random sample is such that when it is selected, all members of the population have the sample probability of being selected for sampling. Putting names on slips of paper and drawing them from a hat is one way to obtain a random sample.

SELF-ASSESSMENT EXERCISE

What do you understand by the concept of Random Sampling?

3.3 Steps in Sampling Process

To obtain a representative sample involves defining the population, identifying each member of the population and selecting individuals for the sample.

According to Gay (1992), the steps in the sampling process are as follows:

1. Identifying and defining the population.
2. Determining the desired sample size.
3. Listing all members of the population.
4. Assigning all individuals on the list a consecutive number from zero to the required number, for example, 00 to 89.
5. Selecting an arbitrary number in the table of random numbers (close your eyes and point.)
6. Repeating the step until the desired number of individuals has been selected for the sample.

SELF-ASSESSMENT EXERCISE

List the steps in the sampling process.

3.4 Sampling Function

The key function of sampling is to obtain external validity. It also serves the practical purpose of making the study possible because of high cost, time, personnel or scope. The functions of sampling include:

- Reduced cost: Instead of conducting a research by studying a whole population, a minimum amount of money is spent to get a sample of the population. In sampling method, data is obtained from small fraction of population which reduces the cost spent in obtaining data from the whole population.

- Greater speed: In conducting research, data is easier collected from a sample than the population.

- Greater scope: With sample method, the research (the researcher equipped with highly trained personnel and equipment) being conducted can have a wider scope because of selection of sample from the population.

- Greater accuracy: Sampling method breeds greater accuracy in data collection since data are collected from the sample and not on the whole population.

3.5 Defining the Population

The first step in sampling is to define the population. The population is the group of interest to the researcher, the group to which she or he would like the results of the study to be generalized on. For example, in conducting a research on poverty eradication in Akwa Ibom, all beneficiaries of the Poverty Alleviation Programme in the State will be the population. This example illustrates two important points about population. First, it covers the geographical area called Akwa Ibom, which may be any size. Second, it is from the population that the researcher will generalize. It is also from the population that the researcher will select from.

Ideally, from the example given above, the researcher should have surveyed the entire population of beneficiaries of NAPEP in Akwa Ibom. But this procedure would probably be impractical since the population would be located in three senatorial districts of Akwa Ibom which consists of many towns. One will require qualified staff (researchers) and a robust bank account to adequately conduct the study on the entire population. What will be done in the study above is that, stratified random sampling will be adopted because the population is a manageable size but contains all representatives of the population.

SELF-ASSESSMENT EXERCISE

Define the population of a research.

3.6 Sampling Error and Sampling Bias

Sampling error and sampling bias are two terms associated with sampling. Although these terms have very different meanings, they are sometimes taken to mean the same thing. Sampling error is associated with random sampling but the term ‘error’ does not mean making a mistake. Sampling error is the difference between the result obtained from a sample (a statistic) and the result which would have been obtained from the population (the corresponding parameter).

Sampling error usually occurs when the complete survey of the population is not carried out because a sample is taken for estimating the characteristic of the population. The sampling error is measured by the standard error of the statistics in terms of probability under the normal curve.

Bias comes into sampling when a sample fails to represent the population it was intended to represent. Bias can come about from a number of sources and it is a threat whenever non-random (or non-probability) sampling is used or when random sampling is used with a biased source.

SELF-ASSESSMENT EXERCISE

What is the difference between Sampling Error and Sampling Bias?

3.7 Sampling Frame

Sampling Frame is a comprehensive list of the elements or members of the population under investigation. Suppose a researcher wants to determine a community's attitude about Sunday Sports at a certain primary school. It would be wrong for such a researcher to base his/her sample on a list that contains the names of all the parents or pupils attending the school under investigation. This is because the researcher would need to draw a sample from the whole community (whether or not the community has primary school children attending the primary school where the Sunday Sport takes place).

In practice, the ideal sampling frame hardly exists. In Nigeria, for instance, there is no population register that can be used for sampling purpose. The closest is the electoral register or population census. The electoral registration is voluntary and thus a large proportion of the population is excluded, meaning that the electoral register tends to be biased. Another good example of sampling frame is the list of registered students for a survey of the student body in a university.

SELF-ASSESSMENT EXERCISE

With a cogent illustration, describe the concept of sampling frame in relation to population.

4.0 CONCLUSION

'In conclusion, it is important to know that sampling is a method for collecting information and drawing inferences about a larger population or universe. From this method, a sample is selected, which is the part to be used for analysis. There are many steps involved in the processes of sampling. Also, there is a difference between sampling error and sampling bias; while 'error' is the difference between the result obtained from a sample, bias means the non-representation of the correct type of population in the sampling.

5.0 SUMMARY

In this unit, you have learnt about sampling and sampling methods, the steps in the sampling process, sampling frame, sampling functions, defining the population and sample bias.

6.0 TUTOR-MARKED ASSIGNMENT

1. How can you draw an unbiased sample?
2. Briefly describe the steps involved in sampling process.

7.0 REFERENCES/FURTHER READING

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UNIT 2 TYPES OF SAMPLING 1

CONTENTS

1.0 INTRODUCTION

In social research, 'Sampling' refers to a systematic method of selection of subjects to be studied, for a content analysis. The reason for sampling is to expand the representativeness of the subjects studied. If a sample is selected according to the rules of probability (if it is a probability sample), then it is possible to calculate how representative the sample is of the wider population from which the sample was drawn. This unit will first cover the principles governing probability sampling and then describe different types of probability sample designs (simple random sampling, stratified sampling, systematic sampling, cluster sampling).

2.0 OBJECTIVES

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

- define a Probability Sample
- describe the types of Probability sample such as simple random sampling, stratified sampling, systematic sampling, cluster sampling.

3.0 MAIN CONTENT

Sampling

There are two major types of sampling procedures available to researchers. These are:
1. Probability and
2. Non-probability sampling.

3.1 Probability Sampling

Probability sampling involves sample selection in which the elements are drawn by chance procedure. It is defined as the kind of sampling in which every element in the population has a zero chance of being selected. The possible inclusion of each population element in this kind of sampling takes place by chance and is attained through randomization.

Scott and Marshall (2005), state that "Probability Sampling requires that each case in the universe being studied must have a determined or fixed chance of being selected." Probability statistics can then be used to measure quantitatively the risk of drawing the wrong conclusions from samples of various sizes. For example, a sample of about 2,500 persons has the same reliability and representativeness, whether it comes from a population of 100,000 persons or one million persons. Samples of 2,000, 2,500 are in fact the most common size for national samples especially when a fairly narrow range of characteristics are being studied.

The concept of probability is essentially a mathematical one. For example, if an unbiased coin is tossed in the air, it has an equal chance of turning up a head or a tail since it has only two sides. The probability of a head is 0.5 while that of tail is 0.5.

3.2 Types of Probability Sampling

There are four types of probability sampling. They are:

3.2.1 Simple Random Sampling

The best known of the probability sampling procedures is Simple Random Sampling, which ensures a fair non-subjective selection. This method guarantees the inclusion of each element in the selection procedure, that is, all members of the population have an equal and independent chance of being included in the sample. The process involved can be illustrated by a reference to a simple lottery exercise; whenever it is to be conducted, all the competitors are assigned numbers. The numbers are clearly written on a small piece of paper folded and placed in a hat or any suitable container. After the papers are thoroughly mixed, the selection of the predetermined number of units to be drawn takes place.
The lottery exercise described above is possible when the total number of cases or elements is small. But when population to be selected is large, the recommended procedure is different.

The steps in simple random sampling are:

1. Defining the population
2. Listing all members of the population

3. Selection of the sample by employing a procedure whereby sheer chance determines which members on the list are drawn for the sample.

3.2.2 Stratified Random Sampling

The stratified random sampling technique is a variation of the simple random sampling technique. It is designed to achieve a higher level of precision in the selection of the desired sample size. In some cases, the population to be sampled may not be homogeneous but consists of several subpopulations. Rather than selecting randomly from the entire population, the researcher might divide such a population into two or more subpopulations called strata. For example, suppose that in PZ Cusson, there is the following staff-: male full-time 300, male part-time-120, female full-time 200, female part-time 80 with a total of 700. If we are asked to take a sample of 320 staff stratified according to the above categories, the first step is to find the total number of staff (700) and then calculate the percentage in each group. We then have % of male full-time =300/700*100=43, % of male part-time 120/700*100=17. This would be done for all the strata so that at the end of the selection, all strata are represented in the sample and the sample members are selected from each stratum of random. Stratified random sampling involves the following steps:

1. Identifying and defining the population;
2. Determining the desired sample size;
3. Identifying the variable and subgroups (strata) for which you want to guarantee appropriate representation (either proportional or equal);
4. Classifying all members of the population as members of one of the identified subgroups; and
5. Randomly select an appropriate number of individuals from each of the subgroups.

3.2.3 Cluster Random Sampling

Cluster sampling is a sampling in which groups (not individuals) are randomly selected. All the members of the selected group have similar characteristics. It is more convenient when the population is very large or spread out over a wide geographic area. Examples of clusters include classrooms, schools, villages, hospitals, departments, stores, etc. For example, if one wants to study a secondary school, the school may be arranged into clusters, that is, classrooms. Once the classrooms have been arranged into clusters, then we proceed by selecting the required number of clusters to be included in the sample. This is accomplished by using the simple random technique for selecting the desired size from the list of clusters.

3.2.4 Systematic Sampling Technique

The systematic sampling technique is a procedure whereby the researcher selects the required sample size at regular interval after the first element has been randomly selected. It involves randomly selecting the first member of the sample from a list and from that point on taking any k^{th} name on the list of 1/k equals the sampling fraction. For example, let us assume that a sample of 10 beneficiaries of small-scale loan is selected from 40 beneficiaries. It follows that one beneficiary must be selected from every 4, that is 40/10=4.

Illustration:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

From the above illustration, numbers 4, 15, 27, and 34 are systematically selected.

4.0 CONCLUSION

In most studies, the simple or stratified random sampling will usually be the appropriate sampling technique. Sometimes, however, cluster sampling will be most expedient and in a few cases, systematic sampling will be appropriate. Depending upon the type of study you are carrying out,, a sample may be used or may be randomly assigned to two or more treatment.

5.0 SUMMARY

You have learnt in much of this unit, the key sampling methods used in Probability Sampling. In each of the variations discussed, you have seen that elements are chosen for study from a population on the bases of random selection with known non-zero probabilities. Depending on field situation, Probability Sampling can be either very simple or very difficult, time consuming and expensive. Whatever the situation however, it remains the most effective method for the selection of study elements.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is the potential problem with systematic sampling?
2. Describe the steps involved in selecting cluster sampling.
3. Describe clearly what you would need to accomplish a stratified sample method.

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Babbie, E. (2001). *The Practice of Social Research*. USA: Thomas Learning Inc.

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UNIT 3 TYPES OF SAMPLING II

CONTENTS

1.0 INTRODUCTION

In many research situations, enumeration of the population elements, a basic requirement in probability sampling, is difficult if not impossible. In those instances, researchers use non-probability sampling. For example, if you want to study embezzlers, there is no list of embezzlers nor are you likely to create such list. In such situation, non-probability sampling will be required. The major forms of non-probability sampling are Accidental Sampling, Purposive Sampling, Quota Sampling and Snowball Sampling.

2.0 OBJECTIVES

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

- explain what is Non-Probability Sampling
- describe the types of Non-Probability Samples such as Quota, Accidental and Purposive Sampling.

3.0 MAIN CONTENT

3.1 Non-Probability Sampling

Social research is often conducted in situations that do not permit the kinds of probability samples used in large scale social surveys. Suppose you wanted to study homelessness, for instance, you would need to use the Non-Probability sampling since there is no list of homeless individuals, and you are not likely to create such a list.

The Non-Probability technique involves sample selection in which the elements do not have equal chances of being selected or included in a study. Non-Probability sampling

are generated by a variety of adhoc techniques, usually in those circumstances where no suitable sampling frame exists or where the research design does not actually require probability sampling. Despite its limitations, Non-Probability sampling technique is widely used because it is easy to operate and is more convenient. It takes a wide variety of form and is used for variety of reasons. It consists of four basic techniques, they are:

1. Accidental Sampling;
2. Quota sampling;
3. Purposive sampling; and
4. Snowball sampling.

3.2 Quota Sampling

Quota sampling is recommended on some occasions when very quick results are needed. It is a non-probability method which aims to make the same representative of the population by setting quota control. Interviewers will have to find sample members to fill specific quota controls which are linked to the topic being researched on.

Quota Sampling involves the following steps:

1. Identifying and defining the population;
2. Determining the desired sample size;
3. Prescribing the number (quota) of people; and
4. Creating response from the quota.

For example, in a study that examines the experiences of working women and its impact on family stability, a total of 156 working women, both in the formal and informal sectors of the economy, participated in the study. Since the majority of Nigerian women are engaged in the informal sector, the researcher must know the proportion of the people with each characteristic in the population in order to specify the quota control.

3.3 Accidental Sampling

In the Accidental sampling technique, it may be difficult to find a list from which to select elements for a study. A good example was given by Akinkoye (1994: 28). ‘If a sociologist wishes to study the characteristics of taxi drivers in the cities, it may be difficult to locate a list of taxi drivers operating in a particular city. Hence the researcher has to collect his information from taxi drivers whenever they may be found. He may wait at Taxi Park, hotels, railway stations, airports and other places where taxi drivers may be found in the city. The selection of the elements is therefore, accidental since information is collected wherever the element may be located’.

3.4 Purposive Sampling

Sometimes, it is appropriate to select a sample on the basis of knowledge of a population and the purpose of the study. This type of sampling is called purposive or judgmental sampling. When we use this method, we purposefully select individuals who we believe will give us the best information. For example, we might observe over a long period that several members of the academic senate at a university consistently vote on the winning side in controversial issues. We might decide that rather than interviewing a random sample drawn from the whole membership of the senate, we will interview only those consistent winners to predict the outcome of a new issue.

Purposive Sampling is different from Convenience Sampling, in that researchers do not simply study whoever is available but use their judgment to select a sample that they believed (based on prior information) will provide the data they needed (Fraenkel and Wallen, 1996). While this method is interesting and may be useful at times, it is dangerous sometimes because researcher's judgment may be wrong. The researcher may not be correct in estimating the representativeness of a sample.

3.5 Snowball Sampling

Snowball Sampling can be useful when it is hard to locate participants. It involves research respondents obtaining other potential respondents. The term is taken from the analogy of a snowball. In the first stage of sampling, only a few respondents are identified as having the required characteristics. These respondents are then used to identify other people who qualify for inclusion in the sample. The next stage is interviewing the new persons.

The interviewing of the new person continues until the researcher reaches data saturation. Suppose you want to study heroin addicts who have never had institutional contracts (e.g. never sought treatment or never arrested) for instance. How will you find them? With the snowball technique, you initially need to find only one. If you can convince this one individual that you have a legitimate research concern and that the data will remain confidential, he or she may put you in contact with several others.

Each of these other addicts may help you to contact several more. This technique is based on trust. Of course, Snowball Samples should be presumed to be biased because individuals are not drawn at random. It is generally useful for the study of sensitive hidden population (e.g sex workers, gays, etc).

4.0 CONCLUSION

In conclusion, respondents of the Non-Probability technique are picked on the basis of predetermined criteria. The Non-Probability method does not give respondents equal chances of being selected or included in a study. In spite of this limitation, it is widely used. It is easy to operate and more convenient. It takes a wide variety of forms and is used for a wide variety of reason.

5.0 SUMMARY

In this unit, you have learnt lessons on Non-Probability technique. We have also discussed the different types of Non-Probability techniques ranging from quota sampling, accidental sampling, purposive sampling and snowball sampling.

6.0 TUTOR-MARKED ASSIGNMENT

1. What must we do in Quota Sampling to obtain an unbiased sample of quota?
2. Which type of sampling is based on trust between a participant and a researcher?

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UNIT 4 VALIDITY AND RELIABILITY

CONTENTS

1.0 INTRODUCTION

All research studies involve data collection since all studies are designed to either test hypothesis or answer questions. In order words, data is required to either test the validity or non validity to answer several questions formulated from the research topic. To this end, most studies use some sort of data collection instruments often called standardized instrument. Hence, to intelligently select an instrument, a researcher must be familiar with the wide variety of types of instrument that exist and must also be knowledgeable about the appropriate criteria which should be applied in selecting one from several alternatives.

2.0 OBJECTIVES

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

- define Validity
- explain the types of Validity

3.0 MAIN CONTENT

3.1 Validity

Validity is an essential characteristic of measurement in social research. It is the properties of being genuine, a true reflection of attitudes, behaviour or characteristics. It is concerned with the extent to which an instrument measures what one thinks it is measuring. It deals with the question: Does the instrument measure the characteristic, trait or whatever, for which it is intended? Validity refers to the appropriateness of the interpretation of the results of a test and it is specific to the intended use (Wiersoma, 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 of validity. For example, in Lagos State there are both private primary and government primary schools. If a survey is conducted to determine parent's perception of the quality of the curriculum, effectiveness of the administration, discipline, etc, a questionnaire is used with well constructed items and an adequate number of items to cover the school characteristics of interest.

Within the school, randomly selected 40 percent of students enrolled were questioned. The population to which the result of the study is to be generalized is the population of parents who have children in the school. With the manner in which the survey is conducted, and the number of completed questionnaire, the result can be generalized with confidence to this population. The research can be said to be valid.

The different purposes of tests require different types of evidence to support the validity of that particular use. There are basically four approaches to determining the validity of an instrument. These include predictive, concurrent, content and construct validity.

3.2 Types of Validity

3.2.1 Predictive Validity

It is the ability of an instrument to predict some future events. The predictive validity of an instrument may vary upon such factors. Sometimes, prediction based on scores of one test may be imperfect but prediction based on a combination of several test scores will invariably be more accurate. Predictive Validity is usually obtained by computing the correlation coefficient between distributions of the test scores obtained at an earlier time against a distribution of score on some later criterion measure.

Gay (1987), states the procedure for determining Predictive Validity as follows:

- Administering the test, the predictor variable, to a group;
- Waiting until the behaviour to be predicted, the criterion variable occurs;
- Obtaining measures of the criterion for the same group;
- Correlating the two sets of scores; and
- Evaluating the results.

3.2.1 Concurrent Validity

It is used if the data on the two measures, test and criterion are collected at or about the same time. A concurrent study gathers information about the correlation between test scores and a criterion measure available at the same time. It is usually measured by calculating the correlation coefficient between the distribution of the test score and some concurrently existing criterion measure. The steps involved in determining Concurrent Validity are:

- administering the new test to a defined group of individuals;
- administering a previously established valid test to the same group, at the same time or shortly thereafter;
- correlating the two sets of scores; and
- evaluating the results.

3.2.3 Content Validity

Content Validity is the process of establishing the representativeness of the items with respect to the domain of skills, tasks, knowledge and so forth of whatever is being measured. 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 item represents measurement in the intended content area while Sampling Validity is concerned with how well the test sample the total content area. For example, to test Sociology students in Introduction to Sociology, this means that the whole content has to be sampled and the sample will be needed to form the bases for inferences about the students' knowledge of the entire course. Validity achievement test is commonly based on Content Validity.

3.2.4 Construct Validity

Construct Validity involves both logical and empirical analysis. A construct is a postulated attribute or structure that explains a phenomenon such as an individual behaviour. Constructs are abstract and not considered to be real objects or events, they sometimes are called hypothetical construct (Wierma, 1995). It is not itself directly measurable but it explains observable effect. Quite often, one or more constructs are related to behaviour in that, individuals are expected to behave (or not behave) in a specific manner. For example, theories of learning involve constructs such as motivation, intelligence, anxiety, etc.

3.3 Reliability

Reliability means dependability or trustworthiness. The term means essentially the same thing with respect to measuring units' consistency - consistency of the instrument in measuring whatever it measures. It is the degree to which an instrument will give similar results for the same individual at different times. For example, a reliable measure of length will yield the same measurement of a table each time the table is measured. A measuring device that says today that a table is two metres long will yield identical measure tomorrow. If it does not do so, then the device lacks perfect reliability and contains measurement error.

In a conceptual sense, an observed score can be seen as consisting of two parts:

- the individual's true score; and
- an error score.

Reliability is related to these parts. If scores have large error components, reliability is low but if there is little error in the scores, reliability is high. It 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 a measure can be asserted in several ways. All of these are based on the statistics which a correlation coefficient symbolizes. Reliability coefficient can take on values from 0 to 10. Conceptually too, if a reliability coefficient were 0, there would be no true component in the observed score. The observed score would consist entirely of an error. On the other hand, if the reliability coefficient were 1.0, the observed score would contain no error; it would consist entirely of the true score.

3.4 Types of Reliability

There are different types of reliability and each kind is determined in a different kind of consistency. Some of these are explained below. They are:

3.4.1 Test-Retest Reliability

This is the degree to which scores are consistent over time. In the test-retest reliability, the same test is administered on two or more occasions to the same set of individuals. If the test is reliable, there will be a high positive association between the scores. For example, a physical fitness test may be given to a class during one week and the same test 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/her relative position on the first administration of the test, the reliability coefficient (rxx) will be near 1. Any change in relative position from one occasion to the next is considered as error, the rxx will be near 0. The procedure for determining test-retest reliability is basically quite simple.

1. Administer the test to an appropriate group
2. After a period of time has passed, say two weeks, administer the same test to the same group.
3. Correlate the two sets of scores.
4. Evaluate the results.

3.4.2 Equivalent form Reliability

It is two tests that are identical in every way except for the actual items included. The two forms measure the same variables; have the same number of items, the same structure, the same difficulty level and the same direction for administration, scoring and interpretation. It involves the use of two or more equivalent forms of the test. The two forms are administered to a group of individuals with a short time interval between the periods of their administration. If subjects are tested with one form on one occasion and their scores on the two forms are correlated, then the test is reliable and there will be a high positive association between the scores.

The major problem involved with this method of estimating reliability is the difficulty of constructing two forms that are essentially equivalent. Lack of equivalence is a source of measurement error. It is recommended when one wish to avoid the problem of recall or practice effect and in cases when one has available a large number of test items from which to select equivalent samples. It provides the test estimate of the reliability of the academic and psychological measures.

3.4.3 Split-Half Reliability

A common type of internal consistency reliability is referred to as Split-Half Reliability. Since it requires only one administration of a test in computing it, the test items are divided into the halves, with the item of the two halves matched on content and difficulty and two halves are then scored independently. If the test is reliable, the scores on the two halves have a high positive association. An individual scoring high on one half would tend to score high on the other half and vice versa.

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 prophecy formula is employed:

$$rxx = \frac{2 \times 1/2 \;\; 1/2}{1 + r1/2 \;\; 1/2}$$

Where:

rxx = the estimated reliability of the entire test
r1/21/2 = the Pearson r correlation between the two halves

3.4.4 Rationale Equivalent Reliability

It is determined through the application of one of the Kuder-Richerds formulas. Two formula for estimating reliability are: (1) KR-21 may be substituted for KR-20, if it can be assumed that each item be scored dichotomously that is, correct or incorrect, 1 or 0., and (2) Crombach Alpha is a formula developed by Crombach (1951), it is commonly used as a measure of the interval consistency of a psychometric test score of a sample of examinees. It is also referred to as coefficient alpha. It is another widely used measure of homogeneity and it is a general formula of which KR 20 formula is a special case. The formula for alpha is:

$$\alpha \text{ or } rxx = (k/k\text{-}1)\ (Sx^2 - \sum S1^2/Sx^2)$$

Where k = number of items on the test
$\sum S1^2$ = Sum of the variance of the items scores
Sx^2= variance of the test scores (all k Items)

The formula for alpha is similar to the k-R 20 except that the Epq is replaced by $\sum S1^2$ the sum of the variance of item scores.

3.4.5 Inter-Rater Reliability

It is important in measuring instruments that require ratings or observations of individuals by other individuals. It is also called inter-observer reliability. It is an index of the extent to which different judges/observers give similar ratings to the same behaviour. One must show that the ratings assigned are not influenced by the observer's own values, attitudes and other personality characteristics.

4.0 CONCLUSION

You learnt that the overall aim of the social scientists is to reduce the likelihood of misrepresentation of variables in social research. Such misrepresentation causes misleading conclusions and prescriptions. This is the essence of the different types of Validity we have studied in this unit.

5.0 SUMMARY

The multiplicity of measuring instruments available to the researcher, you have learnt, requires the use of criteria for the evaluation of these instruments. In this unit, you saw in details the two major elements of measurement such as validity and reliability. We also delineated the different types of validity in research measurement.

6.0 TUTORD-MARKED ASSIGNMENT

List and discuss the different types of Validity in social research.

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UNIT 5 HYPOTHESIS

CONTENTS

1.0 INTRODUCTION

This unit introduces you to issues about hypothesis and its relevance in social research. We shall discuss how you can formulate your research hypothesis and the various types of hypothesis that you can adopt for your research project. Finally we shall expose you to how to test your hypothesis.

2.0 OBJECTIVES

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

- know what an hypothesis is
- define hypothesis
- examine the purposes of well-formulated hypothesis
- identify the types of hypothesis.
- discuss how to test the hypothesis

3.0 MAIN CONTENT

3.1 Hypothesis

A hypothesis is a powerful tool in scientific inquiry. It enables us to relate theory and observation. A hypothesis is a conjecture or a guess at the solution to a problem or the status of a situation. A hypothesis is also a tentative explanation for certain behaviors, phenomena or events that have occurred or will occur. A hypothesis states the

researcher's expectations concerning the relationship between the variables in the research problem. It is the most specific statement of a problem.

The variable must be structured before the data gathering phase of the study for two reasons:

(1) a well grounded hypothesis indicated that the researcher has sufficient knowledge in the area to undertake the investigation and
(2) the hypothesis gives direction to the collection and interpretation of data.

Gall (1989) identifies four criteria that hypothesis should satisfy:

1. The hypothesis should state an expected relationship between two or more variables.
2. The researcher should have definite reasons based on either theory or evidence for considering the hypothesis worthy of testing
3. A hypothesis should be testable
4. A hypothesis should be as brief as possible, consistent with clarity.

SELF-ASSESSMENT EXERCISE I

What do you understand by the term Hypothesis?

3.2 The Purpose of Well-Formulated Hypothesis

1. The hypothesis provides a tentative explanation of phenomena and facilitates the extension of knowledge in an area
2. It provides the researcher with a relational statement that is directly testable in the research study
3. It provides direction to the research and prevents review of irrelevant literature and the collection of useless or excess data.
4. It provides a framework for reporting the conclusion of the study.

3.3 Types of Hypothesis

3.3.1 Inductive Hypothesis

It is a generalization based on observation. In the inductive procedure, the researcher makes observations of behaviour, notices trends or probable relationships and then hypothesizes an explanation for his observed behaviour. For example, a teacher can formulate an inductive hypothesis based on observation of the behaviour of the student every day. He relates it to other student behaviour to teaching methods, and to changes in the school environment and so no. On the basis of his experience and knowledge of behaviour in the school situation, a teacher may inductively formulate a generalization that attempts to explain the observed relationship.

3.3.2 Deductive Hypothesis

It is derived from theory. It contributes to science by providing evidence that supports, expands and contradicts a given theory and by suggesting future studies. A deductive hypothesis has the advantage of leading to a more general system of knowledge as the framework for incorporating them meaningfully into a body of knowledge already exists within the theory itself. For example, Max Weber proposed a theory of suicide in the study social interaction. Many sociologists have proposed deductive hypotheses to test the theory.

3.3.3 Null Hypothesis

It is symbolized as Ho. It states that there is “no difference” or “no effect” or that there is “no relationship”. A null hypothesis states a negation of what the experimenter expects or predicts. A researcher may hope to show that, after an experimental treatment, two populations have different means but the null hypothesis would state that the populations’ means are not different.

A Null hypothesis is used because it enables researchers to compare their findings with chance expectations through statistical tests. The null assumed that observed differences occurred because of chances alone and hence do not represent real differences at all. Statistical tests are used to determine the probability that the null hypothesis is true.

When the study is completed, the empirical data indicate that the differences between the sample group is large enough, that it is not likely to be due to chance, then the null hypothesis can be rejected. The researcher then adopts an alternative hypothesis. For instance a research on poverty alleviation in Nigeria can state a Null hypothesis as: There is no significant difference between meaning of poverty by the beneficiary and NAPEP officials.

3.4 Testing the Hypothesis

A hypothesis test is a statistical procedure that uses sample data to evaluate the credibility of a hypothesis about a population. A hypothesis test attempts to distinguish between two explanations for the sample data. It is already stated that Hypothesis should be in a simple, clear statement of the expected relationship between the variables. When a researcher speaks of testing hypothesis, they are referring to the Null hypothesis. Only the Null hypothesis can be directly tested by statistical procedures. According to Ary, Jacobs and Razaviah (1990), testing a hypothesis involves the following steps:

- stating in operational terms, the relationship that should be observed if the research hypothesis is true;
- stating the null hypothesis;
- selecting a research method that will permit the observation and/or experimentation necessary to show whether or not those relationships exist;
- gathering and analyzing the empirical data; and
- determining whether the evidence is sufficient to reject the null hypothesis.

4.0 CONCLUSION

You have been introduced to the definition of hypothesis, its relevance and importance in social research so that you can have a clear understanding about its usefulness in research and know how to apply them in your research. This will also enable you to make decision about how best to test issue of interest in research.

5.0 SUMMARY

You have, in this unit, learnt what hypothesis is including its definition, its various types and how to test it.

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MODULE 3

UNIT 1 QUANTITATIVE RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the concept of quantitative research. A quantitative study is defined as a numerical method of describing observation of materials or characteristics which differ from the qualitative research. The unit explains how to conduct a quantitative research and it also exposes to you the strength and background for exploring the different types of quantitative research methods.

2.0 OBJECTIVES

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

- define Quantitative Research
- explain the reasons for conducting Quantitative Research
- state the characteristic of a good Quantitative Research
- explain the nature and sources of Quantitative Research
- describe different types of Quantitative Research
- state the advantages and disadvantages of Quantitative Research.

3.0 MAIN CONTENT

3.1 Quantitative Research

Quantitative research is the systematic scientific investigation. It can further be defined as a research that is concerned with the numeric relevance of various kinds of behaviour or the generation of numerical data or that can be converted into number using statistical methods to count and measure outcomes of the study. It differs from qualitative research in that the:

- data is usually gathered using more structured research instruments
- results provide less detail on behaviour, attitudes and motivation
- results are based on larger sample sizes that are representative of the population
- research can usually be replicated or repeated giving it high reliability and
- analysis of the result is more objective.
- a large number of participants are usually involved (Fawole et al, 2008).

Quantitative and qualitative methods may appear to be opposite derived from different philosophies yet both researches are often complimentary and in research design both may feature. The choice of which research method is used should be based on an informed understanding of the suitability of the method for that particular research. The 'qual' research may offer a diagnostic understanding of what is wrong while the 'quant' research provides hard data across different respondent, respondent groups that can lead to specific recommendation with measures that can be used as controls to determine the effectiveness of actions (Fawole et al 2008).

Quantitative versus Qualitative Research

1. The results of quantitative research are presented as quantities or numbers (i.e. statistics). In qualitative research, the results are presented as discussions of trends and / or themes based on words not statistics.
2. Quantitative researcher uses deductive approach while Qualitative researchers use inductive approach.
3. Quantitative researchers use literature as the basis for planning research while qualitative researchers do not.
4. Quantitative researchers tend to use instruments that produce data that can be easily reduced to numbers such as structured questionnaires or interview. In contrast, a qualitative researcher would tend to employ instruments that yield words such as structured interview and unstructured observation.
5. Quantitative researchers would tend to select large samples while Qualitative researchers tend to use or select a small sample. In addition, quantitative researchers usually attempt to select a random sample in which all participants have an equal chance of being selected. A qualitative researcher is more likely to be selected. A qualitative researcher is more likely to select a purposive sample of people she believes are key informants.

6. When the participants belong to a culture that is closed or secretive, quantitative research should usually be favoured while potential participants are not available for extensive interactions or observations the qualitative approach should be considered.
7. When time and funds are very limited, quantitative research might be favoured, while qualitative methods do not lend themselves to the snapshot approach.

3.2 Reasons for Conducting Quantitative Research

The following are the reasons for conducting a quantitative research include that it is used to

1. make comparison between or among different things we study
2. study relationship between or among things we study; and
3. study relationship between the number of periods.
4. It is useful for coming up with findings that are generalisable.
5. It is suited for studying problems for which there are fairly well developed theories to guide the designing and utilisation of standardised data collection procedures and structured research instrument.
6. It is useful for studying statistics involving multi – way tables and significance test for different groups of phenomena.
7. When the outcome of the research sought after a general pattern rather than a process motives.

3.3 Characteristics of a Good Quantitative Research

1. It is presented in quantitative or numbers (i.e. statistics).
2. It aims to classify features, count them and construct its statistical models in an attempt to explain what is observed.
3. Quantitative researcher knows, clearly in advance what he / she is looking for.
4. Quantitative researcher makes use of deductive reason approach in his / her study.
5. All aspects of the study are carefully designed before data collection
6. It uses large samples with equal chances of being selected in the population.
7. Quantitative data is more efficient also to test hypothesis but may miss contextual detail.
8. It seeks precise measurement and analysis of target concepts e.g. uses of surveys, questionnaire, etc.

3.4 Sources of Data for Quantitative Research

The following are the major sources of data for quantitative research.

1. **Questionnaire:** A questionnaire is a printed document that contains instructions, questions and statements that are compiled to obtain answers from respondents.
2. **Interview:** An interview, as a data collection, used personal contact and interaction between an interviewer and an interviewee (respondents). A more structured approach would be useful to gather quantitative data.
3. **Observation:** It is defined as "accurate watching and noting of phenomena as they occur in nature with regard to cause and effect or mutual relations". It can fairly be called the classic method of scientific enquiry. Observation can be made either in a controlled situation e.g. laboratory setting) or in a real world situation.
4. **Documentary Research:** Documents are the records, kept and written by actual participants in or witnesses of an event. Documents include constitution, court decisions, letters, diaries, deeds, wills, newspapers and magazines, accounts, pictures, recordings research report etc.

3.5 Characteristics and Nature of Quantitative Report

There are five main characteristics of quantitative research. They are:

Hypotheses

One of the main characteristics of quantitative research is hypothesis. Hypothesis is a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables. In quantitative research, when a research problem has been identified, there is need to formulate a hypothesis to either support or contradict. In hypothesis-testing there are two types of hypotheses:

(i) a Null Hypothesis (which usually indicates no change or no effect) and
(ii) an alternative hypothesis (which is usually our experimental hypothesis).

To test hypothesis, a researcher gathers data. The data gathered contain evidence that either agrees with the literature hypothesis or the Null hypothesis.

Causality or Cause and Effect

The causes and effect relationship between variables concern the purpose of explaining and predicting phenomena. To predict outcome of an event, we need to identify different types of variables. A variable is an event or condition that the researcher observes or measures or plans to investigate and that is liable to variable or change (Rosnon and Rosenthal 1996).

Two other terms for variables that are frequently mentioned in literature are independent and dependent variables.

1. Independent Variable – It is the treatment or manipulated variables. It is a variable the researcher chooses to study (and often manipulates in order to access their possible effect(s) on one or more other variables.

2. Dependent or Outcome Variable. It is the variable that is measured to find out the effect of the manipulated (independent) variable.

3. Control Variable: It may be potential independent variables, but are held constant during the experiment.

4. Extraneous Variables are independent variables that have not been controlled. One way to control extraneous variables is to hold them constant.

Let us look at the research question about team teaching of criminology and security studies. "Will students who are taught by a team of four lecturers learn more than students taught by one individual lecturer?"

SELF-ASSESSMENT EXERCISE

What are the independent, dependent and extraneous variables in the above research question?
The independent variable is four lecturers and one lecturer. Dependent variable is amount of criminology and security studies studied while there are many possible extraneous variables that might have an effect on students' learning in the above. The personality of the lecturers, intelligence level of the students, time of day the classes are taught, nature of the subject taught, textbooks used, types of learning, etc; all are possible other variables that could affect learning.

Generalizability

Generalizability is one of the characters of quantitative research. Generalizability or external validity involves the extent to which the results of a study can be generalized (applied) beyond the sample to the larger population. Researchers generalize when they apply the findings of a particular study to people or settings that go beyond the particular people or setting used in the study. The whole notion of science is built on the idea of generalizing. Every science seeks to find basic principles and laws that can be applied to great variety of situation and in the case of social sciences, to a great many people.

Population generalizability refers to the degree to which a sample represents the population on interest. The reason for wanting to obtain a representative sample is that since the conduct of a study takes a considerable amount of time, energy and (frequently) money, researchers usually want the results of an investigation to be as widely applicable as possible.

Reliability or Internal Validity

The word reliability in every day 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 mathematical achievement of a group of individuals at two or more different times. He/she should expect to obtain pretty close to the same results each time. Reliability is expressed numerically usually as a coefficient; a high coefficient indicates high reliability.

Statistical Analysis

Once the data have been prepared for analysis, the choice of statistical procedures to be applied is determined not only by the research hypothesis and design but also by the type of measurement scale represented by the data.

We can undertake our statistical analysis manually but most times we use computer software to assist us. For social sciences, the best well used package is SPSS (Statistical Package for the Social Sciences) which is specifically designed to deal with data and generate statistics . Excel is useful for sample calculations and some statistics especially for generating graphs to illustrate your results.

3.6 Types of Quantitative Research

The following are the types of Quantitative research:

(1) Survey Research,
(2) Descriptive Research,
(3) Co-relational Research
(4) Causal comparative Research
(5) Experimental Research

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 date. Only rarely, however, do researchers study the whole population. The purpose of surveys is to describe the attitudes, beliefs, opinions, motivation and behaviours of a population. The survey researcher is interested in the accurate assessment of the characteristics of whole populations of people. It attempts to determine the incidence distribution and inter relations among sociological and psychological variables.

The term survey is not synonymous with questionnaire survey alone but with other methods such as interview method and observational method.

Surveys do more than merely uncover data. They interpret, synthesize and interpret these data and point to implications and inter relationship. The survey research applies no control or manipulation of the variables in the subject studied. Samples tend to be large in survey because of the need to make generalization.

Survey research is probably 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. For example, to

- help select the behaviour to be changed by an intervention
- choose the largest population best suited for an intervention
- profile a population
- determine the best channel to reach a population.

Example

A researcher may be interested in knowing the relationship between private security personnel and the police in providing security services. He obtains the data through setting of questionnaire such as: What is the relationship between you (Private Security guard) and the Policeman?

A. Very cordial B. Cordial
C. Indifference D. Not cordial.

From the example, it is discovered that there is cordial relationship between these set of security officers.

Features of Survey

It involves research in which:

1) data are collected from members of a sample that represents a known population
2) a systematic technique (e.g. questionnaires or interviews)) is used to collect data
3) the researcher manipulates non independent variables
4) data are sought directly from respondents
5) subjects provide data in natural settings
6) responses of subjects are assumed to be largely unaffected by the context in which they are elicited
7) Influences of confounding variable are controlled statistically
8) The purpose of the research may range from explanation of phenomenon to hypothesis testing.

Advantages of Survey Method

1. One of the main attraction of sample survey for research is its transparency and accountability. The methods and procedure can be made visible and accessible to other parties.
2. Surveys are particularly useful in describing the characteristics of a large population
3. Standardized questionnaires have an important strength in regard to measurement generally.
4. Surveys (especially self-administered ones) make very large samples feasible.
5. Data collection takes place in natural setting and they are obtained directly from respondents.
6. Results are accurate because of large sample sizes and generally low sampling error.
7. A variety of systematic data collection methods (e.g. interviews, questionnaires and observation) can be used alone or in combination

Disadvantages of Survey Method

1. The requirement of standardization often seems to result in the fitting of round pegs into square holes forcing the respondents to subscribe to statements they don't fully endorse.
2. Survey research is very expensive in terms of total cost, because of large administrative and /or personnel costs.
3. Survey research seldom 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. Information collected from surveys generally are shallow in nature.
6. Casual inferences from sample survey generated data are difficult to justify because no independent variables are manipulated by the researcher using this method.

Experimental Method

The experimental method is the only method of research that can truly test hypotheses concerning cause and effect relationships. In an experimental study, the researcher manipulates at least one independent variable, control other relevant variables, and observes the effect on one or more dependent variables. The researcher determines "who gets what" which group of subject gets which treatment. This manipulation of the independent variable is the one characteristic that differentiates all experimental research from the other methods of research.

An experiment typically involves two groups, an experimental group and a control group. The experimental group typically receives a new or novel treatment, a treatment under investigation while the control group usually either receives a different treatment or is treated as usual.
The adequacy of experimental design is judged, by the degree to which they eliminate or minimize threats to experimental validity.

For example, suppose a researcher wished to study the effectiveness of a new method of teaching criminal activities. He or she would have the students in the experimental group taught the new method but the students in the comparison group would continue to be taught by their teacher's usual method. The researcher would not administer the new method to the experimental group and have a control group do nothing.

Co-relational Research

Co-relational research attempts to determine whether and to what degree a relationship exists between two or more quantifiable variables. However, it never establishes a cause-effect relationship. For example, the fact that there is relationship between self–concept and achievement does not mean that self-concept causes achievement or that achievement causes self-concept. It only shows that there is relationship between the two variables, that is, students with higher self-concept have higher levels of achievement and students with lower self-concept have lower levels of achievement.

The relationship is expressed by correlation coefficient which is a number between '00 and 1.00. Regardless of whether relationship is a cause effect relationship the existence of a high relationship permits prediction.

Descriptive Research

Descriptive 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 only description of variables and their relationships as they normally occur.

According to Best and Kahn (2006) descriptive research studies have all of the following characteristics distinguishing them from the type previously described.

1. The involves hypothesis formulation and testing
2. They use logical methods of inductive –deductive reasoning to arrive at generalizations
3. They often employ methods of randomization so that error may be estimated when population characteristics are inferred from observations of samples.
4. The variables and procedures are described as accurately and completely as possible so that the study can be replicated by other researchers.

Descriptive research methods range from survey, which describes the status quo of variables to the corelational 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?. For example, Automobile industry, police department, safety commission and insurance companies study the conditions associated with the accidents. Such factors as mechanical faults or failures, excessive speed, driving under the influence of alcohol and others have been identified as causal.

3.7 Advantages and Disadvantages of Quantitative Research

Advantages of Quantitative Research Method

1. Stating the research problem in very specific and set terms (Frankfort Nachmias & Nachmias 1996)
2. Clearly and precisely specifying both the independent and the dependent variables under investigation
3. Following firmly the original set of research goals, arriving at more objective conclusions testing hypothesis, determining the issues of causality.
4. Achieving high levels of reliability of gathered data due to controlled observations, laboratory experiments, mass surveys or other forms of research manipulations (Balsley 1970).
5. Eliminating or minimizing subjectivity of judgement.

Disadvantages of Quantitative Research Method

1. Failure 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 questions in the survey
3. Limited outcomes to only those outlined in the original research proposal due to closed type questions and the structural format.
4. Not encouraging the evolving and continuous investigation of a research phenomenon.

4.0 CONCLUSION

This unit deals with the nature of Quantitative Research, its importance and characteristics. It further discusses the different types of Quantitative Research. Finally, it discusses the advantages and disadvantages of Quantitative Research.

5.0 SUMMARY

In this Unit, you have been introduced to the nature of quantitative research. The importance and characteristics of good Quantitative Research as well as the various type of Quantitative Research with examples were discussed. At the end pf this unit , you are expected to understand:

- the meaning of quantitative research
- the importance and characteristics of a good quantitative research
- the various types of quantitative research method
- and evaluate the benefits of the various types
- the advantages and disadvantages of Quantitative Research

6.0 TUTORED-MARKED ASSIGNMENT

What are the advantage and disadvantages of survey method as a type of quantitative research method.

7.0 REFERENCES/FURTHER READING

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UNIT 2 QUALITATIVE RESEARCH

CONTENTS

1.0 INTRODUCTION

Qualitative Research is a good research methods where the results are presented as discussions of trends and or/ themes based on words not statistic.

2.0 OBJECTIVES

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

- explain the concept of Qualitative Research
- describe the importance and characteristics of Quantitative Research
- state various types of Quantitative Research Method
- explain the advantages and disadvantages of Qualitative Research.

3.0 MAIN CONTENT

3.1 Qualitative Research

Research methodologies is divided into two major paradigms, the logical –positivism and phenomenological inquiry. Logical –positivism has dominated social science research and is based on the assumptions of the natural sciences. It is based on scientific method, hypothesis testing etc.

A qualitative research uses an inductive approach to planning the research. The researcher gathers on the specific information by making preliminary observations and conduct inform of interviews, He/She do not approaches the research task with

preconceived notions based on published theory and research. In this unit, we shall examine Qualitative Research in details.

But the phenomenological inquiry we are going to talk about in this unit, is based on natural setting. Qualitative research involves collection of narrative data in natural setting in order to gain insights into phenonmena of interest. It also involves study of phenomena for over an extensive period of time in order to find out the way things are, how and why they came to be that way and what it all means (Fawole et al).

Creswell (1998) defines qualitative study as an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem.

It attempts o understand and make sense of a phenomenon from the participants perspective. The researcher can approach the phenomenon from an interpretive, critical or post modern stance. Erickson (1985) uses the term interpretation to refer to the whole family of approaches to participant observational research. All qualitative research is characterized by the search from meaning and understanding.

Qualitative Researches are interested in understanding what those interpretations are at a particular point in time and in a particular context. Learning how individuals experience and interact with their social world and the meaning it has for them. The results of qualitative research are descriptive rather than predictive.

3.2 Characteristics of a Good Qualitative Research

The following are the list of characteristics of a good qualitative research as presented by Creswell.

1. The researcher identifies studies and employs one or more traditions of inquiry
2. The study is framed within the assumptions and characteristics of the qualitative approach to research
3. The research starts with a single idea or problem that he/she seeks to understands, not a causal relationship of variables
4. It entails rigorous data collection. The research or collects multiple forms of data, summaries them adequately and spends adequate time in the field.
5. The writing is so persuasive that the reader experiences the study as though he was present in it.
6. The writing is clear, engaging and full of unexpected ideas. The story and findings become believable and realistic, accurately reflecting all the complexities that exist in real situation.

3.3 Nature of Qualitative Research

1. Often researchers undertake a quantitative study because there is a lack of theory or an existing theory to adequately explain a phenomenon.
2. Qualitative research is inductive. Immersion in the details and specifies of the data to discover important pattern themes and inter relationship begins by exploring them confirming, guided by is gathering of data by analytical principles rather than rules, end with a creative synthesis (rather than deductively deriving postulates or hypothesis to be tested as in the positivist research).
3. Design strategies. All qualitative research uses the design strategies of (a) emergent design flexibility, (b) purposeful sampling and (c) most use naturalistic inquiry.

    a) These design strategies indicate that the research is a work in progress that may change as the data are collected and the samples are selected for their usefulness rather than for their randomness.

    b) Purposeful sampling is rarely used in qualitative research, in which randomness is the preferred techniques. In qualitative research, however, the researcher wishes to study a particular sample of persons or documents because of the sample's usefulness. The research is thus aimed at explaining a phenomenon rather than making a generalization.

    c) Naturalistic inquiry is used in almost all qualitative research. The ethnographer and other using this strategy let situations unfold, they observed without any attempt to manipulate or control the environment or outcome.

4) Qualitative research methodologies celebrate richness of the data, in-depth, detailed descriptions of events, interviews, multi –dimensionality and complexity etc. is what makes qualitative research so powerful. Instead of editing these elements out in the search of the general picture or the average, it factors them directly into its analysis and explanation.

5) There is greater emphasis on holistic forms of analysis and explanation. The whole phenomenon under study understood as a complex system that is more than sum of its part. Hence, the complex interdependence and system dynamic cannot meaningful reduced to a few discrete variables and linear causes- effect relationship. Qualitative Research does use some forms of quantification but statistical forms of analysis are not seen as central.

6) Qualitative Research is richly descriptive, words and pictures rather numbers are used to convey what the researcher has learned on the field.

7) Finally, data in the form of quotes from documents, fields notes and participant interview excerpts from video taps, electronic communication or a combination

of some or all of these are always included in support of the findings of the study.

3.4 Reasons for Conducting Qualitative Research

1. It enables the researcher to explore and probe. It also enables the researcher to reach beyond initial responses and rationales especially where variables cannot be easily identified, theories are not available to explain behaviour of participants or their population of study.
2. It encourages presentation of detailed view on the topic
3. Qualitative research can help to understand the feelings, values, and perceptions that underlie and influence behaviour.
4. Another reason for conducting Qualitative research is that it captures the language and imagery of phenomenon study and the need to write a literary style.
5. Most of Qualitative researches have longer duration especially where there is sufficient time and resources to spend on extensive data collection and data analysis in the field.
6. Qualitative Research provides the study of individuals in their natural setting. This is the case where, if the participants are removed from their natural setting. It leads to contrived findings that are out of context.

Advantages of Qualitative Research Method

1. It gives opportunity to observe, record and interprete both non-verbal communication (i.e. body language, voice intonation) and verbal communication
2. It is a primary instrument for data collection and data analysis. Since understanding is the goal of this research, the human instrument, which is able to be immediately responsive and adaptive, would seem to be the ideal means of collecting and analyzing data
3. Through qualitative research, we can explore a wide array of dimensions of the social world including the texture and weave of everyday life. The understandings, experiences and imaginings of our research participants, the ways that social processes, institution, discourses and relationship work and the significance of meanings that they generate (Mason 2002).
4. It allows us to observe events that may be too risky or dangerous to create in the laboratory
5. It allows us to explore the generalizability of laboratory findings in order to see whether changing the context changes the phenomenon.
6. It permits us to record events as they occurs, so that we need not reply only on public records of past events, made by non scientists or on people's memories
7. It allows us to watch fleeting events that may not be easily or realistically captures or simulated in the experimental laboratory

Disadvantages of Qualitative Research Method

It can entertain biases that might have an impact on the study. Although objectivity is the ideal of research. There is great temptation to omit evidence unfavourable to the study and to over emphasis favourable data. Hence it is important that effective researchers are aware of their feelings and the likely areas of their bias and constantly endeavour to maintain the objectivity that is essential.

3.5 Types of Qualitative Research

There are several types and classifications of Qualitative Research methods. We shall discuss some of these research methods.

1) Ethnography
2) Focus Group Discussion
3) Biography
4) In-depth Interview
5) The Case Study

Ethnography Research

Ethnography, sometimes known as cultural anthropology or more recently as naturalistic inquiry, is a method of field study observation that became popular in the latter part of the 19th century.

Ethnography involves intensive data collection, that is, collection of data on many variables over an extended period of time, in a naturalistic setting. The rationale behind the use of ethnography is the research – based belief that behaviour is significantly influenced by the environment in which it occurs.

Best and Kahn (2006) observed that in its early application it consisted of participant observation, conversation and the use of informants to study the cultural characteristics of primitive people. African, South Sea Island and American Indian tribes. These groups were small, geographically and culturally isolated, with little specialization in social function and with sample economics and technology. Such cultural features as language, marriage and family life, child –rearing practices, religious beliefs and practices, social relations and rules of conduct, political institution and methods of production were analysed.

Ethnographic research may involve non-participant observation, participant observation or both. Typically, ethnographic studies are characterized by some types of participant observation at an overt level. Ethnography, however represents multi – instrument research and the ethnographer uses a variety of data collection strategies in conjunction with observation.

Ethnographic studies of specific cultural groups have been collected to form the extensive collection ethnographers. This collection has provided the basis for cross – cultural studies which compare difficult cultures and different cultural practices.

Sociologists, political scientists and other social scientists use ethnographic studies as well as. To conduct ethnographic studies require more than the skills of good description, it also requires the inductive development of theory. Thus it is a theory – building method, its aim in the study of particulars is to draw out the general themes. Ethnographers make use of verbal and non-verbal techniques. The verbal techniques involve interactions between the researcher and persons in the research environment and include tools such as questionnaire, interviews,, attitude scale and other psychological instruments. Non verbal techniques are less obstructive, that is, less likely to affect the bahviours being studied and include such strategies as the use of recording devices and examination of written records.

The strength of the ethnographic studies lie in the observation of natural behaviour in a real life setting, free from the constraints of more conventional research procedures.

Many early studies were criticized on the grounds, that the anthropologist spent too little time among the people of the tribe to get more than a superficial view, did not learn the native language and had to depend too much on the report of poorly trained informant and relied too much on his or her own cultural perspective, reaching ethno centric, judgmental conclusions that result to in the stereotyped theories of the development of the primitive society (Best and Kahn 2006).

Focus Group Discussion

A Focus Group is a research strategy which involves intensive discussion and interviewing of small groups of people, on a given focus or issue, usually on a number of occasion over period of time.

It is a method designed mainly to gather information about values beliefs, understanding in a study population on issues. It is often used to compliment other sources of data.

A focus group usually connotes of six to twelve participants who are gathered to discuss a topic. The group is led by a facilitator as opposed to an interviewer. The facilitator describes the topic to be discussed and tries to create a non threatening environment in which all group members feel free to express their opinions, attitudes and experiences even if they different from those of other participants. The facilitator should have a predetermined set of questions (also known as a questioning route) to ensure that all relevant aspects of the topic are discussed. In addition, the facilitator should probe for additional information when needed. Typically, a focus group lasts for about an hour. Also, it is typical to use two or more focus group. Facilitators are also sometimes called moderators.

Types of Focus Group Discussions

1) Two-way focus Group. One-group watches another group and discusses the observed interactions and conclusion.
2) Dual moderator focus group –one moderator ensures that the session progress smoothly, while another ensures that all the topics are covered.
3) Dual moderator focus group - one or more of the respondents are asked to act as the moderator temporarily.
4) Client participate focus groups –one or more client representatives participate in discussion either covertly or overtly.
5) Mini focus group-group are composed of four or five members rather than 6 to 12
6) Teleconference focus group-Telephone network is used and
7) On-line focus group –computer connection or the internet is used.

Biography

A biography is a method of qualitative research involves a detailed, first –hand report of the inner experiences of individuals with reference to the way in which they describe, interprete 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 achieval records. The life courses stages may be childhood, adulthood or old age written in chronology or experiences such as education, marriage and employment.

Biographies are usually lengthy personal documents compiled by the researcher in respect of those parts of an individual's life that are relevant to the research he or she is conducting.

For criminologists the value of this type of qualitative data capturing lies in the fact that the depth of the life history of perpetrators can be researched. Biographies can also assist in the understanding the role of significant others in the life and times of perpetrators.

Howard (1995) explains that there are many types of biographies including medical, psychiatric and psychological profiles. In addition there are case histories relating to careers, as well as police reports. Court records, minutes, contracts, correspondence, memoranda, notes, memoirs, diaries, autobiographies and reports are called basic documents sources of biographies.

This research method is unique in so far as 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 behaviour.

In-Depth Interview

An in-depth interview is a qualitative research technique that allows person to person discussion. It allows the person interview time and freedom to explore issues at length. It can lead to increase in sight into people' thoughts, feelings and bahaviour or important issues. The in-depth interview uses a flexible interview approach. The in-depth interview is said to be unstructured because the interviewer does not need to ask only the predetermined questions.

First, if a participant does not seem to understand a question, it can be recorded by the interviewer. Second, it response is too tense, the interviewer can ask additional questions such as "can you tell me more about it"? Thirdly, the interviewer can probe with additional questions in order to explore unexpected, unusual or especially relevant material revealed by a participant.

An interviewer can achieve an unbiased attitude through the process of self – disclosure. This refers to consideration of the research problem in relation to the interviewer's background and attitudes before conducting the interviews.

Areas in which the method can be used include: pilot studies to generate ideas, to obtain greater depth of information on a topic of interest as a supplement to data received from other methods.

It is used when exiting literature has not been consulted beforehand. It is done to ensure that existing theoretical constructs do not influence the researcher's point of view and objectivity. The researcher or interviewer in unstructured interview merely suggests the general theme on which information is required and motivates the subject to participate without reservation, stimulating response by means of encouragement. The interviewer also diplomatically returns the respondent to the research topic when he/ she distresses.

Advantages of In-depth Interview

1. The advantage of unstructured informal interviewing is closely related to the objectives of qualitative research namely, to construct the reality from the vantage point of the subject's "world of meaning".
2. It provides the researcher with an insider view and the opportunity to exploit unfamiliar research territories further, resulting from such interviews.
3. Accurate information on the attitude, values and opinions of respondents can be obtained.
4. It emphasis internal validity, in other words, how close the responses are to the respondent's actual views.
5. The informal atmosphere during in-depth interviews encourage the respondent to be open and honest.

Disadvantages of In-depth Interview

1. It can be very time consuming and can generate masses of data that are difficult to arrange and interpret.
2. It is not possible to use field workers because it requires a more professional approached hence the researcher has to conduct the interview personally (Schurink 1988).
3. It is difficult to compare results with other research because each interview is unique.
4. It is very difficult to remove personal prejudices of the researchers themselves. These have influences when the researchers accidentally or deliberately convey their own opinions to the respondents.
5. The status of the researcher and of the respondent can affect in-depth interview such as race, age and social economic class.

4.0 CONCLUSION

In conclusion, we will realize that the Qualitative research method is interpretative. The researchers who research data. Qualitative research obviously has limitations. According to Ragin (1994) qualitative analysis tends to enhance data, viewing cases in detail while quantitative analysis tends to condense data to reveal general patterns.

5.0 SUMMARY

In this Unit, we have been able to explain what is Qualitative Research, reasons for conducting Qualitative research, nature and characteristics of Qualitative research, types of Qualitative research and advantages and disadvantages of it.

6.0 TUTOR-MARKED ASSESSMENT

1. Discuss the characteristics of good Qualitative Research
2. What are the advantages and Disadvantages of Qualitative Research

7.0 REFERENCES / FURTHER READING

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MODULE 4

Unit 1 Data Collection
Unit 2 Questionnaire
Unit 3 Interview

INTRODUCTION

This module consists of three units. It is designed to expose you to the understanding of data collection methods, questionnaire development and administration and interview methods in social research. Specifically, this module will discuss:

Unit 1 Data Collection
Unit 2 Questionnaire
Unit 3 Interview

UNIT 1 DATA COLLECTION

CONTENTS

1.0 INTRODUCTION

Social scientists are able to solve problems only on the basis of data, hence it becomes the major responsibility of a researcher to set up a research design capable of providing the data necessary to solve the problem. In the course of doing this, the researcher adopts the best method of data collection on the topic they have chosen or choose the design that best enables him/her to address the research question, including questionnaires, interviews, observations and secondary sources.

2.0 OBJECTIVES

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

- what data is
- the meaning of Observation
- methods of developing questionnaire and their importance
- methods of interview

3.0 MAIN CONTENT

3.1 Data Collection

Data refers to facts or ideas or knowledge that is useful in answering a research problem. Their derivation depends on the types of questions asked and the research design selected. Data are collected for a specific purpose. There are two main types of data – primary and secondary data. The collection of facts and figures relating to the population in the census provides primary data. Primary data collection has its own advantage in that the exact information needed is obtained. Terms are carefully defined so that as far as it is humanly possible, misunderstanding is avoided. Sometimes, data collected for other purposes frequently for administrative reasons are also used as information. Such data are called Secondary data. For example, data generated by the Economic and Financial Crime Commission or by the National Drug Law Enforcement Agency are used when conducting enquiry about criminal activities in the country.

One disadvantage of secondary sources of data collection is that the data so collected must be used with caution, because, such data may not give exact kind of information needed. Secondly, greater attention must be paid to the precise coverage of all information in the form of secondary data.

3.2 Observations

Observation is a systematic method of data collection. It is the recognition and noting of facts or occurrences. 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". Observations may be made personally or mechanically. Both methods are widely used in survey research but most observations are of personal type. Research organizations sometimes have individuals who make the necessary observation. Close Circuit Television (CCTV) is an observation instrument used in the observation of activities of people within a given environment.

Observational method is divided into three (3) which include

(a) natural or artificial observation;
(b) social setting observation; and
(c) Structured or unstructured observation.

Observation can be direct or contrived. To gather data by direct observation, the researcher must first decide what to observe. After identifying, he/she goes ahead to select the process of observation by deciding which particular group or the actual sample size to be observed. For example, urban study concerning "behavior changes resulting from a study of communicable diseases" is an excellent example of the use of direct observation in a natural settings. Observers recorded the number of instances of undesirable behavior such as putting fingers or other objects in the mouth, and the number of desirable behaviors, such as using one's handkerchief when coughing or sneezing. There are five important preliminary steps to be taken when using direct observation. These are:

1. The aspect of behavior to be observed must be selected;
2. The behavior falling within the chosen category must be clearly defined;
3. The people who will carry out the observation must be trained;
4. A system for quantifying observation must be developed; and
5. Detailed procedure for recording the behavior must be developed.

Contrived Observation

In contrived observations, the researcher arranges for the observation of subjects in simulation of real-life situations. The circumstances have been arranged so that the desired behaviors are elated.

3.3 Participant Observation

This is another application of Observation as a method of social enquiry. The role of observer especially in participant observation involves many issues of method and ethics. To what extent do people alter their behavior when the observer is present? When we ask the people questions will they tell the truth? How can we record our observations so they will not be forgotten or distorted? Should we explain to those being studied the detail of the research? If people confide in the researcher, will they be injured in some way?

With this method the observer joins the daily life of the group or organization he is studying. He studies the life of the community as a whole, the relationship between its members and its activities and institutions. The researcher participates in the social activities of the people under study either openly or in a disguise role to observe their behavior overtime. In order to validate his observation, the researcher recruits informants within the group. Triangulation or use of multiple research data gathering methods such as questionnaire, interviews, biographical data is usually employed to strengthen the reliability of the data obtained from participant observation.

The researcher may take any of these four roles:

(1) Role of a complete participant in which the researcher is a full fledged member of the group and his research intention is concealed or hidden.
(2) Participant as observer. In this role, the researcher‘s intention is not known by those being studied and researcher is not regarded as a member.
(3) Observer as participant in which contact is brief. The observer may make just one trip to the group to contact for interview
(4) Complete observer in which the investigator removes himself from the setting and observe from a distance

Osuala (2001) identified some disadvantages of Participant Observation. These are:

1. A risk with Participant Observation is that the role adopted by the observer will restrict his understanding of the situation. This is what Riley (1963) calls the bias view-point effect.
2. The success of participant observer’s approach depends on his skill and personality.
3. Apart from the problem of objectivity, there is also difficulty of distinguishing between observation and inference.
4. Finally, Participant Observation has been seen as a somewhat individual method. One cannot expect it to yield identical picture if another researcher uses the same method.

4.0 CONCLUSION

The type of data collected depends on the type of research one has decided to carry out. Hence, data are records of observations and they might take a number of forms. For example, interviews, questionnaires, field diaries and field observations from which inferences may be drawn via analysis.

5.0 SUMMARY

Data refers to facts or ideas or knowledge that is useful in answering research problems. There are two main types of data collection- Primary and Secondary sources of data. You have also been acquainted with the meaning of Observation and the types. We have identified the three main types of Observation, that is, observation in natural or artificial, social setting or structured/unstructured.

6.0 TUTOR-MARKED ASSIGNMENT

Define the concept of data and what are the processes in participation observation?

7.0 REFERENCES/FURTHER READING

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UNIT 2 QUESTIONNAIRE

CONTENTS

1.0 INTRODUCTION

When the investigator has completed the arrangements for sample selection, his/her next immediate task is to design the procedure for collecting information from those selected. There are two ways of collecting data, namely the Questionnaire and Interview method. It is for the researcher to draw up a list of questions known as the questionnaire.

2.0 OBJECTIVES

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

- what questionnaire is
- how to construct questions in the Questionnaire
- types of item included in the Questionnaire
- advantages and disadvantages of Questionnaire

3.0 MAIN CONTENT

3.1 Questionnaire

Like observation, questionnaires generally are used to gather information or data directly from the individuals under study. But unlike observations, questionnaires are designed to ask people about their attitudes and behavior instead of watching their activities directly. A Questionnaire is a prepared list of questions but it is administered by giving the list to the respondent and asking them to fill it out in written form themselves.

Questionnaires often contain attitude scales. An attitude scale is a list of program with several possible responses to each. Respondents are asked to reply by checking the answer that closely indicates the strength of their agreement or disagreement with the statement. Questionnaire is a printed document that contains instructions, questions and statements that are compiled to obtain answers from respondents. Questionnaires differ from interview scheduled or interview guides because the respondent fill in the questionnaire without the researcher's assistance.

Sometimes, Questionnaires can be inserted in a magazine or printed in a newspaper. They are usually distributed by mail or given to a group of respondents at one venue. Respondents can also be sent computer disks that contain a self administered questionnaire, which they then fill in on their personal computer. This is referred to as 'disk by mail survey'

Questions in the Questionnaire can be either open-ended or closed or structured questions. In an open question questionnaire, the respondent is given freedom to decide the aspect, detail and the length of the answer. Closed question Questionnaire on the other hand, help keep the questionnaire to a reasonable length and thus, discourages response and validity in terms of the representativeness of the returns. In a research conducted on development and challenges of private security guards in Nigeria, two sets of questions were given in the questionnaire The first one being an open ended questions states the 'how do you prevent violent attack from some members of the public and criminals?' The second one being a closed ended question states that does your company/ organization work with police or other security outfit? (a) Yes (b) No.

3.2 Questions Construction

The following list gives some principal points to note when constructing questions for a questionnaire:

1. It must be seen to come from a reputable organization with good letter heading.
2. Wordings for the items in the Questionnaire should be clear and unambiguous. A question is ambiguous when it conveys different meanings to different people. A question is unclear when it contains jargons or terms which are outside the understanding of the respondent.
3. An item is also inappropriate if it is offensive or contains phrases which can be regarded as offensive by any group in the society.

4. A statement or wording can be regarded as offensive if it is imprecise.
5. Avoiding double barrel item such as: Do you miss your wife when you left home? If yes, which aspect of her did you miss.
6. Avoid statements or questions which slated the respondent to a particular area. For example: How did you like the wonderful sermon?

7. Avoid using questionnaire items that lead to response set problem. For example, will you say that your spiritual life has gotten down or up in the past years.
8. The sentences must not be long and complex.
9. The main idea should come at the end rather than at the beginning. For example, what state will you want to be relocated to if your company want to relocate? This is preferable to saying that, if your company wants to relocate, what state will you prefer?

3.3 Arrangement and Layout of Questionnaire

- A Questionnaire should be attractive;
- It should be easy to read, the print should not be illegible;
- The spacing of items should be reasonable especially for open-ended question;
- Space should be provided for any commentary or allocation for information;
- Avoid funneling, that is, the leading the sensitive questions until the very end. Rather organize the questions logically and place the questions where they fit in;
- Mailed questionnaires should not be too long. For example, there should not be more than 30 items;
- By way of content, it should have a title of the study;
- It should carry a brief introduction stating the objectives of the study and why the respondent should participate or cooperate;
- The question should not be desperate;
- Do not make unfulfillable promises;
- Confidentiality of the respondent should be guaranteed;
- Demographical or object information should be collected, for example, age, marital status, etc;
- It should not contain mixture of questions. For example, open-ended, likert question.

3.4 Types of Items Desirable in Questionnaire

Items in a Questionnaire can consist of statements and questions which can be open-ended or closed-ended. Open-ended questions fulfill the same function as in interviews. However, other items desirable in questionnaire can include:

(1) Paired Comparison Questions

In this type of question, the respondents select only one option but have to ponder on the options and compare their meanings

For example,

The police want to increase its activities within Lagos as a result of incessant armed robbery. Please choose between the options the one you would prefer.

More regular patrol in the streets ☐

More officers at check point ☐

The above example illustrates the fact that wordings of questions must be guided by our initial purpose for doing research and by any information we have gained from doing literature surveys. Also, the question we ask must be based on the hypothesis we want to test and anything we have picked up during the piloting stage.

(2) Contingency Questions

These are questions that only apply to some respondents and must therefore include clear instructions.

For example,

Have you tasted cocaine before?

Yes ☐

No ☐

If yes, please answer questions 7 - 9

This question functions as a filter question which is used to identify the subgroup in the sample of those who have tasted cocaine before. These respondents are then asked to answer contingency questions 7-9, which the other respondent skips.

(3) Ranking Questions

These are also closed-ended questions in which instead of respondents selecting one option, they are required to rank or order the options from the least to the most (or from the most to the least), according to their preferences. For example,
Instructions: What do you prefer to do as a criminologist? Please number the activity you prefer the most as 1, and then 2, 3, 4, 5.

Writing reports ☐

Research ☐

Training ☐

Counseling ☐

Lecturing ☐

4. Inventory Questions

These are also closed-ended question, but here again the respondent is not limited to selecting only one option. The purpose of inventory question is to obtain a comprehensive overview of all possible options that could apply to each respondent. For example, Which of the following convey reliable information about recent changes to your condition of employment? (tick all the sources that apply to you)

Internal memos ☐

Notices on the notice board ☐

Fellow worker ☐

Your immediate supervisor ☐

Electronic mail ☐

Staff meeting ☐

Other (fill in the other sources) ☐

Asking a respondent to tick all the sources that apply to him or her means that the options or categories are not mutually exclusive. In case we have not anticipated all possible answers, it is important to add ‘others’ as an invitation to the respondent to fill in. In the example above, a respondent may want to add ‘a personal letter from management or a printed notice from my trade union’ as other sources.

5. Multiple-Choice Questions

These can be worded in different ways depending on what is being investigated. They do share one characteristic, namely, that the respondent must select one of the options from those given. For example, what is the highest level of formal education attained? The multiple choices could be

(a) no formal education
(b) primary education
(c) secondary education
(d) tertiary education

3.5 Advantages and Disadvantages of Questionnaire

Advantages of Questionnaire

- It permits wider coverage, which facilitate substantial savings of time and money.

- Questionnaires are distributed by mail, inserted in the publication such as magazines or newspapers, e.t.c. which makes them to reach people who are normally difficult to contact.

- Questionnaire responses are expected to remain anonymous and confidential, hence it useful for the investigation of personal or sensitive topics.

- Questionnaires are very easy to code and calculate.

- The questionnaire is more useful in situations where the respondent has to check his information

Disadvantages of Questionnaire

- Validity of questionnaire data depends on the nature of the respondents' responses, for the responses could be bias, inaccurate or incomplete.

- The low and slow responses are the most serious disadvantage of questionnaire. Sometimes, only less than 50% are returned or it takes people time to return the questionnaires.

- It limits the respondents' response on sensitive issues. It does not allow the researcher to develop rapport necessary to permit him to ask questions of a personal or embarrassing nature.

- Another major disadvantage of the questionnaire is the possibility of misinterpretation of the question on the part of the respondent.

4.0 CONCLUSION

Questionnaire really constitutes the first attempt at true scaling. A Questionnaire is a document containing all the questions ranging between close and open- ended ones for a survey. It ranges from the postcard with a few questions to be filled in by respondents to long documents to be filled in by trained interviewers. Hence, the Questionnaire has become an essential part of data collection in conducting researches. However, any type of questionnaire used must be valid and reliable.

5.0 SUMMARY

In this unit, you have been taught the meaning of the Questionnaire. You were equally taught question construction for Questionnaire, the types of items to be included in a questionnaire and the advantages and disadvantages of Questionnaire.

6.0 TUTOR-MARKED ASSIGNMENT

What is questionnaire and what are the basic considerations that a researcher must note in constructing questions for his/her questionnaire?

7.0 REFERENCES/FURTHER READING

Babbie, E (2001), *The Practice of Social Research*. USA: Thomas Learning Inc.

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UNIT 3 INTERVIEW

CONTENTS

1.0 INTRODUCTION

Interview is an alternative method of collection of data for research. Most interview techniques involve face to face interaction. But with the advancement in technology, nowadays, interview takes other forms. In interview, the researcher sends the interviewer to ask the questions orally and record respondents' answer. The interviewer has the opportunity to observe the subject and the total situation in which he or she is responding. Questions can be repeated or their meaning explained in case they are not understood by the respondent. The interviewer can also press for additional information when a response seems incomplete or not entirely relevant.

2.0 OBJECTIVES

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

- define Interview
- differentiate between Structured and Unstructured Interview
- discuss the various types of Interview
- state the administration of Questionnaire and Interview
- state the advantages and disadvantages of Interview

3.0 MAIN CONTENT

3.1 Interview

Interviews are one of the most widely used methods of gathering data in social sciences. They consist of researcher asking the interviewee or respondent a series of questions. An interview as data collection method uses personal contact and interaction between an interviewer and an interviewee (respondent) such that personal contact takes place either in a face to face situation or via telephone. Survey research emphasizes comparison and generalisation hence, interview requires standardization and full descriptions of events and issues.

3.2 Structured and Unstructured Interview

Interviews can be classified as Structured or Unstructured though with many falling somewhere in between these two extremes. In a Structured Interview the wording of the question and the order in which they are asked remains the same in every case. The result is a fairly formal question and answer session. Unstructured Interviews are more like an informal conversation. The interviewer usually has particular topic in mind to cover. He has the freedom to phrase questions as he likes, ask the respondents to develop his answer and probe responses which might be unclear and ambiguous.

The decision to use one and not the other depends on the following:

1. The researchers' knowledge of, and familiarity with of the topic
2. The purpose of the interview (e.g. whether to confirm assumption or collect new information)
3. The nature and the sensitivity of the topic (e.g. AIDS)
4. The actual respondents e.g. children as rape victim
5. The setting (e.g. a busy shopping centre)
6. The relationship between the interviewer and interviewee (e.g a psychologist and a patient)

3.3 Types of Interview

1. Telephone Interview

It is a useful method of obtaining data. Telephone interviews are less expensive than face to face. The use of this data collection method also has certain limitations especially when the interviewer is unknown to the respondent. He is limited by possible non response, uncooperativeness and by reluctance to answer more than one or two simple questions.

2. Panel Interview

It is a useful type of interview method of data gathering. It is simply a group of selected interviewers. The respondents are subjected to rigorous questioning. The Panel Interview method enables the interviewer to study changes in behaviors and attitudes.

3. In-dept Interview

This is also referred to as Intensive, Unstructured, Conversational Interview, Ethnographic Interview and Focused Interview. It is different from face to face interview conducted in a survey. The main aim of this interview is to obtain detailed information. It delves into the reason behind the answers, opinions or emotions given in a survey. It is particularly useful in a field research.

4. Face to Face Interview

Face to Face interview is the most commonly used method of data gathering in researches. It is useful in collecting answers, opinion, motivations or emotions as data. However, bias is the central problem of Face to Face Interview. Bias can occur when an interviewer shows approval or disapproval of responses. Lack of anonymity can also result in dishonest responses especially if the topic being discussed is of a personal or sensitive nature.

5. Focus Group Interview

It usually consists of 6-12 people who are interviewed together at the same time. The interviews are normally Semi Structured or totally Unstructured and guided by Discussion leader or moderator. One of the advantages of conducting Focus Group interview is that the researcher can obtain a variety of opinions on a certain issue but it is not easy to codify, just like the Unstructured Questionnaire.

3.4 Administration of Questionnaire and Interview

Once the researcher decides who to interview or question, the next step is to administer the Questionnaire or Interview. This is an art whose, success or failure depend on the following:

1. Self presentation, do not overdress or under-dress
2. Knock at the door if there is door bell, ring it
3. Greet appropriately and introduce yourself briefly
4. Do not call yourself investigators
5. Be received first before asking questions
6. Show 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 oversensitive when respondent want to open up
11. Probe the respondent for additional information
12. Thank the respondent for participating
13. Make accurate record, possibly with side notes

3.5 Advantages and Disadvantages of Interview

Advantages

1. Interviews are flexible, especially Unstructured Interview; hence researchers are provided with detailed and fresh information the researcher may not have predicted or anticipated.
2. One of its advantages is that the unclear or ambiqous questions can be clarified because the interview involves dialogue between the interviewer and the respondents.
3. Many respondents are always willing to talk than filling or answering Questionnaire.
4. The researcher performs both interviewing with observation of the respondent at the same, especially non verbal communication (e.g. facial expression) can be observed or noted.

Disadvantages

1. The major weakness of an Interview is that it tends to be biased. The interviewer is flexible to vary his approach to fit the occasion and in so doing, he projects his own personality into the situation and thus influences responses he/she receives.

4.0 CONCLUSION

An Interview, as a data collection method uses personal contact and interaction between an interviewer and an interviewee (Respondent). It is a useful instrument in data collection because of its numerous advantages over the Questionnaire. Its limits were equally emphasized.

5.0 SUMMARY

At the end of this unit, you have learnt about Interview as a method used in data gathering. You also learnt the difference between Structured and Unstructured Interview. Various types of Interview were extensively discussed. This was followed by a discussion on administration of Questionnaire and Interview. Finally, the advantages and disadvantages of Interview were enumerated.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the differences between Questionnaire and Interview?
2. Explain the overlapping differences between Structured and Unstructured Interview.

7.0 REFERENCES/FURTHER READING

Babbie, E (2001), *The Practice of Social Research*. USA: Thomas Learning Inc.

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MODULE 5

Unit 1 Meaning and Importance of Measurement
Unit 2 Level of Measurement
Unit 3 Accuracies and Errors in Measurement
Unit 4 Scaling

INTRODUCTION

This module consists of four units that seem autonomous but are connected. It is designed to expose you to the understanding of the meaning, types and significance of measurement in social research. It further exposes you to what measurement type would be beneficial to your research and possible errors associated with varieties of measurement techniques as well as scaling methods in Social Research. Specifically, this module will discuss:

Unit 1 Meaning and Importance of Measurement
Unit 2 Levels of Measurement
Unit 3 Accuracies and Errors in Measurement
Unit 4 Scaling

UNIT 1 MEANING AND IMPORTANCE OF MEASUREMENT

CONTENTS

1.0 INTRODUCTION

This unit exposes you to the meaning and importance of Measurement in social research. It will help you have a sound knowledge of the meaning and significance of measurement, variables and attributes in social research.

2.0 OBJECTIVES

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

- define Measurement in Social Research,
- know the importance of Measurement in Social Research,
- differentiate between variables and attributes
- know what measurement to apply to specific research types,
- discuss *why* and *how* of measurement in social research.

3.0 MAIN CONTENT

3.1 Meaning of Measurement

Measurement is the process of observing and recording the observations that are collected as part of a research effort. It is the act of putting values to the aspects of human conduct being studied or investigated. Here a researcher determines what he/she should be measuring, and what not to measure to achieve the objectives of study as well as determine how changes in one variable affects another variable. Measurement involves the act of sorting, classifying, categorizing or comparing the qualities and properties of units of human conduct or social behaviour. In another word, Measurement entails the assignment of numbers or symbols or values to unit of analysis. It consists of:

- **Rules**- which though are arbitrary, but clear and capable of being correctly adhered to by different observers making the Measurement such as equal distance between scores or observed values.

- **Units**- which will be the subject of the study such as the individual respondent of locality or country.

- **Numbers**- which are quantities assigned to represent the attributes

According to Davis (1971), it is the use of these set of fundamental procedures in sorting, identifying and comparing variables that constitutes measurement. Measurement rules form the basis for measuring a specific aspect of human reality because they determine the quality of measurement and further help align measurement to reality.

SELF-ASSESSMENT EXERCISE 1

Define the term Measurement and show its relevance to data.

3.2 Variables in Measurement

A variable is something that can be grouped, such as sex while its attributes are sub-values of a variable, such as male and female. Variables may have certain characteristics such as period (when it starts and stops); pattern (daily, weekly, ad-hoc); detail (overview through to in-depth); and latency, that is time between measuring dependent and independent variable (some things take time to take effect).

3.2.1 Types of Variables

- Descriptive Variables- These are variables that will be reported on, without relating them to anything in particular.

- Categorical Variables result from a selection from categories, such as 'agree' and 'disagree'. Nominal and Ordinal Variables are categorical.

- Numeric Variables give number, such as age.

- Discrete Variables are numeric Variables that come from a limited set of numbers. They may result from answering questions such as 'how many', 'how often', etc.

- Continuous Variables- are numeric variables that can take any value, such as weight.

- Independent Variable- This is the type of Variable that is manipulated by the researcher. It is like the knob on a dial that the researcher turns. In graphs, it is put on the X-axis.

- Dependent Variable- This is the type of Variable that changes as a result of changes in the independent Variable, and is put on the Y-axis in graphs.

- Extraneous Variables- These are additional Variables which could provide alternative explanations or cast doubt on conclusions.

SELF-ASSESSMENT EXERCISE 2

Define the term Variable and discuss the various types of Variable in Social Research.

3.3 Factors for Measuring Human Behaviour

When measuring human behaviour, there are three components that you need to take into account. These are:

3.3.1 Cognitive component

The cognitive component is that part of the attitude of human behaviour that controls how the person understands and thinks consciously about things. For example, where a street gang member thinks about what they can do that will cause a public nuisance without getting arrested. Cognition includes beliefs, models, preferences and other aspects that shape how a person interprets the world. Measuring cognition may come through open questions about 'what you thought'. It can also be determined through focused questions about beliefs and other motivators.

3.3.2 Affective component

The affective component is that part of the attitude of human behaviour where people experience emotions and make choices based on what they feel. For example, a person may buy a brand of car because he/she just loves the brand and all that it means. Thus, I could say 'I love my Toyota. Affective questions may thus offer emotion-based statements to determine how emotionally involved people are with a product or context.

3.3.3 Behavioral component

The behavioral component is that part of the attitude of human behaviour where people say and do things, or at least show intent towards these. For example, a person may display intent to buy a BMW car in the future. Questions about behavior can be about the past and what people have done or about the future and their intent.

3.4 Importance of Measurement

Measurement is one of the most important aspects of social research. Without accurate description of social realities through adequate measurement(s), understanding them will not be possible. Again, without adequate measurement of the phenomenon under investigation, it cannot be analysed in a reliable and meaningful way and findings cannot be verified through the replication of the study in a similar setting. Sound social research through accurate measurement provides useful description and adequate explanation of social phenomenon and further enables interpretations or predictions of relationships among social elements.

4.0 CONCLUSION

This unit deals with the meaning and scope of Measurement in social research. It should be clear to you by now that there are fundamental procedures in sorting, identifying and comparing variables as well as for measuring a specific aspect of human reality. Discussions on Variables and Variable types are also enunciated in addition to factors that need to be considered while measuring human behaviour.

5.0 SUMMARY

In this unit, you have been introduced to what Measurement is all about. This unit also discusses the importance of Measurement in Social Research. At the end, you are expected to understand and know the:

- definitions of Measurement
- importance of Measurement
- variables and Types of Variables
- factors for Measuring in Human Behaviour such as:
  - Cognitive component
  - Affective component
  - Behavioral component

6.0 TUTORED-MARKED ASSIGNMENT

What are the factors that a researcher needs to consider when measuring in social research?

7.0 REFERENCES/FURTHER READING

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Davis, J.A. (1971), *Elementary Survey Analysis*. Englewood Cliff, New Jersy: Prentice-Hall Inc.

Nachmias, D. and Nachmias, C. (1981), *Research Method in Social Science* New York: Basic Books, Inc.

ONLINE RESOURCES

http://changingminds.org/explanations/research/measurement/measuring_attitude.htm

http://www.socialresearchmethods.net/kb/measure.php

UNIT 2 LEVEL OF MEASUREMENT

CONTENTS

1.0 INTRODUCTION

This unit leads you to the understanding of the relationship among the values that are assigned to the attributes you have or want to use for your measurement. Knowing the Levels of Measurement helps you decide how to interpret your data from different types of variables. It further helps you to decide what statistical tool and analysis that is appropriate on the values that you assigned to them.

2.0 OBJECTIVES

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

- know what level of measurement to use for your research based on the values assigned to your data.
- decide which level would be appropriate for your data.
- know which statistical tool and analysis would be appropriate for your data

3.0 MAIN CONTENT

3.1 Level of Measurement

Measurement is a procedure for assigning symbols, letters, or numbers to empirical properties of variables according to rules. Numerals are labels that have no inherent meaning, for example, in drivers' license numbers, zip codes, or social security numbers. Numbers are numerals that have quantitative meaning and are amenable to statistical analysis, for example, age, height, or weight. Rules for assigning labels to

properties of variables are the most important component of Measurement because poor rules can make the outcome meaningless.

The Level of Measurement refers to the relationship among the values that are assigned to the attributes for a variable. It is a logical framework or set of rules for classifying or ordering the nature of conclusion to be drawn from the study being carried out when we compare two or more variables. First, knowing the Level of Measurement helps you decide how to interpret the data from that variable.

When you know that a measure is nominal (like the one just described), then you know that the numerical values are just short codes for the longer names. Second, knowing the level of measurement helps you decide what statistical analysis is appropriate on the values that were assigned. For instance, if a measure is nominal, then you know that you would never do a t-test on the data. Another good example from Web Centre for Social Research Methods illustrates Level of Measurement using party affiliation thus:

Using the Figure 2 below, let's assume that in this election context, the only relevant attributes are Republican, Democrat, and Independent. For purposes of analyzing the results of this variable, we arbitrarily assign the values 1, 2 and 3 to the three attributes. The Level of Measurement describes the relationship among these three values. In this case, we are simply using the numbers as shorter placeholders for the lengthier text terms.

We don't assume that higher values mean more of something and lower numbers signify less. We don't assume the value of 2 means that Democrats are twice something what Republicans are. We don't assume that Republicans are in first place or have the highest priority just because they have the value of 1. In this case, we only use the values as a shorter name for the attribute.

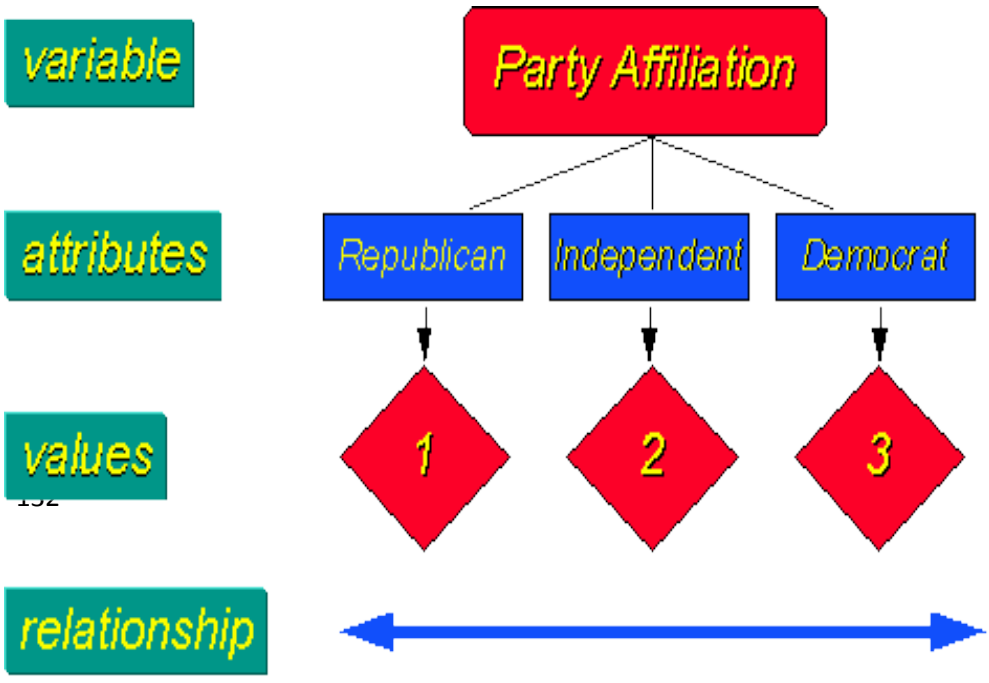


Figure 2: Level of measurement
Source: Adopted from the Web Centre for Social Research Methods

SELF-ASSESSMENT EXERCISE 1

What do you understand by Level or Scale of Measurement?

3.2 Types of Levels of Measurement

There are different levels of measurement. These levels differ as to how closely they approach the structure of the number system we use. It is important to understand the level of measurement of variables in research because the level of measurement determines the type of statistical analysis that can be conducted, and, therefore, the type of conclusions that can be drawn from the research.

According to Eta and Akin (1996), there are four basic levels of measurement namely: nominal, ordinal, interval and ratio. Any of these Measurement levels is based on the extent of classification and comparison of target phenomenon which they allow, and the types of analysis that are permissible with each level depending on the nature of the variables being analysed. According to Eta and Akin (1996), level of measurement can be simplified based on their properties as depicted in Table 2 and Figure 3. It is important to recognize that there is a hierarchy implied in the level of measurement idea.

At lower levels of measurement, assumptions tend to be less restrictive and data analyses tend to be less sensitive. At each level up the hierarchy, the current level includes all of the qualities of the one below it and adds something new. In general, it is desirable to have a higher level of measurement (e.g., interval or ratio) rather than a lower one (nominal or ordinal).

Table 2: Examples of Phenomenon associated with different levels of Measurement

Levels of Measurement	**Examples of Phenomena being measured**
Nominal	*Religion*: Catholic, Protestant, Moslem *Gender*: Male, Female
Ordinal	Year of study: 1, 2, 3 Social Class: lower, Middle, Upper
Interval	Temperature: 20oC or 27oC Intelligence: 75, 110
Ratio	Age: 20, 24, 30, 37 Height: 1.58 Metres, 1.66 metres, 1.79metres

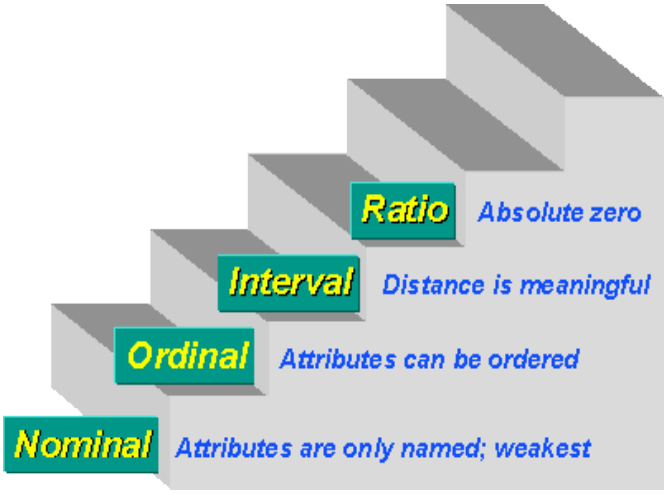


Figure 3: Level Measurement
Source: Adopted from the Web Centre for Social Research Methods

3.2.1 Nominal Level

A nominal level of measurement uses symbols to classify observations into categories that must be both mutually exclusive and exhaustive. Exhaustive means that there must be enough categories that all the observations will fall into some category. Mutually exclusive means that the categories must be distinct enough that no observations will fall into more than one category. This is the most basic level of measurement; it is essentially labeling. It can only establish whether two observations are alike or different. Examples are political affiliation (Democrat, Republican, Independent), Sex (male female), marital status (married, unmarried, separated, widowed, divorced) and religion (catholic, protestant, Muslim).

In nominal measurement, the numerical values just name the attribute uniquely. It simply indicates how many subjects in the data are in each category while the numbers assigned to the categories are arbitrary (For example, 1 = democrat, 2 =independent, 3= republican). A political party with number 3 (in this case Republican) is not more of anything than a democrat with number 1 and Independent with number 2. The numbers assigned are simply numeric labels used to reduce the data. Statistics that can be utilized for nominal level measures are frequency distributions, the mode, and measures of qualitative variation such as percentages, the chi-square, and contingency coefficient of correlation.

3.2.2 Ordinal Level

An ordinal level of measurement uses symbols to classify observations into categories that are not only mutually exclusive and exhaustive but have some explicit relationship among them. It does not only classify objects or persons but also rank them in order of certain attributes and relationships that they have to each other. The

ordinal scale is like the nominal level but added to this is the element of rank ordering in terms of highest to lowest or most to least.

An ordinal number or scale does not indicate equal distance between the numbers and also distances between attributes do not have any meaning. For example, in measuring the size of households in Shomolu (Lagos) on the basis of the numbers of persons residing within each, we might end with a rank 1-10, with 1 being household with the largest number of persons and 10 being those with the smallest number. There is nothing in the scale 1-10 to suggest that there are equal numbers of household between each level of the scale. Statistics that can be used for ordinal level of measures include rank-order analysis of median, the range, percentiles, quartiles, rank order coefficient of correlations among others.

Another example is that, observations may be classified into categories such as taller and shorter, greater and lesser, faster and slower, harder and easier, and so forth. However, each observation must still fall into one of the categories (the categories are exhaustive) but no more than one (the categories are mutually exclusive). Meats are categorized as regular, choice, or prime; the military uses ranks to distinguish categories of soldiers. Most of the commonly used questions which ask about job satisfaction use the ordinal level of measurement. For example, asking whether one is very satisfied, satisfied, neutral, dissatisfied, or very dissatisfied with one's job is using an ordinal scale of measurement.

3.2.3 Interval Level

An interval level of measurement classifies observations into categories that are not only mutually exclusive and exhaustive, and have some explicit relationship among them, but also that the relationship between the categories is known and exact. The interval level has all the qualities of nominal and ordinal scales and thus recognizes equal distances in the property that is being measured. This is based on predetermined constant or equal intervals between attributes or observations. Thus, at the interval level the exact distance becomes the most paramount and not the rank-ordering only. This depicts how by many units the observations or attributes differ from each other.

For this Level of Measurement, the measures must have a common and constant unit of measurement that assigns real numbers to the phenomenon or objects in the data. For example, the commonly used measures of temperature are interval level scales. We know that a temperature of 75 degree is one degree warmer than a temperature of 74 degree, just as a temperature of 42 degree is one degree warmer than a temperature of 41 degree. The interval between values is interpretable. Because of this, it makes sense to compute an average of an interval variable, whereas it doesn't make sense to do so for ordinal scales. But note that in interval measurement, ratios don't make any sense - 80 degree is not twice as hot as 40 degree (although the attribute value is twice as large). Most common descriptive and inferential statistics can be applied to interval data.

3.2.4 Ratio Level

The ratio level of measurement is the same as the interval level, with the addition of a meaningful zero point. There is a meaningful and non-arbitrary zero point from which the equal intervals between categories originate. For example, weight, area, speed, and velocity are measured on a ratio level scale. In public policy and administration, budgets and the number of program participants are measured on ratio scales.
In many cases, interval and ratio scales are treated alike in terms of the statistical tests that are applied. Variables measured at a higher level can always be converted to a lower level, but not vice versa. For example, observations of actual age (ratio scale) can be converted to categories of older and younger (ordinal scale), but age measured as simply older or younger cannot be converted to measures of actual age.

In applied social research, most "count" variables are ratio, for example, the number of clients in the past six months. Why? Because you can have zero clients and because it is meaningful to say that "...we had twice as many clients in the past six months as we did in the previous six months'.

SELF-ASSESSMENT EXERCISE 2

List the various Scales of Measurement that you know and discuss their differences.

3.3 Measurement Problems

Commonly encountered problems in Measurement include a misplaced belief in precision. Another problem is measures that go against social conventions. It is often easier to ask people to check off categories than to supply specific information. For example, with regard to age, income, education, etc, it is a trade-off between gathering higher-level (interval or ratio) data and having a higher questionnaire completion rate (less missing data). A third problem is when the operational definition does not correspond to the conceptual definition. It may be easier to measure the number of students suspended from school than to measure the concept of school violence. A fourth problem is when the researcher becomes addicted to certain statistics, and gathers only data measured at the level appropriate for those statistical formulas.

4.0 CONCLUSION

This unit focuses on meaning of Level of Measurement and its fundamental properties. It should be revealing to you by now that there are different levels or scales of measurement and the type of level you choose is a factor of your data set. Again, your choice of level or scale of measurement determines the type of statistical tool that you would need for the analysis and conclusion to be drawn from the research.

5.0 SUMMARY

In this unit, you have been introduced to Levels of Measurement in Social Research. The various scales of measurement and measurement problems have been extensively discussed. At the end of this unit therefore, you are expected to understand and know the:

- Levels of Measurement
- Importance of Level of Measurement in Social Research
- Properties of Measurements such as
  - Nominal scale
  - Ratio scale
  - Interval scale
  - Ratio scale
- Measurement problem

6.0 TUTOR-MARKED ASSIGNMENT

With relevant examples, give a comprehensive account of the Levels or Scales of Measurement.

7.0 REFERENCES/FURTHER READING

Etta, E. F and and Akin T. (1996) Measurement in Social Research Ahonsi B & Soyombo, O. (eds) in *Readings in Social Research Methods and Applications.* Ibadan: Caltop Publishers. 81-149 pp,

Davis, J.A. (1971*) Elementary Survey Analysis*. Englewood Cliff, New Jersey: Prentice-Hall Inc.

ON-LINE MATERIALS

http://www.csulb.edu/~msaintg/ppa696/696meas.htm

http://changingminds.org/explanations/research/measurement/measuring_attitude.htm

http://www.socialresearchmethods.net/kb/measure.php

UNIT 3 ACCURACIES AND ERRORS IN MEASUREMENT

CONTENTS

1.0 INTRODUCTION

This unit leads you to understand Errors as part of measurement in any research. This is so because it is usually assumed that every observation is composed of the true value plus some other error values. The concept of accuracy and precisions are also discussed to enable you understand some basic issues in measurement. Random and Systematic Errors are further enunciated to expose you to the kinds of error. This is in addition to the exposition on how to minimize Errors in measurement.

2.0 OBJECTIVES

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

- understand what errors are in measurement.
- discuss what accuracy and precisions are in measurement.
- discuss the Random Errors and how to minimize them
- discuss the Systematic Errors and how to minimize them

3.0 MAIN CONTENT

3.1 Meaning of Error in Measurement

There is no such thing as a perfect measurement. Each measurement contains a degree of error due to the limits of instruments or the people using them. Measurements are, however, approximate values (not true values) within the limitation of measuring device, measuring environment, process of measurement and human error. We seek to minimize uncertainty and hence error to the extent possible. Every measurement is expected to be consistent, systematic and revealing in the context of accuracy and precision. We must therefore understand that an error in basic quantities leads to compounds of errors and hence misrepresentation of quantities. Measurement error is the real variation from the true score, and includes both random error and systematic error.

Observed score = True score + random error + systematic error

3.2 Accuracy

Accuracy is the degree to which information or data matches true or accepted values. Accuracy is an issue pertaining to the quality of data and the number of errors contained in its data. It is possible to consider varieties of accuracy with respect to social data. The level of accuracy required for particular applications varies greatly, and highly accurate data can be very difficult and costly to produce and compile. Inaccuracies may result from mistakes of many sorts. Accuracy means how close the measurement is with respect to “true” value. A “true” value of a quantity is a measurement, when errors on all accounts are minimized. We should distinguish “accuracy” of measurement from “precision” of measurement, which is related to the ability of an instrument to measure values with greater details (divisions).

3.3 Precision

Precision refers to the level of measurement and exactness of description of the data set. Precise attribute data may specify the characteristics or features in great detail. It is important to realize, however, that precise data--no matter how carefully measured--may be inaccurate. Surveyors may make mistakes or data may be entered into the database incorrectly. The level of precision required for particular applications varies greatly. Engineering projects such as road and utility construction require very precise information measured to the millimeter or tenth of an inch.
Demographic analyses of marketing or electoral trends can often make do with less, say to the closest zip code or precinct boundary. Highly precise data can be very difficult and costly to collect. High precision does not indicate high accuracy nor does high accuracy imply high precision. But high accuracy and high precision are both expensive. Non-spatial data can also vary greatly in precision. Precise attribute information describes phenomena in great detail. For example, a precise description of

a person living at a particular address might include gender, age, income, occupation, level of education, and many other characteristics.

An imprecise description might include just income, or gender. The measurement of a weight on a scale with marking in kg is 79 kg, whereas measurement of the same weight on a different scale having further divisions in hectogram is 79.3 kg. The later weighing scale is more precise. The precision of measurement of an instrument, therefore, is a function of the ability of an instrument to read smaller divisions of a quantity.

In a nutshell,

True value of a quantity is an "unknown". We cannot know the true value of a quantity, even if we have measured it by chance as we do not know the exact value of error in measurement. We can only approximate true value with greater accuracy and precision.

1. An accepted "true" measurement of a quantity is a measurement when Errors on all accounts are minimized.
2. "Accuracy" means how close the measurement is with respect to "exact" measurement. It is associated with systematic error.
3. "Precision" of measurement is related to the ability of an instrument to measure values in greater details. It is associated with random error.

SELF-ASSESSMENT EXERCISE

Give a detailed discussion of the difference between accuracy and precision in measurement.

3.4 Types of Errors

Errors are broadly classified in two categories:

3.4.1 Systematic Error

A systematic error results due to faulty measurement practices. The error of this category is characterized by deviation in one direction from the true value. What this means is that the error is introduced, which is either less than or greater than the true value. Systematic error impacts on the accuracy of measurement and not on the precision of the measurement. Systematic error results from:

3.4.1.1 Instrument Error

Faulty instrument: Clearly, this type of error cannot be minimized or reduced by repeated measurements. A faulty machine, for example, will not improve accuracy of measurement by repeating measurements. A zero error, for example, is an instrument error, which is introduced in the measurement consistently in one direction. A zero error results when the zero mark of the scale does not match with pointer. We can realize this with the weighing instrument we use in our homes. Often, the pointer is off the zero mark of the scale. Moreover, the scale may in itself be not uniformly marked or may not be properly calibrated. In a nutshell, we can say that the instrument error occurs due to faulty design of the instrument. We can minimize this error by replacing the instrument or by making a change in the design of the instrument.

3.4.1.2 Procedural Error

A faulty measuring process may include inappropriate physical environment, procedural mistakes and lack of understanding of the process of measurement. For example, if we are studying magnetic effect of current, it would be erroneous to conduct the experiment in a place where strong currents are flowing nearby. Similarly, while taking temperature of human body, it is important to know which of the human parts is more representative of body temperature.

This error type can be minimized by periodic assessment of measurement process and improvising the system in consultation with subject expert or simply conducting an audit of the measuring process in the light of new facts and advancements.

3.4.1.3 Personal Bias

A personal bias is introduced by human habits, which are not conducive for accurate measurement. Consider for example, the reading habit of a person. He or she may have the habit of reading scales from an inappropriate distance and from an oblique direction.

3.4.2 Random Errors

Random Error, unlike Systematic Error, is not unidirectional. Some of the measured values are greater than true value; some are less than true value. The Errors introduced are sometimes positive and sometimes negative with respect to true value. It is possible

to minimize this type of error by repeating measurements and applying statistical technique to get closer value to the true value.

Another distinguishing aspect of random error is that it is not biased. It is there because of the limitation of the instrument in hand and the limitation on the part of human ability. No human being can repeat an action in exactly the same manner. Hence, it is likely that same person reports different values with the same instrument, which measures the quantity correctly.

SELF-ASSESSMENT EXERCISE 2

What do you understand by Systematic and Random Errors in Measurement?

3.4 Ways to Minimize Errors in Measurement

- One thing you can do to reduce Measurement Errors whether Random or Systematic is to pilot test your instruments, getting feedback from your respondents regarding how easy or hard the measure was and information about how the testing environment affected their performance.

- Second, if you are gathering measures using people to collect the data (as interviewers or observers), you should make sure you train them thoroughly so that they aren't inadvertently introducing error.

- Third, when you collect the data for your study you should double-check the data thoroughly. All data entry for computer analysis should be "double-punched" and verified. This means that you enter the data twice, the second time having your data entry machine check that you are typing the exact same data you did the first time.

- Fourth, you can use statistical procedures to adjust for measurement error. These range from rather simple formulas you can apply directly to your data to very complex modeling procedures for modeling the error and its effects.
- Finally, one of the best things you can do to deal with measurement errors, especially systematic errors, is to use multiple measures of the same construct. Especially if the different measures don't share the same systematic errors, you will be able to triangulate across the multiple measures and get a more accurate sense of what's going on.

4.0 CONCLUSION

This unit discusses what errors in measurement are. It dwells on some basic concepts on Error such as Accuracy and Precisions in Measurement. It further explains the various sources and types of errors in measurement. You should know therefore that

errors are part of measurement but effort should be made to reduce them to the barest minimum when measuring.

5.0 SUMMARY

In this unit, you have been introduced to errors in measurement in social research. The various types and sources of errors as well as ways to reducing Errors while measuring have been listed and explained. At the end of this unit, you are expected to understand and know the:

- Errors in measurement
- Accuracies and Precisions in Measurement
- The Sources of Errors
- The types of Errors in Measurement including:
  - Systematic
  - Random
- ways of minimizing errors in measurement

6.0 TUTORED-MARKED ASSIGNMENT

Errors are important aspect of Measurement in social research. Discuss.

7.0 REFERENCES/FURTHER READING

Ebam Etta, F. and Aina, Akin Tade (1996), Measurement in Social Research Ahonsi B & Soyombo, O. (edS) in *Readings in Social Research Methods and Applications*. Ibadan: Caltop Publishers. pp 81-149

Davis, J.A. (1971) *Elementary Survey Analysis*. Englewood Cliff, New Jersey: Prentice-Hall Inc.

ON-LINE MATERIALS

http://www.csulb.edu/~msaintg/ppa696/696meas.htm

http://changingminds.org/explanations/research/measurement/measuring_attitude.htm

http://www.socialresearchmethods.net/kb/measure.php

UNIT 4 SCALING

CONTENTS

1.0 INTRODUCTION

Most social scientific variables require deep thought and ingenuity in conceptualization and operationalization. Good indexes combination of several indicators provides an ordinal ranking of cases on a given variable. But scales offer more assurance of ordinality by tapping the intensity structures among the indicators. The several items going into a composite measure may have different intensities in terms of the variable. The four scaling procedure described in this unit will illustrate the variety of techniques available.

2.0 OBJECTIVES

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

- discuss the concept scale
- explain the types of scales

3.0 MAIN CONTENT

3.1 Scales

A Scale is a set of numerical values assigned to subjects, object or behaviors 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 result of these instruments, unlike those of tests, do not indicate success or failure, strength or weakness. They simply measure the degree to which an individual possesses the characteristic of interest.

The measurement of attitudes presumes to place individuals along a continuum of favorableness –unfavourableness towards the object.

The following are the types of Scaling methods:

(1) Summated Rating Scales(Likert scales)
(2) Cumulative Scales (Gutmann scales)
(3) Semantic Differential Scales
(4) Socio-metric Techniques

3.2 Summated Rating Scales (Likert Scales)

Summated Rating Scale called Likert Scale has been one of the most widely and successfully used techniques to measure attitudes. This scale was developed in 1932 by Robert Likert. It is an approach to measurement by which one creates a set of items designed to reflect very favorable to unfavorable response to measure ideas, with items being reacted to by individuals in a sample or population. In other words, a Likert scale assesses attitudes toward a topic by asking respondents to indicate whether they strongly agree, are undecided, disagree or strongly disagree with each of the series of statement about the topic. Likert scale is an ordinary scale.

A Likert scale is constructed by assembling a number of statements about an object, about half of which express a clearly favorable attitude and half of which are clearly unfavorable. It is important that these statements constitute a representative sample of all the possible opinions or attitudes about the object.

The statement along with response categories (typically fire) on an agreement-disagreement continuum, are presented to the subjects. The statements should be arranged in a random order so as to avoid any response set on the part of the subjects. In other to score the scale, the response categories must be weighed. For favourable or positively stated items like the numerical values 5, 4, 3, 2, 1.

3.2.1 Steps for Constructing Likert Scale

These are:

1. Compile a poll of items related to the issue to be studied. Let the item reflect the negative and positive strands but not extreme ones. The favorable and unfavorable items should be randomly mixed in a complete Scale.

2. Provide a response category for each item, typically, five points response category or scale.

3. Item stated positively should be mixed with those stated negatively so that respondents should be forced to read carefully before responding.

4. A usable instrument should contain 20-30 items. Select the best item from the pool.

5. Administer the instrument to the desired sample or population and collect the data.

6. Analyse the data by summing up the scores to the various responses.

   The summated score is possible by assigning a numerical value to the score of 1-5. By adding up the total score for each respondent, it is possible to rank them according to the scores you so desire. The direction of weighing is determined by favourability or unfavourability.

7. The discriminative power of the item can be determined by a process of item analysis in which low and high scores are compared to say which item tended not to discriminate and such items may then be eliminated, while others are substituted and others added.

3.3 Cummlative Scales (Guttman Scale)

Guttman developed a technique in 1948 to overcome the problem faced by the Thurstone and Likert attitude scale. His technique, characterized as a unidimensional scale, aims to determine if the attitude being studied actually involves only a single dimension. An attitude is considered unidimensional if it yields a cumulative scale-one in which the items are related to one another in such a way that a subject who agrees with item 2 also agrees with item 1, one who agrees with item 3 also agrees with items 1 and 2 and so on.

Cumulativeness of scales implies that the component items can be ordered by degree of difficulty and that the respondents who reply positively to the difficult item would do same to less difficult one or vice versa.

Typically in Gutmann's type of Scaling, one must determine first of all whether the items form on a unidimensional scale, respondents react to a series of ordered items agreeing or disagreeing only. They do not vary in the degree of attitudinal intensity like in Likert scale. The scale items are then submitted to a group of respondents who are asked to agree or disagree with each item.

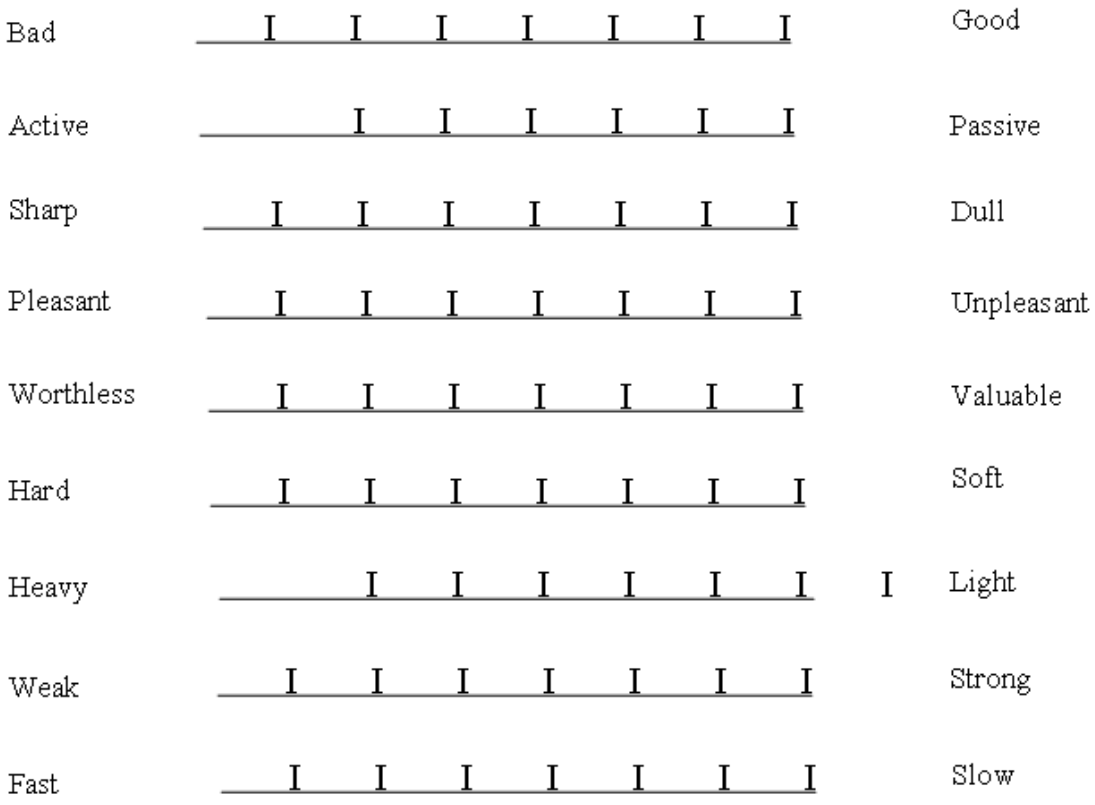
In scoring the completed scale, the value of one (1) is given for item agreed to and zero (0) for disagreement where complete agreement was obtained, such item could be eliminated. Critics of the Guttman scale pointed out that it has more theoretical than

practical significance because it is difficult to assemble items satisfying the reproducibility criterion.

3.4 Semantic Differential Scale

Semantic differential scale was developed by Osgood, Suci and Tannenbanm. It seeks to understand behavior by studying language concept and the meaning projected in the concept. It is useful in measuring cognitive and situational meaning to people. It is composed of a series of stimulus concepts to which one reacts using a series of bi-pole adjective, e.g, hot-cool, moral-immoral, e.t.c.

The respondent checks the point along a continuum between 2 words or concept. Often a 7-point scale is used. The respondents check on the spaces provided to indicate their ratings of the variables being created or scores added or averaged. The two words must be polar opposites taken as pro or anti to the view of the variable. For example, suppose one wanted to measure secondary school student's attitude towards school.



3.5 Socio-metric Techniques

Sociometric 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 constructing sociometric

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 sociometric method is essentially a study of choices made by each person in a group. This can generate answers that can be represented in a sociogram, which shows the pattern of inter personal relations in a group. It is not widely used except for research in social psychology and in educational research especially when it is dealing with person one to one.

4.0 CONCLUSION

This unit discusses four the types of Scaling with the characteristic of placing individuals along a continuum of favourableness to unfavourableness towards the object. The various types of scaling such as Summated Rating Scales, Cumulative Scales, Semantic Differential Scale and Socio-metric Techniques have been discussed.

5.0 SUMMARY

An important task for researcher is the selection of dependable measuring instruments for the purpose of quantifying research information. In research, tests are widely used measuring instrument. The major types of scales are Likert type Scale, Guttman Scale, Semantic Differential and Sociometric Technique

6.0 TUTOR-MARKED ASSIGNMENT

Define the term ‘Scaling’ and describe any type of Scaling you are familiar with.

7.0 REFERENCES/FURTHER READING

Collins, K. J. (2000) *Research in Social Sciences.* Pretoria: University of South Africa.

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MODULE 6

UNIT 1 ETHICS

CONTENTS

1.0 INTRODUCTION

Consideration involves when planning research, there are ethical consideration involved in all research studies. It is imperative to consider potentials harm to participants that might resist from their participation. Often, certain treatments hat researchers might want to administer in experimental studies present hazards. Babline (2001) was correct when he stated that we will all probably see that it is unethical to conduct research that requires children to be tortured. In this study unit, the emphasis will be to highlight the generally agreed upon principles that are proper in social research.

2.0 OBJECTIVES

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

- define Ethics
- describe Historical foundation of Ethical issues in research
- explain principles of Ethics in Social Research
- state importance of ethics in research

3.0 MAIN CONTENT

3.1 Definitions of Ethics

Ethics is an important concept in research. It is typically associated with morality and both deal with matters of right and wrong. But what is right and what is wrong? What are the sources of the distinction? For individuals the sources vary. They may be religions, political ideologies law or the pragmatic observation of what seems to work and what does not (Babbie 2001).

Ethics is defined according to Webster Encyclopedia of Dictionaries, as relating to morals or moral principles and the philosophy which treats of 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" Babbie 2001: states that this definition may frustrate those in research of moral absolutes. What we regard as morality and ethics in day to day life is a matter of agreement among members of a group.

Issues of ethics have become important in social sciences. As the scope of the social sciences has expanded and as our methods of research and analysis have become more sophisticated and penetrating. Ethic issues arise from the kinds of problems social scientists investigate and the methods used to obtain valid and reliable data.

3.2 Brief History of Ethic in Research

The issues concerning the ethics in research come to light after World War II. It was during the Nuremberg Trials after the war that public became aware of the now infamous research that has been conducted in the concentration camps by German physicians, research which often ended with the death of the research subject and did not meet even the most rudimentary concepts of medical research ethics of the time (Best and Kahn 2006). The experience of the medical experiments resulted in the creation in 1949 of the Nuremberg code, a code of ethics, within starts off with the stipulation that all research participation must be voluntary.

Another example of research that was carried out which ignored both medical and research ethics. Perhaps the most glaring example is the well-known Tuskegee Syphillis study (Jones 1993). In 1932, a study was carried out on long effects of syphilis where 399 African-American man with syphilis were denied treatment and told that they had bad blood. The study has been considered a powerful statement regarding racism and ethic as misconduct.
In 1953, the America Psychological Association issued the first code of ethics for psychologists. It was revised in 1963. In 1970, the Board of Directors of appointed an 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.

Numerous professional associations have revised their codes of ethics to address the major moral concerns of their disciplines. For example, code of ethic on the practice of sociology was approved by the membership of the American Sociological Association in 1989.

It was agreed that every research project involving human subjects should be preceded by careful assessment of predictable risks in comparison with force able benefits to the subject or the others. The right of the research 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 on the subject's physical and mental integrity and on the personality of the subject.

From the account of Nazi Concentration Camp revelation of Tuskegee, syphilis study and others, ethical issues have captured the attention of scientists and the media alike. Also, an account of such studies have provided important lessons for understanding what can happen when the ethical dimension of research is not considered holistically within the research process.

3.3 Principles of Ethics in Social Research

Some of its most important ethical agreement / principles are the following:

1) Voluntary participation
2) No harm to the participant
3) Anonymity
4) Confidentiality
5) Deception
6) Analysis and Reporting
7) Informed consent

1. Voluntary participation

Voluntary participation requires that people should not be coerced into participating in research. A major tenet of medical research ethics is that experimental participation must be voluntary. The same norm applies to social research. No one should be forced to participate. This norm is far easier to accept in theory than to apply in practice. It also goes directly against several scientific concerns. In the most general terms, the scientific goal of generalisability is threatened if experimental subjects or survey respondents are all the kinds of people who willingly participate in such things. For example, if a criminology lecturer asked the student to fill out a questionnaire, all of them may voluntary participate for fear of failure or low grade. Also a patient in the care of a physician researcher may consent to a treatment because he / she is a physically weak or is under the influence of the physician in some way.

2. Anonymity

Researchers provide anonymity by separating the identity of individuals from the information they give (Nachmias and Nachmias 1996). A person that participates in research is considered anonymous if the researcher or other person cannot identify particular information with a particular participant. It is situation whereby, researcher unable to associate a name with the data even if sensitive information may be revealed.

An example of anonymity is a mail survey in which no identification numbers are put on the questionnaires before their return to the research office.

3. No harm to the participants

In carry out research, there is need to consider potential harm to participants, whether or not they volunteer for the study, the participants should never be harmed in any research. Often, certain treatments that researcher might want to administer in experimental studies present hazard for example some research psychologists always expose an experimental group into danger. After the experiment, some participant might suffer mental anguish as a result of being exposed to the treatment.

Also in non experimental studies, participants might be harmed. For example, the process of exploring sensitive traits (e.g. relationships with abusive parents) might cause participants to focus on them again., leading to renewed anxiety, sleeplessness etc.

Ethical principle that no harm to the participants in practice means that no information should be released that could embarrass them, including their unpopular attitudes, demeaning characteristics or even question reflecting to deviant bahaviour. Hence primary value is that the participant must be protected from both physical and psychological harm.

4. Confidentiality

Another important principle of Ethic in research is confidentiality. The participants have a right to have the data collected about them as individuals kept confidential. The researchers have an obligation not to disclose the information to others unless the identities of the participant are disguised or hidden.

Although the researchers have a strict moral and professional obligation to keep the promise of confidentiality, there are circumstances in which it is difficult or so. One of the most important of these situations arises when information is subpoenaed by judicial authorities or legislative committees.

A number of techniques have been developed in order to permit outsiders access to data without comprising the confidentiality requirements. These include the following.

a) **Deletion of Identifiers:** The researcher can for example delete the names, social security numbers and street addresses from the data released on individuals.

b) **Crude Report Categories:** The researcher can for example, release local or country rather than neighbourhood (or census –tract) data, year of birth rather than specific date, profession but not professional specialization etc.

c) **Micro aggregation:** that is, constructing "average persons" 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 having the aggregate data unchanged in order to protect participants' confidentiality.

e) **Informed Consent:** According to Eduard Diener and Rick Crandall, informed consent is "the procedure in which individuals choose whether to participate in an investigation after being informed of facts that would be likely to influence their decision". This involves four elements: competence, voluntarism, full information and comprehension.

The informed consent principles of ethical consideration in research states that the participants must be adequately be informed the consequences of this participation. The informed consent policy does not preclude the conduct of social sciences research that involves risk but it does require the use of informed participants. When research participants are be exposed to pain, physical or emotional injury, invasion of privacy or physical or psychological stress or when they are asked to temporarily surrender their autonomy, informed consent must be fully guaranteed.

Pattern (2005) suggested that to use informed consent, we should inform the participants of:

(1) the general purpose of the research
(2) what will be done to them during research
(3) what the potential benefits to them and others might be
(4) what the potential for harm to them might be and
(5) the fact that they may withdraw at anytime even at midstream during the research without penalty. This information should be provided in writing and the participants (or their guardians) should sign the informed consent form to indicate that they understand it.

The idea of informed consent derives from cultural values and legal considerations. It is rooted in the high value we attached to freedom and to self determination.

f) **Privacy:** In conduct investigation sometime privacy of individual are violated. The right of privacy is the freedom of the individual to pick and choose for himself the time and circumstances under which and most importantly, the event to which his attitudes, beliefs, behaviour and opinions are to be shared with or withheld from others.

There are three different dimensions of privacy.

1. The sensitivity of information being given. It refers how personal or potentially threatening the information is that the researcher wishes to collect. Information such as sexual practice, income, racial prejudice, religious preferences etc. are very sensitive. The more sensitive the information is, the more researchers are obliged to protect the privacy of the research participants.

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 its mission. For example, home is considered one of the most private settings in our culture and intrusions into people's homes without consent are forbidden by law.

3. Dissemination of information. This concerns the ability to match personal information with the identity of the research participants.

The researcher must considers the above three aspects when deciding how private certain information is and what safeguards must be used to protect research participants.

"Professional Researchers" Ethical Issues

The ethical norms require the researchers to fulfill the following:

a) **Honesty:** a researcher must not lie. He must be honest with himself, participants and the research community.
b) **Integrity:** Keeping one's promises and agreements, act with sincerity , strive for consistency of thought and action
c) **Respect.** This norm requires researchers to protect the participant's basic human and civil rights.
d) **Communality:** This norm requires researchers to accurately report the methods, purpose, motives and consequences. The principle of community compels all researchers to share their research findings, including means, ends. Motives and consequences, freely and honestly with all other members of the research community (Smith 1988).
e) **Carefulness:** researchers are advised to avoid careless errors and negligence.
f) **Disinterestness:** Ethical norms require that personal gain should not be a researcher's main (or only) reason for doing research.

3.4 Importance of Ethic in Research

1) The principles behind Research Ethics support the aims of research such as Knowledge, truth and avoidance of errors. For instance, Researcher has to be honest in reporting data, results, methods and procedures and publication status.

2) Ethical norms or principles encourage peaceful writing relationship between the researchers and the research participants. On the part of the researcher / authorship, intellectual properties are protected while participants are not to be named in order to avoid conflict or crises.

3) Ethical principles help to ensure that researcher are accountable to the public., for example, the research that was carried out in concentration camps by German physicians during world war II, was publicly condemned

4) Ethical principles help to build public support for research since the public believe that researches are carried with intension of promoting knowledge and useful of mankind with sincere motives.

5) Ethical principles promote a variety of other important moral and social value, such as social responsibility, human rights, animal welfare, compliance with the law and health and safety..

4.0 CONCLUSION

In research, ethics should be given consideration, perhaps the foremost rate of ethics is that subject should not be harmed in any way (physical or mentally) in the name of Science. Above all, the researcher must have personal integrity.

5.0 SUMMARY

In this Unit, we have dealt with definition of ethics, Historical foundation of ethical issues in research, principles of ethics in social research, importance of ethics in research.

6.0 TUTOR-MARKED ASSIGNMENT

What is ethics?
What is the importance of ethics in social research?

7.0 REFERENCES / FURTHER READING

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UNIT 2 DATA ANALYSIS

CONTENTS

1.0 INTRODUCTION

This is where the true value of the research is seen. It is the method of converting social sciences data into a readable form. It is the refinement and manipulation of data in order to prepare them for the application of logical inference. The important guideline for analysis and interpretation of data is to question: What am I looking for in the data? The idea of investigating all facets is not feasible in practice. This implies a thorough study of data in search of themes or patterns of interaction that occurs fairly commonly or serves as norms for behaviour. The researcher should at the same time be mindful of deviations from these general rules or norms.

2.0 OBJECTIVES

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

- understand the process involved in data analysis
- know how to conduct editing and coding
- differentiate qualitative data analysis from quantitative data analysis

3.0 MAIN CONTENT

3.1 Definition of Data Analysis

Data analysis is a process of inspecting, transforming and modeling data with the goal of highlighting useful information, suggesting conclusions and supporting decision making. Analytical methods exist to scrutinizing or translate the data into the findings of the research.
The data are arranged so that those parts of the data which are similar are group together. This is normally what is done in survey analysis where variables from each

of the cases are aggregated across all the cases. In a field study, where notes are taken, the analysis may be considered as sifting process where the relevant materials are sorted out and other materials discarded.

Whatever, the type of data, the object of a data analysis is to turn the amorphous heap of evidence into firmer, more solid findings. These more condensed data, which you have decided to focus upon, then need to be interpreted.

Editing

The focus of editing is on completeness and accuracy. The objective is to intercept possible errors, which may affect the data analysis. This consists of detailed examination of returned questionnaires, field note and other information gathered on the field. Proper editing would expose any incorrect entries, omissions, irregularities and other errors. For example in applying Questionnaire sometimes certain questions are not answered, certain aspects are cover, certain respondents may have refused to answer certain questions etc.

Accuracy, completeness, clarity and legibility, consistencies are qualities of editing that aid analysis. Proper editing would help to detect and rectify bias arising from false responses and editing can help eliminate and reduce obvious errors. It would further ensure that all information sought has been obtained especially on those critical ones germane to the research goals.

Coding

This step involves converting the qualitative data from the questionnaires to numerical forms and codes. The main reason for coding is to make the data amenable to quantifiable analysis. It involves the conversion to numeric values and noting them on a coding matrix and reduces the large volumes of data to manageable proportion for further processing and systematization.

Coding can be done before data collection (pre-coding) and after field work (post coding). Coding requires two distinct steps (1) to decide on the categories to be used (coding frame) and (2) to allocate individual answers to these categories.

The coding classification and categories must be guided by three basic principles according to Ahousi (1996). These are:

1) All categories must be exhaustive and should cover all areas or range of responses for a given question.
2) Code categories must not overlap
3) Code categories must be one-dimensional i.e. must be derived from a single variable.

All coding decisions are systematized into a code book to guide the actual coding operations on each of the returned questionnaire. Coding makes it easy for the researcher to prepare and transform variables created from survey response before subjecting them to further analysis. There are diverse ways of data analysis in quantitative and qualitative research.

Tabulation

After editing and coding, the data/ in most researches are represented in form of some table or other and then subjected to various form of statistical analysis. Tabulation refers to the presentation of the data. It can be done manually or by means of computer. Tabulation is one of the best recognized and most important instruments used for statistical analysis of data.

Statistical analysis involves the calculation of statistical distributions, construction of diagrams and simple calculations such as average, distribution, percentages, correlation and so forth.

It is important that students of Criminology know important statistical principles in order to understand the scientific terminology used in the field although they are expected to become expert. It will guide them in making their own appropriate choices as regard the calculations that are possible.

3.2 Analysing Qualitative Data

In analyzing data, the true value of the research is brought out. In qualitative research, some preliminary analysis and interpretation of data takes place continuously before the final analysis and interpretation take place in the end of the investigation. The important guideline for analysis and interpretation of data is the question: “What am I looking for in the data”. The idea of investigating all facts is not feasible in practice according to Conradie (2004).

Schurink (1988), consequently recommends that as general guideline the researcher should look for similarities and differences in the data.

The implication of the above is a thorough study of the data in search of themes of patterns of interaction that occur fairly commonly or serve as norms for behaviour. Unravelling the mystery of why these happen to be the dominant patterns is essential yet very difficult. The researcher should at the time be mindful of deviations from these general rules or norms.

Analysis also occurs as an explicit step in conceptually interpreting the data set as a whole, using specific analytic strategies to transform the raw data into a new and coherent depiction of the thing being studied. Although there are many qualitative data analysis computer programs available today, these are essential aids to sorting and

organizing sets of qualitative data and none is capable of the intellectual and conceptualizing processes required to transform data into meaningful findings.

Analyzing Strategies

The following are some of the strategies that can be employed to realize the objectives

1) Reading and re-reading the data

The field notes, transcriptions, documents and other material should be studied carefully. Familiarity with the data is essential when progressing to intensive analysis. Outsiders can be used to read the data as well, because another person sometimes detects hidden aspects that have eluded the researcher.

2) Construct Typologies

This is useful with view to the identification of themes and concepts and the eventual development of a theory.

3) Constant Comparison

It looks at document such as field notes, indicators of categories in events and behaviour, name them and code them on document and then compare codes to find consistencies and differences. Consistencies between codes or similar meanings in basic idea reveal categories.

4) Finding Pattern

Marginal notes and reflective comments often result in pattern code. These are metacodes (larger data parts) and are likely included in the causal network later one. This essentially refers to a theme or pattern that makes a local difference. The pattern codes are expanded in memos. The memos are written commentary on the descriptive and explanatory concepts hat emerge. The pattern codes should, however, remain anchored in the context in which they occur. The memos are combined with the reflective comments and pattern codes to generate interim summaries and site analysis meetings between researchers. The object of the entire process is to move gradually from description to deduction.

5. Analytical Induction

This is one of the oldest methods that looks at event and develops a hypothetical statement of what happened. Then, it looks at another similar event and sees if it fit the hypothesis. If it does not, then the hypothesis is revised. It looks for exceptions to hypothesis, when it finds it, then it revise the hypothesis to fit all

examples encountered. If not, it eventually develops hypotheses that account for all observed cases.

6. Data Display

Most qualitative data are related in prose text. However, this format is regarded as cumbersome, scattered, poorly structured, hasty and often poorly founded conclusions. Data display in form of matrice graphics, networks, charts and figures is more economical and more acceptable.

7. Quasi Statistical

This involves counting the number of times something is mentioned in the notes as very rough estimate of frequency.

8. Content Analysis

It looks at documents, text or speech to see what themes, emerged. What do people talk about the most? How do themes relate to each other? Find latent emphases, political view of newspaper writer, which implicit or look at surface level-overt emphasis.
Theory driven – theory determines what you look for. Rules are specified for data analysis. Standard rules of Content Analysis include: How big a chunk of data is analysed at a time.

9. Verification and editing

In the final stage both the network and the report can be submitted to a colleague, a critic and the informants for editing and verification. Editing means that a second reader works through the report and looks out for ruggedness. The second reader should therefore check the original report for inferential validity only and, at the same time, inform the researcher of the credibility of his her analysis.

10. Testing Conclusion

According to Hubermanmn and Miles (1985), the following steps are essential for testing the conclusion of qualitative research.

- Check research
- Check influence of the researcher
- Triangulation (by sources, methods, levels and researchers)
- Compare the conclusions
- Determine contrasts or similarities
- Check the meaning of outlying data
- Use extreme cases
- Remove untrue relationship
- Check conclusions
- Check contradictory explanations
- Search for negative evidence
- Obtain feedback from informants
- Check and edit conclusions
- Generate a list of causal network variables.

3.3 Methods of Data Analysis in Quantitative Research

Data organization and analysis are important because they are used to answer research questions and hypothesis.

Some of the basic procedures of data analysis in qualitative research include.

(a) Uses of Statistics

Statistics is an aspect of mathematics that considers the analysis of data or recorded observations. The assignment of numbers of objects and events is done systematically in order to describe the data. In research, an attempt is made to describe the properties of objects and events in the environmental setting. When we collect information or data, we apply statistical methods to describe and interprete them. In essence, statistics is a tool that is useful in organizing and analyzing tests scores or data (Iwuama et al., 1992).

Statistics could be classified into two descriptive and inferential statistics.

Descriptive statistics deals with the methods and techniques of summarizing and describing information (data). It is used to present quantitative descriptions in manageable form. In a research study, we may have lots of measures or we may measure a large number of people on any measure. It helps us to simplify large amounts of data in a data in sensible way. Each descriptive statistics reduces lots of data into a simpler summary.

Descriptive analytical tool distribution samples such as frequency distribution table, histograms, pie charts, line graph and measure of central tendency such as the median, mode, mean, measure of dispersion such as deviation and variance are useful in analysis of data. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.

Inferential Statistics is concerned with gaining knowledge of a population's characteristics from information collected from a random sample of the population. It is concerned with drawing inference generalisations about the characteristics of a population based on data collected from a random sample of that population. We also use inferential statistics to make judgment of the probability that are observed difference between groups is a dependable one or one that might have happened by chance in this study.

(b) Testing Hypothesis

Drawing inference about a population based on a random sample from that population involves formulating and testing hypothesis. Hypothesis could be concerned generally as an informed guess, a hunch or conjecture about the solution of the problem under investigation. Hence hypotheses are subjected to inferential statistical test. The hypothesis to be tested is usually stated a null hypothesis represented with the symbol, H.. A null hypothesis is one which posits that no difference or no relationship exists between two variables. While the alternative hypothesis specifies the possible conditions not included in the null hypothesis. It is the hypothesis which we accept when the null hypothesis is rejected. In testing a hypothesis, we usually compare the calculated value of the test statistics with a. critical table or value of the test statistic.

The critical or table value of the test statistics, therefore, serves as a criterion value. This serves as the basis for rejecting or not rejecting the null hypothesis which depends on whether the calculated value of the test statistic is greater than or less than the Critical value.

4.0 CONCLUSION

In this Unit, we have been exposed to the processes required fro analysis of data collected. In addition, we have discussed how to carry out data editing, coding and tabulation of qualitative and quantitative data together with the real data analysis.

5.0 SUMMARY

In this Unit, we have taught definition of data analysis, data analysis which involves editing, coding and tabulation. The methods of data analysis in both quantitative and qualitative research.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss any of these two:

(a) Editing
(b) Coding and
(c) Tabulation

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UNIT 3 REPORT WRITING

CONTENTS

1.0 INTRODUCTION

A report is a detailed account of the activities that took place during an enquiry, probe, visit or investigation. A very important aspect to be considered by the author of a report is to determine the form it should take. Therefore, the report will look different depending on whether it is prepared for instructor, professional scientists or the public.

2.0 OBJECTIVES

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

- Describe the report writing
- Explain types of reports
- Have a clear characteristics of Good Report
- Describe Structure of Report

4 MAIN CONTENT

3.1 Report Writing

Reports are carefully set out accounts of facts derived from studies. The report writing makes the studies carry out accessible to others. Basic elements are present in all kind of reports, the way in which the report is constructed differs according to its ultimate purpose and intended audience.

Reports are written on the state of an organization the progress made by a company on some project or the causes of social problem. Research reports are also written which

may take the form of dissertation (Masters) thesis (Doctorate degree) articles (for a scientific journal).

3.2 Types of Reports

There are various types of reports. The following are among the major ones. Winimer and Dommicks (1994) suggest that the first step in writing report is to clearly identify your intended audience, purpose and the organization.

Periodic Reports

Periodic reports are written on the activities, conditions and prospects of an organisation or a division of an organisation. These are written at some specifies interval for example weekly monthly, quarterly or annually.

Research Reports

Research reports usually take the form of a thesis, dissertation, journal article or paper to be read at professional meeting. Dissertation and thesis are part of post graduate studies. The purpose of a dissertation is for students to demonstrate their research skills and prove that they can successfully undertake research independently. The research reports are the main stay that most academic journals have when writing for an academic or professional journal, the key to success lies in the ability to write succinctly that is, briefly and to the point.

Progress Reports

Like periodic reports, progress reports are written at regular intervals. As the name suggests, they are normally written on the progress made on a particular project up to end of the period they cover. Later reports provide up to date accounts of work on the remaining stages of the project.

Commissioned Research

This type of report writing is referred to as an applied research where a practical problem needs to be resolved. Commissioned research is usually based on a contract with an agency or organization that has specifically hired to undertake research. Commissioned research is not limited to policy but is also used for evaluating current practices and resolving problems in the workplace. Presentation of a commissioned report is much more flexible than the other types of reports.

Mass Media Report

Media reports tend to be very short compared with the other types of report discussed above. In media report, details about the studies are not reported. The emphasis is on

the study findings, what it means and how it can be applied. Both technical terms and jargon should be avoided when reporting because the audience is not familiar with it although the journalists apply journalistic principles in their own presentation of reports.

Investigative Reports

Investigative reports are reports base on the inquiry on social phenomenon. They are reports based on specially authorized enquiry. Among the subjects usually covered by the reports are the causes and the prevention of accident, crime, epidemics, flood, workers and student, riots etc.

In criminal justice, investigative report center round the report of agencies of government who are charged with enforcing law, adjudicating criminals and correcting criminal conduct. Reports are used in creating the foundation for a criminal prosecution, it is very important that investigators be mindful about how reports are written.

Investigative report here, provide informative to fellow investigators working on a case, to supervisors and administrators who may need to allocate resources for a case and to the prosecuting attorney who may try the case. Report may also be used in court to outline a case to the injury investigative reports play key roles throughout the criminal justice process.

3.3 Characteristics of Good Report

Writing a good report is not an innate trait that some officers or researchers are born with and other are not. One can learn how to write effective reports by practice and by following some basic rules. The followings are the characteristics of a good report.

1. **Completeness:** Completeness means that the report contains all pertinent information (Berg and Horgan 1998). A report should contain both positive and negative results. Complete report makes easier for a person who was not the scene of the event to understand what real happened. The details of the witnesses are essential in complete report, it is a good evaluation techniques to have a fellow officer may raise must be provided with answers. You equally need to ask yourself questions before turning in a report as finished.

2. **Conciseness:** Concise means giving only the information that is necessary and important by using few words. Berg and Horgan 1998 state that reports should be as concise as possible while retaining all essential features and details in an understandable manner. Reports should be written as a narrative but should eliminate non essential modifies or descriptors. Similarly, technical jargon and unnecessary words should be avoided. Sentences should be kept simple and

direct and inactive voice rather than passive. Do not use meaningless or unnecessary words and phrases.

3. **Clarity:** Clarity according to Oxford Advanced Learners Dictionary means the ability to think about or understand something clearly. Report must clearly explain to a reader exactly what the researcher / writer observed. Short, active – voice sentences lead to clear meaning and understanding. Clarity can best be accomplished by the use of Standard English including good sentences, structure, correct punctuation, accurate spelling, proper capitalization and standard paragraphing.

4. **Accuracy:** Reports must demonstrate accuracy to be important or valuable. Research should concentrate on specifies and avoid generalities. Researcher / writer should avoid mistakes in reporting his investigation or studies.

5. **Gender Neutral:** A neutral or inclusive wording can usually describe the event or situation without creating a gender atmosphere. The use of non-gender language is further assisted by the use of proper names rather than the pronoun he or by the use of the expression he or she, him or her and on forth, or completely avoid gender –specific references by writing in the third-person plural and using proper nouns only (Berg and Horgan, 1998).

6. **Language:** The study or research must be written in the language which the audience will understand, e.g. the lecturer in case of research report and prosecuting attorney in the case of investigative report etc or even the readers who are not experts in the topic of the report.
7. **Presentation:** The layout and presentational style of the page must make it as easy as possible for the readers to read and find what they require. Your report will be more accessible if the content and structure are clearly signposted. Appropriate chapter titles, section and sub – section headings and labels on tables and figures all play.

8. **Key Points:** The key points in the report can be highlighted using italic and bold text or by boxing and shading sections of text. Under lining should be avoided. Boxing and shading may also be used to emphasize conclusions and summaries of findings, although these should not be excessively used.

9. **Graphs, Charts and Tables:** Graphs, charts and tables are essential means of presenting statistical information. However, you should ensure that they are clear, properly explained in the text and key messages from your analysis are drawn to the attention of the reader. It is important to ensure that all figures and tables are referred to in the text.

Types of Investigative Reports

Police and other law enforcement agencies tend to consider four basic categories of forms and reports.

1) Internal business –related reports
2) Technical and specialized – equipment reports
3) Intelligence reports
4) Day to day operations reports

The operational reports are the type most often prepared by officers. Operations reports include:

a) Misdemeanor or miscellaneous reports
b) Felony reports
c) Follow-up reports
d) Arrest reports and
e) Valued accident reports.

Investigative Reports

It is stated above that reports must meet certain standard. Among the standards are proper classifications, complete, accurate, concise, objective and fair information. The following guidelines are important in preparing for investigative reports.

1. **Fill in all the Blanks:** At the scene of the incidents, it is important for investigation officers to record all the necessary information than to try to re-contact complaints and witnesses.

2. **Write the Report in the First Person:** For example, I arrived at the scene of the burglary at 3.30pm as opposed to officer Adegoke arrived at the scene of the burglary at 3.30 p.m. the reader of the report knows that officer Adegoke wrote the report. The trend in report writing has move away from it although some department still prefer third person in the report.

3. **Technical or Legalistic Jargon:** A report must avoid unnecessary technical or legalistic jargon. For example, words such as hereinafter, point of fact, or thereof because it may convey a meaning that you do not intend or do not fully understand. It is better to record the exact words used by suspect. You must faithfully record the statement even if you cannot explain it because the words are not yours. The use of jargon words can be a means of attack to your credibility.

4. **Short Sentences:** It is important for a reporter to write short sentences because they are less likely to be confusing to or misunderstood by readers. A concise presentation of facts makes it easier for the reader to read.

5. **Short Paragraphs:** Like the reason given above for using short sentence, equally applies for the short paragraphs.

6. **Support any Conclusions with details:** A good report at its conclusion must be supported with details because others who read the report such as the prosecutor need to know what facts shaped your thinking. When details are supported in the conclusion it makes the reader to easy refresh and recollect what happened and provide convincing testimony. This is because trial may take long periods and the writer may even have forgotten many facts.

7. **Don't Repeat Facts more than once:** A reporter must be mindful of the fact that he should not repeat facts more than once because duplication of entries wastes time and that your entries may conflict in some way with one another, calling your credibility into question.

8. **Check your spellings:** The reports of the police and law enforcement agencies are read by defense attorneys, judges, journalists, juries and prosecutors hence if spellings are not cleared, the reputation of the writer is on the line. Apart from the reputation of the reporters, misspelled words can change the meaning of a sentence or cause the meaning to be lost.

9. **Edit what you write:** A reported should take time to edit his / her report. If you are using a computer editing is far easier than writing. Several successive handwritten drafts of a report. Moreover, the software includes a spell checker, thesaurus and grammar checker.

3.4 The Structure of Research Reports

The following indicates the usual sections in reports. Those of investigative category depend on the format of agencies involve. But the research reports have this structure although the presentation may vary according to nature and design of each individual research study.

Title
Foreword
Acknowledge
Contents Page
Table of Charts
Abstract (or Summary)
Introduction
Aims and Objective
Literature Review
Procedure / methodology

Findings
Conclusion
Recommendation
References
Appendix

1. The Title Page

The title page is the front page which tells the reader the subject matter of the report. The page also bears the name(s) of the writer((s) as well as the name(s) of the person(s) or organization to which the report is being submitted. The date of submission is also indicated on the page.

2. Foreword

Foreword is a short introduction at the very beginning of the report by someone who knows the genesis of the report and is also familiar with writer(s).

3. Acknowledgements

This section acknowledges the contributions of earlier authors, and everyone who has contributed substantially or who has helped in some other ways to make the writing of the report possible. Acknowledgements should be clearly written with everybody mentioned by name.

4. Content Page

Content Page referred to table of contents. It is a list of all headings used in the report, each with the number of the page on which the relevant section or subsection starts. The Contents Page is meant to serve as a guide to the reader.

5. Table of Charts

The table of charts shows sections where charts, graphics, tables, diagrams etc can be found in the report.

6. Abstract (or summary)

Abstract simply called summaries are general but very brief account of the report. It is a concise account of not more than 500 words at the beginning of the report. It provides account of the aims and objectives, context, methods, finding, conclusion and recommendation. It tells the reader the essence of what will be found in the report.

7. Introduction

The introduction section of a report provides background information on the problem of study and possible effect of research problem on the society or organisation. It prepares the reader for the total content of the report. It usually includes information on matters such as the justification for the report or is written separately. The justification of report is the state of affairs that has made such a report a necessity

8. Aims and Objectives

Aims and Objectives are what the report wish to accomplish or find out at the end of the report. They are stated clearly in the report.

9. Literature Review

Reviewing literature helps to introduce the writer or researcher to what others have done in the area and the current state of knowledge in the particular area of study. The writer / researcher must ensure that the literature review covers where the problem emanates from, what is already know about the problem and what other method have been used to solve the problem as well as outcome.

10. Methodology

This deals with process of collecting and analyzing the required data in the course of the study. A detailed account of the adopted methods should be given within the body of the report but detailed technical sections are better discussed in appendixes. It is to be noted that data can be collected through interviews, questionnaires, test experiments etc and data collected can be analysed by any of statistical methods.

11. Findings

This section deals with presentation and discussion of the findings. Findings must be set out clearly, accessible and demonstrate that they are adequately supported by the research / study evidence. In this section, tables, diagrams and charts used are chronologically stated.

12. Conclusion

The purpose of the conclusion is to close the circle of research or study. It also presents an opportunity to suggest new avenue of research –ideas on how to follow up on what you have discovered. Often times, it is helpful to link the discussion with other literature on the topic but the conclusion should not present significant new material that cannot be found in the body of the report. This section may be only a paragraph long but without it your work lacks closure. If your conclusion is very short, it can be integrated with the discussion section.

13. Recommendation

This section is very important because it gives the research opportunity to suggest to the organisation or government what they can do to solve the problem of study on basis of the conclusions drawn from the findings. It is advisable for the writer to list the suggestions although the recommendation is not bound to be accepted.

14. References

This is the list of works (books, journals, internet etc) consulted by the writer(s) or referred to in the report. It is placed in a separate section at the end of the report.

15. Appendix

The appendix is an affixed section in which all other information that cannot be accommodated in the main body of the report is presented. Such information usually has to do with items such as letter, photographs, questionnaire, statistical details that may be too voluminous for inclusion in the report. In any case, it is usually information that is not actually required for the understanding of the report.

4.0 CONCLUSION

Good report writing boils down to application of scientific style of report writing. This implies that the style and tone should be set to their level of expertise, that it should be logical and clear and that the writer should stick to the then, Scientist or public will not read your work again if they suspect dishonesty or detect subjectivity instead of objectivity. Apart from these, the reputation of the writer is in line if there are a lot of misspelled words and unclear of used words.

5.0 SUMMARY

In this Unit, we have been able to examine what is report writing; we have dealt with types of report writing, characteristics of good report and the structure of report.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the characteristics of Good report?
2. What are the types of report?

7.0 REFERENCES / FURTHER READING

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