NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ART AND SOCIAL SCIENCE

COURSE CODE: CSS331

COURSE TILE: METHODS OF SOCIAL RESEARCH

COURSE GUIDE

CSS331
METHODS OF SOCIAL RESEARCH

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Introduction

CSS331: METHODS OF SOCIAL RESEARCH

This course is a three-credit unit course for all students of Social Sciences.

The course is suitable for beginners as 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 in this course. It also highlights the necessity for tutor-marked Assignments.

Periodic tutorial classes are also very sacrosanct to this course.

Course Aim

The basic aim of CSS331: Methods of Social Research 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 students 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, the overall objectives for the course as a whole would be emphasized.

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
- Assignments file
- Relevant textbooks including the ones listed under each unit

Study Units

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

Module 1

Unit 1 Introduction to Social Research
Unit 2 Foundation of Social Research
Unit 3 Processes of Social Research
Unit 4 Social Research Strategies and Types
Unit 5 Social Research Design: Component and Varieties

Module 2

Unit 1 Sampling and Sampling Techniques
Unit 2 Types of sampling 1
Unit 3 Types of Sampling 2
Unit 4 Validity and Reliability
Unit 5 Hypothesis

Module 3

Unit 1 Formulating Research Question
Unit 2 Nature of Quantitative Research
Unit 3 Nature of Qualitative Research

Module 4

Unit 1 Data Collection
Unit 2 Questionnaire
Unit 3 Interview

Module 5

Unit 1 Measurement
Unit 2 Level of Measurement
Unit 3 Accuracy and Errors of Measurement
Unit 4 Scaling

Module 6

Unit 1 Ethics

Unit 2 Data Analysis
Unit 3 Report Writing

Textbooks and References

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 Assignments (TMA)

There are twenty three tutor-marked Assignments in this course. Every unit has a tutor-marked Assignment. You will be assessed on four of them but the best three performances from the Tutor-Marked Assignments (TMA) 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 CSS331: 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 tutor-marked Assignments (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

Unit	**Title of Work**	**Weeks Activity**	**TMA**
	Course Guide		
	Module 1		
1	Introduction to Social Research	Week 1	Assignment 1
2	Foundation of Social Research	Week 2	Assignment 2
3	Processes of Social Research	Week 3	Assignment 3
4	Social Research Strategies and Types	Week 4	Assignment 4
5	Research Design: Component and Varieties	Week 5	Assignment 5
	Module 2		
1	Sampling and Sampling Techniques	Week 5	Assignment 1
2 &3	Types of Sampling 1&2	Week 6	Assignment 2 &3
4	Validity, Reliability	Week 7	Assignment 4
5	Hypothesis	Week 8	Assignment 5
	Module 3		
1	Formulating Research Questions	Week 9	Assignment 1
2	Nature of Qualitative Research	Week 10	Assignment 2
3	Nature of Quantitative Research	Week 11	Assignment 3

	Module 4		
1	Data Collection	Week 11	Assignment 1
2&3	Questionnaire and Interview	Week 12	Assignment 2&3
	Module 5		
1 &2	Measurement & Level of Measurement	Week 13	Assignment 1&2
3	Accuracy and Errors of Measurement	Week 14	Assignment 3
4	Scaling	Week 15	Assignment 4
	Module 6		
1	Ethics	Week 16	Assignment 1
2	Data Analysis	Week 17	Assignment 2
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 set books 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. It 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 on 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).

Facilitators/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.

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MODULE 1

INTRODUCTION

This module consists of five units that seem autonomous of each other but are actually connected. The module is structured to make it easy for you to understand what social research is, its backgrounds and contributions of authors to its development. The module further exposes you to details of research designs and components of social research on various societal issues that would enable you have a clear understanding of the meaning, foundation and scope of social research including social research practices, its applications, its methods/strategies and its components. Specifically, this module is broken down into the following units:

Unit 1 Introduction to Social Research
Unit 2 Foundation of Social Research
Unit 3 Applications and Practices of Social Research
Unit4 Social Research Strategies and Types
Unit 5 Social Research and Design

UNIT 1 INTRODUCTION TO SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit exposes you to the meaning of social research, its historical background and the step by step emergence of social research method. It will help you to have a sound knowledge of the meaning, art, science

and issues of interest in social research particularly as these relate to your daily activities and encounters.

2.0 OBJECTIVES

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

know what social research is
know the pioneers of social research and their contributions to the field
historical development of and trends in social research
discuss the essence and logic of social research strategies
discuss the road map of why and how of social research.

3.0 MAIN CONTENT

3.1 Meaning of Social Research Method

Social Research is step by step scientific research activities carried out by social scientists in the disciplines of cultural and social anthropology, social policy, sociology, human geography, political science, social psychology and education. The main objective of activities in Social Research is to describe, identify, classify, categorize, explore, investigate, evaluate and understand social life and human activities in relation to his/her existence. All the disciplines mentioned above belong to the field of study called Social Science. Social Science uses the methods of Social Research to study diverse objects from census data derived from hundreds of thousands of human beings to in-depth analysis of individual and groups social life. Social Researchers monitor what is happening at the household and national levels to the historical analysis of phenomenon, and what has happened hundreds of years ago using the combination of art and scientific research methods. This is with a view to ensure that carrying out such an analysis can provide relevant answers to some research questions that are being researched on.

SELF ASSESSMENT EXERCISE 1

From the explanation of the meaning of Social Research, what do you understand by social research?

3.2 Historical Background of Social Research

Before the advent of social research and application of scientific methods to its study, human inquiry was mostly based on personal

experiences, and received wisdom in the form of tradition and authority. Such approaches often lead to errors such as inaccurate observations, overgeneralization, selective observations, subjectivity and lack of logic. Consequent upon these, the development of social research was in response to political, economic and legal turmoil that swept through Europe in the 18th Century and achieved its greatest success in the French Revolution (1848). The agitations generated by the strong socialist and anti-monarchies threatened the exercises of power by traditional ruling unit. Another significant point in this regard was the Industrial Revolution which resulted in changes in the ancestral roots of land ownership and heredity. This trend introduced new sources of wealth and power from factory production and commerce, with the consequence of re-interpreting the existing moral and legal codes to support emergent political and economic dispensation eroded by the pervasive authority.

The social thinkers of that time felt that there was a trajectory of development from simple agrarian to complex industrial-capitalist communities within the evolutionary schema. They were of the view that the socio-economic and moral eruption being altered was capable of disrupting the social stability of their society. The argument was that the institutions (political, economical , legal and moral or traditional) that had for many years sustained development in Europe and other societies were being turned apart to form norm-less societies. There were concerns on how to restore social stability without aiming to reinstate the old order.

There was need for a more viable and relevant social order that would be based on the understanding of the dynamics of the current conditions and an orderly management of social stability and process. Thus, the growth of knowledge and the direction of research interest which further enriched knowledge were directly and indirectly impelled by the concern with the dominant issues of the time.

The struggle for social stability was further let loose by three powerful historical forces after the Second World War (1939-1945). First was the successful reconstruction of Japan, Germany and other parts of Western Europe in comparison with places like Asia, Africa and Latin America where poverty was high while their combined population made up about two-thirds of the world population. Second, the rise of the Union of Soviet Socialist Republics (USSR), as a technological-military power in the mid 19th Century, with undisguised expansionist ideology triggered the emergence of a Cold War. Third, the attainment of political independence by India in 1948, Ghana in 1958 and Nigeria in 1960 sent signals to the world powers that there were likely to be more nation-

states that could be self-assertive as to make direct control of them with gun-boat superiority possible. These entire scenarios made the non-socialist rulers to fear that if the poor masses of the developing world were empowered by Marxist rhetoric promising freedom from colonial exploitation, the very foundation of European economic supremacy, that is capitalism, would be threatened.

The outcome of the social agitations was the vast sum of competing research fund that produced mountain of social, economic and demographic reports focusing on economic growth, social development and political economy. Although, the ideological base of these research inquiries and their findings were not explicit, the direction of this research interest was situated on understanding the forces at work and how they could be harnessed for an orderly management of social stability and process not only in Europe but throughout the entire world.

SELF ASSESSMENT EXERCISE 2

Discuss the historical background of social research method.

3.3 Pioneers of Social Research Methods

There are several founding fathers of social research. These include Karl Marx, Georg Simmel, Max Weber, Vilfredo Pareto, Auguste Comte, Herbert Spencer, Saint Simon and Emile Durkheim. However, the contributions of only two of these pioneers i.e Emile Durkheim and Max Weber would be evaluated in this study guide. This is because both sought independently to delineate what sort of social reality should be the concern of the social researcher. Second, both of them set out each, what should be considered as appropriate or ideal methodology for social research and third, they applied their methodology to their empirical research work.

3.3.1 Emile Durkheim (1856-1917)

Emile Durkheim wrote several literatures that contributed to the development of social research but two of his works are particularly relevant to this course. They are The Rules of Sociological Methods (1895) and The Suicide (1897). In the first, he laid out the blueprint of what should constitute an independent science of sociology, its focus of observations, and level of explanation. In the second, he tried to apply the methodology he advocated for.

He proposed that although human society is made up of individual institutions, social system and structures, it is often a challenge to

explain observed conduct, human motivation and relates them with human psychology. He believed that there was a body of societal forces (like legal institutions, religious, faith, gender roles constructs, socio-political conventions, courtship and marriage customs, workplace norms and expectations) external to human or individual actor but which are residing in the society at large, that determine the course of human behavior.

These external forces are termed social facts that represent collective consciousness. He explained that social researchers must search for the explanations of social facts to discover why, how and when the social facts existed. To Durkheim, social facts are important because they derive their meanings from social collectivity, the common human experience that translates into norms and values. The social facts are sociologically perceived as objective reality of scientific study because they are not individualistic in nature and they are the observable aspects of the society.

Durkheim's main legacy to the development of social research was the body of rules he set for observing social facts. He aimed to achieve the level of objectivity that marked natural science out as difference. The rules he set out for observing social facts include:

> Prior definition of the subject matter of observation in clear terms that its subject matter may be known. This is so because a prior definition sharpens the focus of subsequent observation, and should make explicit empirical references of the things being defined to assure its correct recognition by a number of independent observers.
> Social scientific observation should proceed beyond merely identifying an object and take cognizance of related variables that make the observation meaningful and contextual explanation feasible. Adequate definition and composite observation are of greatest importance to social analysis. He argued that:
>
> Definition and Observation must not be subjectively stated
>
> Social Science Observation must be transparently objective.
>
> Social Science Observation should be achieved to meet up scientific objectivity.
>
> Social Scientist should be guided by corpus of knowledge procedures and practices that at a given time, constitute the dominant paradigm of a given discipline.

The outline he used to carried out his task are-:

1. Humanistic discipline as social research should be concerned with problem affecting the human condition.

2. Social facts should be the basis for social research and social research should focus on matters that operate and are observable at the collective level instead of the individual level.

3. Social research must be predicated upon clear delineation of the subject of inquiry i.e. Sociological research should be preceded by a clear definition of the subject matter under study. This will communicate the term or meaning of the subject matter to the researcher and the audience. This is because using ambiguous or contradictory definitions could render the term or definition meaningless.

4. Sociological research hypotheses must be subjected to empirical verification.

3.3.2 Max Weber (1864 – 1920)

Unlike Durkheim, Max Weber's work on social research deals with the fundamental problems of scientific knowledge, its nature, limits and possible concerns of social research.

He argued that social structure and institutions (social facts) are mental constructions that the society gives life to in the variety of social relationships. These values are developed, sustained, changed and sometimes destroyed by humans as they operate those structures and institutions. He, therefore, believed people are motivated by certain goals and rationally choose the means that would enable them to achieve their goals effectively. This is usually based on the consideration of what the human expects from others with whom she/he relates.

He argued further that social action is based on the subjective evaluation by individual. To this end, sociology of research/analysis should seek to understand and interpret the significant social action with a view to the attainment of a specific motivated observed social behavior. Several behaviors are subjective; hence, the need to interpret social reality through subjective understanding of social action. Accordingly, the aim of social research is not only to observe and provide naturalistic explanation, because natural reality is meaningless if social reality and explanation is not provided. It is the duty of a social

researcher to provide the human dimensions of what would otherwise be non-living facts.

Like Durkheim, Max Weber set out what he considered to be the right methodology for scientific social researches, which he called cultural science. He agreed with the school of thought that held the view that the world of social phenomena is infinite and cannot be perceived or understood in its entirety. Therefore a part of social reality could be approached through several angles by different disciplines, none of which is necessarily more valid than the other.

The exercise of individual freedom to choose a part of social phenomena for analyses should be of interest to his/her personal values, since what is of personal interest often time constitute the driving force behind the search for knowledge. However, this is normally circumscribed by the strict demands of scientific objectivity. Consequently, after the choice of topic has been made, normal procedures of scientific investigation must be followed all through the study. It is in this regard that what starts as subjective interest is transported into objective knowledge, open to verification by other interested scholars.

3.4 Contributions of Pioneers to the Development of Social Research Methods

The relevance of Weber's and Durkheim's work to social research still exists till date. Durkheim's objective study of social facts and Weber's subjective understanding of the meaning of social action tried to develop social research, the role of individual research, and the way to approach the subject matter of the discipline scientifically.

Both Durkheim and Weber emphasized the need for the social researcher not to impose personal prejudice and moral position on his/her subject matter. The concept of ethical neutrality refers to the need to avoid passing judgment on the situation when mere opinion is not derived scientifically from the data. That the social researcher seeks to analyze relationships till date is a fact of the contributions by pioneers like Weber and Durkheim to the development of social research.

4.0 CONCLUSION

So far in this Module, I have tried to give a simple meaning of social research and I have further synthesized issues that aid the development of social thinking and social agitations. I also enunciated the contributions of pioneers like Max Weber and Emile Durkheim to the

development of social research methods and how their contributions gave rise to the applications of scientific knowledge to the study of social phenomena.

5.0 SUMMARY

In this study unit, you have been introduced to what social research method is and taught the historical background that facilitated the agitations for the evolution of social research. The contributions of some of the pioneer of social research methods were also discussed so as to enhance your knowledge about how scientific procedures emerged in social research. By now, you are expected to be able to:

Define social research methods
Describe and understand the historical background to the development of social research methods
Discuss the contributions of some of the pioneers to the development of social research.
Understand and compare the contributions of Max Weber and Emile Durkheim to the development of social research.

6.0 TUTOR-MARKED ASSIGNMENT

1. Give an account of the fundamental issues underlying the development of social research method.
2. Discuss the contributions of Emile Durkheim and Max Weber to the development social research methods.

7.0 REFERENCES/FURTHER READING

Ake, C. (1978). *A Political Economy of Africa.* London: Longman.

Aribia, Oberu (1996). Some Basic Issues in Sociological Research in Babatunde Ahonsi & Omololu Soyombo (eds.). *Reading in Social Research Methods and Applications.* Ibadan: Caltop Publishers.

Online Resources

1. http://answers.ask.com/Education/Schools/what_is_social
2. www.socialresearchmethods.net/mapping/mapping.htm

UNIT 2 FOUNDATION OF SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit introduces you to some basic terms or concepts commonly used in Social Research. There are several of such terms that social research revolves around. Some of them are logic, law, theory, concept and models. We shall discuss some of them in details so that you can have a clear knowledge and understanding of the concepts when you come in contact with them. Exposing you to these terms will also help you to use them in your research adequately.

2.0 OBJECTIVES

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

list and understand the common terms associated with social research
know the meaning of some basic terms like logic, model, empiricism, theory and, concept
clearly understand the differences in the use of these terms for social research
apply the concepts correctly in your own research.

3.0 MAIN CONTENT

Social research involves the interaction of ideas and evidences that help social researchers make sense of evidence acquired in order to revise and test ideas. Thus, it attempts to create or validate concept through data collection and data analysis with the intent to explore, describe and explain a phenomenon. The art of testing or revising ideas generally is based mainly on logic and empirical observations. Social science therefore follows logical processes, which begin from known generalization of some ideas through observation to interpretation and validation. The facts collected are then organized on the basis of the theory to determine if the findings or outcomes of the research are in agreement with the research expectations based on the theoretical orientation. We shall therefore look at some of the key terms in social research framework.

3.1 Logic

Logic is the study of reasoning used in most intellectual activity but is studied primarily in the disciplines of computer science, mathematics and philosophy. It examines the general forms on which arguments can either be validated or rejected. Logic is central to research method because it is held that the validity of an argument is determined by its logical form and not by its content. Logic is generally accepted to be formal in that it aims to analyze and represent the form of any argument type. In social research, logic refers to the two broad methods of reasoning known as the deductive and inductive reasoning.

3.1.1 Deductive Reasoning

Deductive reasoning works from general to the more specific. Sometimes, this is informally called a top-down approach. We might begin with thinking up a theory about our topic of interest, then narrow that down into more specific hypotheses that we can test. We can narrow down even further when we collect observations to address the hypotheses. This ultimately leads us to being able to test the hypotheses with specific data and compare it with our original theories. The process of deductive reasoning is as depicted in Figure 1.

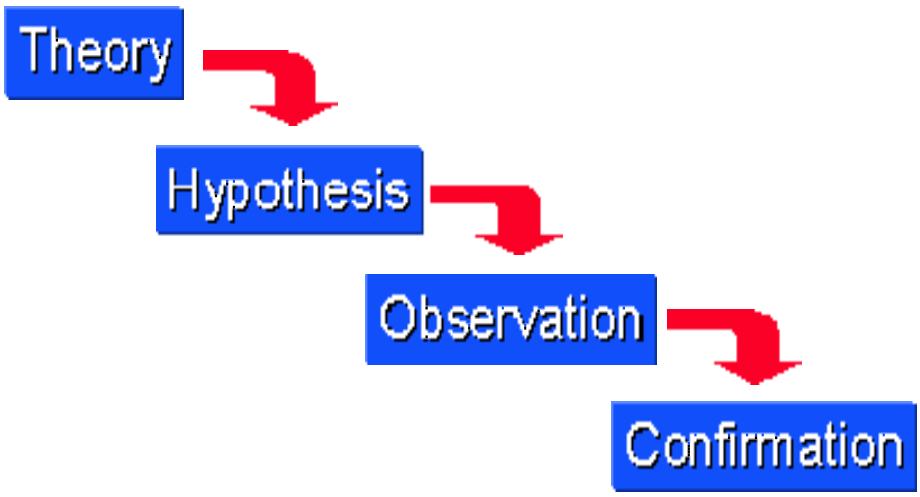

Figure 1: Processes of deductive Reasoning

3.1.2 Inductive Reasoning

Inductive reasoning works the other way, that is moving from specific observations to broader generalizations and theories. Informally, we sometimes call this a "bottom-up" approach. In inductive reasoning, we begin with specific observations and, begin to detect patterns and regularities, we then formulate some tentative hypotheses that can be explored, and finally end up developing some general conclusions or theories as depicted in Figure 2.

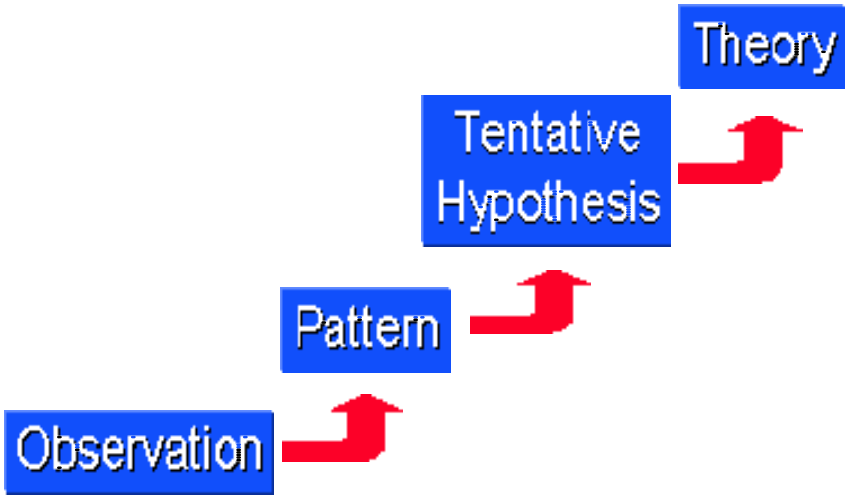

Figure 2: Processes of Inductive Reasoning

These two methods of reasoning have a very different way of presenting result when conducting research. Inductive reasoning, by its very nature, is more open-ended and exploratory, especially at the beginning. Deductive reasoning is narrow in nature and is concerned with testing or

confirming hypotheses. Even though a particular study may look like it is purely deductive, most social researches involve both inductive and deductive reasoning processes at the same time.

SELF ASSESSMENT EXERCISE 1

Discuss the difference between inductive and deductive reasoning

3.2 Hypothesis

Hypothesis refers to a proposal intended to explain certain facts or observations or a tentative insight; possibly a concept that is not yet verified but that if true would explain certain facts or phenomena. It may further be defined as a proposition that attempts to explain a set of facts in a unified way. Though a hypothesis can never be proven true, it can sometimes be verified beyond reasonable doubt in the context of a particular theoretical approach. For example, a research set to investigates the influence of education on children under two years of age can proposed that ‘education does not have positive influence on children under two years of age or education has positive influence on children under two years of age (read more about hypothesis on page 65).

3.3 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 started conditions. A law could be said to be a group of verbal or mathematical symbols, designating an unlimited numbers of defined events in terms of a limited number of reactions so that the performance of the specific operations always yield predictable results within measurable limits. This means that law contains a generalized statement of some behaviour sequence, a statement of conditions under which the generalization is verifiably true and a statement of the degree to which it is verifiably true under these conditions

3.4 Theory

A theory is a set of statements, including laws and hypotheses that explain a group of observations or phenomena in terms of those laws and hypotheses. It is constructed of a set of sentences which consist

entirely of true statements about the subject matter under consideration. A theory could further be referred to as an analytical tools for understanding, explaining, and making predictions about a given subject matter.

Theory is a set of laws a or compact knowledge. Much regularity can be subsumed under the same general law, making research systematic and cumulative. Such a notion of theory provides a clear cut criterium of demarcations and testing of law-based deductions. Explanations which do not satisfy this critium are ad hoc explanations and must be avoided. Theory is thus an ever more complete system of universal laws. A theory thus accounts for a wider variety of events than a law does. Broad acceptance of a theory comes when it has been tested repeatedly on new data and has been used to make accurate predictions. Social Scientists may discuss the logical criteria of sociological laws without citing a single instance which fully satisfies these criteria. For Example, Durkheim's statement on the relation between social cohesion and suicide is probably the most frequent choice of theory in social research. But, it remains contested whether that law has served social research into suicide in ways that can be compared the ways laws on gravity, thermodynamics, etc. have served natural science.

In science, theories are constructed from elementary theorem that consists of empirical data about observable phenomenon. A scientific theory is used as a plausible general principle or body of principles offered to explain a phenomenon. A scientific theory is a deductive theory, in that, its content is based on some formal system of logic and that some of its elementary theorems are taken as axioms. In deductive theory, any sentence which is a logical consequence of one or more of the axioms is also a sentence of that theory. Theories are constructed to explain, predict and master phenomenon. A scientific theory can be thought of as a model of reality and its statement as axioms of some axiomatic system.

3.5 Concept

A concept has a cognitive unit of meaning. It is seen as an abstract idea or a mental symbol sometimes defined as a unit of knowledge. It is built from other units and acts as a mental representation. In some cases, Ideas are taken to be concepts, although abstract concepts do not necessarily appear to the mind as images as some ideas do.

A concept is typically associated with a corresponding representation in a language or symbology such as words. Concepts are vital to the development of scientific knowledge. For example, it would be difficult

to imagine physics without concepts like energy, force, or acceleration. Concepts help to integrate apparently unrelated observations and phenomena into viable hypothesis and theories, the basic ingredients of science. The concept map is a tool that is used to help researchers visualize the inter-relationships between concepts.

3.6 Model

A model is anything which serves, or may serve, as an example for imitation. It can also be defined as a hypothetical description of a complex entity or process or a representative form or pattern or an exemplary behavior worthy of imitation. In social research, a model could be viewed as a schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study considering its characteristics, style or design of its properties. It is that by which a thing is to be measured or compared.

4.0 CONCLUSION

In this unit, I have discussed some basic terms that are relevant to the understanding of social research. Some of the terms are model, law, theory and concept amongst others. It should be clear to you by now that a research student should have a very elaborate understanding of the terms in order to know when to apply them to have a robust research outcome.

5.0 SUMMARY

In this unit, you have been introduced to some of the key terms in Social Research. The uniqueness of each term and its relevance were further articulated and discussed so that you can have a clear understanding of the terms and also apply them in your research activities. Therefore, at the end of this unit, you are expected to be able:

List and know some of the basic terms commonly used in Social Research;
Understand the meaning of terms like, logic and its types;
State and explain their usefulness in Social Research;
State and explain their applications in Social Research.

6.0 TUTOR-MARKED ASSIGNMENT

List and discuss some of the basic terminologies/framework employed in Social Research and their relevance to the discipline.

7.0 REFERNECES/FURTHER READING

Cohen, M. R. (1934). *An Introduction to Logic and Scientific Methods.* London: Routledge and Kegan Paul.

Bogdan, R., & Taylor, S.J. (1975). *Introduction to Qualitative Research Methods.* New York: John Wiley.

Lundberg, A.G. (1938). "The Concept of Law in Social Science." Philosophy of Science. Vol. 5 No. 2.

ON-LINE SOURCES

http://plato.stanford.edu/entries/thomas-kuhn/

UNIT 3 PROCESS OF SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit serves to expose you to the pertinent steps to be followed in carrying out a social research. It begins with formulation of the research problem and the hypothesis. This is followed by the collection, organizing and analyzing data to determine whether the data fit the hypotheses in order to reach a conclusion that provides answers to the research questions.

2.0 OBJECTIVES

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

discuss the process of carrying out social research
know how to choose a topic and formulate research problems
know how to develop the aim and objectives of the research
understand how data can be collected, organized and analyzed
discuss the usefulness and benefits of the processes of data to social research
evaluate and assess good or bad social research.

3.0 MAIN CONTENT

Several steps are crucial for conducting social investigation, explanation, and description without which social research will end up just as an array of facts. These steps as depicted in Figure 1 are introduction, conceptualization, methodology and data presentation and conclusion

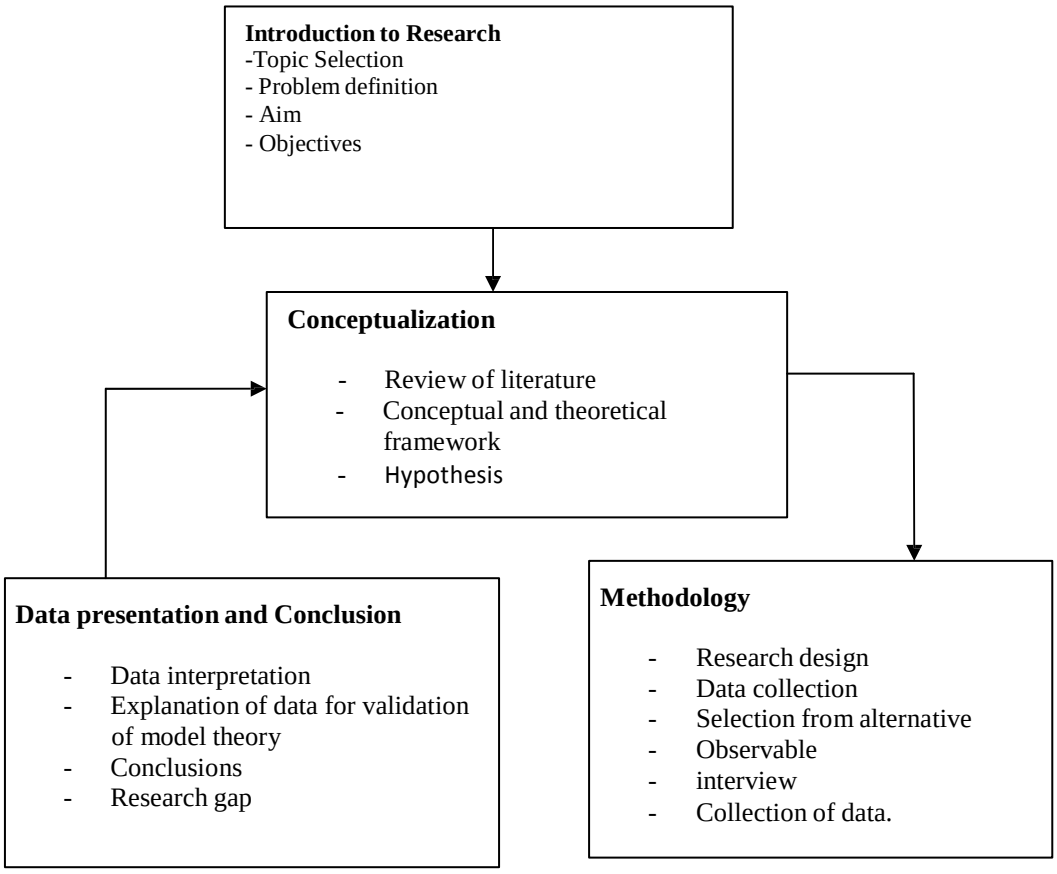

Figure 1: Process of Social Research

3.1 Introduction to Research

3.1.1 Topic Selection

The choice of a topic should be considered often with the objectives of the research. This is because a topic is selected not just for one's interest in the topic but for its potential in advancing the frontiers of knowledge. Thus, a great deal of library search in a given subject area becomes necessary before a topic can be selected. This is to link the prospective of the research to be carried out with its outcome in existing body of scientific knowledge.

Through this also, ideas on researchable topics can be invoked. Clues about topics can be got from curriculum of studies of some universities, major social institutions, social processes and subjects which are very popular among students. One could also select research topics through careful observation and consideration for a social phenomenon of interest. However, a researcher must ensure that the research topic is researchable.

3.1.2 Background to the Research

The purpose of the background is to provide a general overview of the research to enable the assessor or the reader to understand and evaluate the research. It involves giving general and relevant information about the issues in your chosen topic as well as stating the reasons for carrying out the research. The background to the study should be interesting and should make the reader to want to read more, because, if you bore your reader, then you are unlikely to revive his/her interest in the content of the research. The writing of background to the research might require several drafts to make it sound logical.

3.1.3 Description of Research Problem

Another significant step in the introduction to research is the preliminary description of the problem the researcher wants to solve. The research problem is an explanation of the state of social phenomenon. It exposes the extent and magnitudes of the state of social phenomenon and its possible implications on the society, as well as the need to carry out investigation or research to seek after ways of alleviating such problems. From the problems definition and description, the aim and objectives might emerge having considered the research topic critically.

3.1.4 Aim and Objectives

Aim is the general, broad or overall goal of the research while research objectives are clear declarative statements expressing what the researcher wants to do or specific activities to be carried out to achieve the overall goal of the research. That is, whether the researcher is interested in the identification or description of a variable, concept or a group of variables. It might also be a declarative statement of relationships or differences between variables or predictive modeling statement. The research objectives must flow from the statement of problem or the research questions being formulated and it must attempt to fill a particular gap in the body of knowledge in the area of study.

SELF ASSESSMENT EXERCISE 1

Give and explain the steps to be taken in Social Research.

3.2 Conceptualization and Review of Literature

3.2.1 Conceptualization and Theoretical Framework

A conceptual framework is a set of related items or concepts that broadly explains your research. It allows you, as the researcher to demonstrate where the research problem you want to examine fit into in the body of existing theory, model or concepts which usually characterize the research problem. It is a stage where it is as if you are saying that I have speculated on the possible factors in the resolution of the research problem and let me now find out if the experiences of those who have actually structure this and similar phenomena in the past agree with my speculations. Conceptualization helps you to avoid a situation where your research appears to stand alone without any conceptual meaning or backing.

On the other hand, Theoretical Framework is an integrated set of concepts embedded in a theory. The statements embedded within the theory often link the concepts to one another. This can be derived deductively from existing theory and used to describe, explain, predict and produce testable hypothesis.

3.2.2 Review of Literature

This is the review of written sources related and relevant to your research topic. The purpose of reviewing literature is to establish a context for the research and to bring the researcher to the frontier of knowledge in his/her topic. It is also to enable the researcher to become knowledgeable in the theoretical and empirical issues related to the research topic. Besides, it is to identify research gaps, contradictions and methodological weakness in the existing body of knowledge that can become further justification for the current research. The literature review section of the research is expected to address the following questions:

- Where did the problem come from?
- What is already known about the problem?
- What other methods have been used to resolve the problem?

3.3 Methodology

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

i. Types of data required;
ii. Sources of data required and their limitation;
iii. Procedure for data collection;
iv. Research study design;
v. Sample (sample criteria, sample design, and sample size);
vi. Instrumentation (field instrument e.g. questionnaire etc) ;
vii. Measurement procedures, and
viii. Data analytical procedures (Statistical tools to be used and justifications).

The researcher must be cautious of choosing or adopting a method for his research. This is because a choice of the wrong method has an adverse effect on the quality of the research. For instance, inappropriate research design, procedure, faulty sampling procedure will affect the outcome of the research findings. The first consideration is that the research design to be adopted for the purpose of obtaining research data or materials for analysis should address issues like what level of qualification or qualitative information the researcher needs to achieve the set objective.

Other necessary or important issues are sampling size and the sample design or framework to be adopted. In doing this, the researcher must be careful of introducing extraneous personal biases into his/her selection. You need to consider what questionnaire or interview methods to be adopted. Whatever decision is taken, the subject of the research must reflect the question asked. 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 given later.

SELF ASSESSMENT EXERCISE 2

State and explain the main attributes of a Research Methodology and how these attributes help in arriving at a good research process.

3.4 Stage of Data Presentation and Conclusion

3.4.1 Data presentation

This stage is the last in the process of research methods. It is the level where the data collected, organized and analyzed are presented. It is also a stage where the resolution of the questions raised in the research problem and the determination of the theoretical significance of the findings are presented. The results of the analysis can be presented as tables, figures and discussions. At this stage, the data are selectively presented to avoid redundancy and discussions should be as short as possible.

3.4.2 Conclusion of the Research

The conclusion stage should include:

The principles, relationships and generalization inferred from the findings;
Any exceptions to or problems with the principles;
Agreement or disagreement with the previously published work, and
The theoretical implications and possible practical applications of the research

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

4.0 CONCLUSION

I have articulated the processes involved in carrying out a social research in this unit. It should be clear to you now that all the processes consisting of topic selection, formulation of research problems, development of aim and objectives and hypotheses, literature review, and conceptual framework, methodology and conclusion are all exclusive but relevant and related stages in the research process.

5.0 SUMMARY

You have been introduced to and taught the different stages of social research. You have also learnt how topics can be selected and how to write research introduction. These two stages must be linked significantly with the concept and models as well as relevant literature

and ultimately the method to be adopted. Therefore, you are expected to have known:

The process of selecting a topic in research;
How to write background to the research;
How to articulate your aim and objectives;
How to draw up your literature review and concept, model and theories;
How to fashion your research methodology; and
How to draw-up your research conclusions.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss all the stages involved in the process of carrying out a social research

7.0 REFERENCES/FURTHER READING

Olusanya, P.O. (1996). "The Practice and Process of Social Research" in Ahonsi, B. & Soyombo, O. (eds.). *Readings in Social Research Methods and Applications*. pp 81-149 pp, Ibadan: Caltop Publishers.

Olusanya, P.O. (1985). A *handbook of Demographic Research Methods for African Students*. Lagos: Olu-Nla Publications.

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UNIT 4 SOCIAL RESEARCH TYPES

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the various types of social researches. The typologies are based on research purpose, types of data and the timeline. This is because there is no one way of carrying out research in social science because of the complexity, the diversity and changes in human behaviour and social phenomena. The diversity and complexity in particular make Social Research a multi-dimensional subject. Thus, there is no one way of investigating and seeking to understand all of them.

2.0 OBJECTIVES

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

identify the variety of social research. This will enable you to know and understand the particular type that is suitable to your research

understand the components of social research types and their appropriateness to different contexts

explain the knowledge of the strength and limitations of the different types of social research
know how to assess social research reports
know how to situate proposed research when reviewing existing relevant literature.

3.0 MAIN CONTENT

Basically, there are two main types of research, namely, quantitative and qualitative researches. They are discussed in more detail in pages 77 and 88. So in this unit, we shall dwell more on the sub-types of research. There are several factors that influence the criteria for determining social research. However, a careful review of literature on this issue revealed that social research could easily be classified into sub-types based on three broad dimensions namely:

i. Purpose of research;
ii. Nature of data collected; and
iii. Time coverage.

A social research can be classified according to the purpose for which it was undertaken, type of data collected and analyzed and whether it focuses on the past, present or future. In practice, however, no single research type is capable of taking care of all the prerequisite of social research. Where two or more research types are involved in a study, one type is usually the dominant in the overall design.

3.1 Research by Purpose

All research types irrespective of their setting can be classified as

3.1.1 Exploratory Research

This is the type of social research that tends to gain new insight on a social phenomenon. This type of research is necessitated by curiosity and the urge to find out more about an issue on which little empirical documentation is available. This type of social research is valuable for breaking new and novel ground or yielding new insight into new research areas for further investigations. They can also provide useful lead as to the appropriate methods for eliciting valid data on difficult study problems. They are however not good for providing satisfactory answers to questions related to factors, pathways and consequences due to the limited representativeness associated with their unstructured scope, methods and coverage.

3.1.2 Descriptive Research

This type of research is carried out when a study is set out to principally describe some phenomena or a particular subject in terms of its function, attributes, characteristics and frequencies in its current state. Usually this type of research is limited to its subject of focus and does not go beyond it to indicate final definition or generalized conclusions of an exploratory nature. It provides a good overview and extensive but not explanatory details, though it is useful for planning prompt social change intervention. Besides, it captures the main features of a phenomenon at a point in time especially on issues that are amenable to self reporting across a wide spectrum of population or geographic space. Nevertheless, not everything that counts can be precisely described.

3.1.3 Explanatory Research

This type of research involves the investigation that seeks to provide answers to questions like what causes what or why is the situation the way it is? Causal explanatory research is very complex but it is the most common academic research available. There are four sub-types of explanatory research namely, historical research, correlational, case study and comparative inquiries.

a. **Historical Research:** This involves the collection and investigation of data on past trends in a phenomenon for the purpose of understanding its present status and future prospects. It seeks to understand phenomena by ascertaining time of occurrence, processes of growth and its dynamics.

b. **Correlational Research:** This research type tends to explain a phenomenon by investigating how its components and other factors influence its interrelationship. It is easy to measure, quantify, and is useful for examining issues related to a large and heterogeneous population.

c. **Case Study Research:** This is a comprehensive research into an aspect of a large phenomenon. It involves a detailed investigation of a sub-system of a large system in order to make a generalization of the large system.

d. **Comparative Research:** This is an inquiry that makes general statement about associations between variables through comparison of whole entities that parallel each other in a meaningful way.

SELF ASSESSMENT EXERCISE 1

List and discuss the various types of Explanatory research.

3.2 Research by Nature of Data Collected

This type of research can be categorized into three groups namely, quantitative, qualitative and triangulated or integrated research

i. **Quantitative Research:** This type of research involves the collection of data in a highly structured manner. The data collected are subjected to rigorous statistical analysis. This may consist of the use of structured sample survey, secondary analysis of survey data or existing statistics and experimental inquiries. This type of research is good for measuring how an observed outcome is related to one or more variables.

ii. **Qualitative Research:** This type of research gathers data through flexible and unstructured methods to explore a particular content within a social research process, although the selection of processes is determined by the purpose of the study and the data collected. The sub-types of qualitative research include participant observation, focus group discussion, in-depth interview, key informant interview, life history, and content analysis. Qualitative research is carried out when one wants to know the true nature of a complex phenomenon like gender violence, kinship obligations etc.

iii. **Triangulated Research:** This type of research examines a phenomenon through the analysis of different data sources usually with the aim to increase the validity of one's outcome. The key issue here is that quantitative and qualitative research may be viewed as different ways of examining an issue but by integrating the two, the researcher's claims for validity of his/her conclusion is more enhanced.

SELF ASSESSMENT EXERCISE 2

Discuss research by nature of data collection.

3.3 Research by Time Line

Under this mode, social research is classified into retrospective (past), cross-sectional (present) and prospective (future). All these are based on the temporality of the data or time reference of the investigation. It is

best situated to the study of phenomenon whose present manifestation is mainly an evolution from previous by-product. It relies on time series data sources like records, survey, archival materials, and document. A brief discussion of the sub-types of research by time coverage is given below.

i. **Retrospective Research:** This is the type of research that observes changes over time. It is fairly common among demographic inquiries. It consists of the collection, description and analysis of pregnancy, birth, health, household, and migration history, especially of the demographic trends and patterns.

ii. **Cross-sectional Research:** This involves the gathering of data at a specific time because the data is related with the phenomenon being investigated in its present state.

iii. **Prospective Research:** This is the type of research that consists of collecting and analyzing data from the same subject over a long period with a view to ascertaining how particular outcomes can be produced.

SELF ASSSSMENT EXERCISE 2

Discuss Research types by time coverage.

4.0 CONCLUSION

This unit discusses the different types of social research. It should be clear to you by now that social research varies according to purpose, data collection and time-line. However, the different types are related and two or more types can be applied to a single research.

5.0 SUMMARY

In this unit, you have been introduced to types of social research. The various types of research such as research by purpose, data collection and time lines have also been discussed and explained in detail. At the end of the unit, therefore, you are expected to be able to understand the meaning, attributes and usefulness of:

Exploratory Research
Descriptive Research
Explanatory Research
Quantitative Research

Qualitative Research
Triangulated/Integrated Research
Retrospective Research
Cross-sectional Research
Prospective Research

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the different types of social researches that you know?
2. Discuss the differences and similarities between Research by Time line and Research by Type of Data.

7.0 REFERENCES/FURTHER READING

Ahonsi, B.A. (1996). 'Social Research Types and their Applications' in Ahonsi, B. & Soyombo, O. (eds.). *Readings in Social Research Methods and Applications* pp 81-149 pp. Ibadan: Caltop Publishers.

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UNIT 5 RESEARCH DESIGN AND COMPONENTS

CONTENTS

1.0 INTRODUCTION

This unit seeks to expose you to the art of producing designs for research. It also exposes you to how you can think about the design task in social research in addition to and project evaluation. Research design provides the glue that holds research project together and it is structured in a way as to show how all the major parts of the research project are related. It gives a coherent structure of a research for the purpose of addressing the central research questions. Understanding the relationships among designs is important in making design choices and thinking about the strengths and weaknesses of the different designs.

2.0 OBJECTIVES

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

know what research design is
explain and understand the importance of research design in social research
differentiate between experimental designs and quasi-experimental designs
make the correct design choices at every given time
discuss the strengths and weaknesses of the different designs
apply and evaluate design tasks in Social Research.

3.0 MAIN CONTENT

3.1 Meaning of Research Design

Research Design is a logical arrangement of the procedures and tools to be employed in a proposed research in order to minimize misinterpretation of the social phenomenon being investigated. This constitutes the beginning of the empirical phase of the research process as it lays out the rationale (in a coherent manner) for a particular combination of methods that are to be utilized to obtain the research result or findings.

According to Selltiz et al (1950), research design is the arrangement of plans, conditions and analysis of data in a manner that aims to combine relevance to the research purpose with economy of procedures. This means, it is possible for a research to have multiple or alternative designs but only one of the designs must be followed and this should be based on the research purpose.

It is the adopted design that would guide the process of selection of subject such as sampling. Research design enables the researcher to continue with the investigation even when he/she cannot access a set of respondents or even when the originator of the research is unavailable. So it becomes obvious that it is the vehicle for operationalizing a research question. The Research Design must therefore be adequate, allow the investigator to incorporate contingencies and respond to unforeseen circumstances without abandoning the original research goal.

SELF ASSESSMENT EXERCISE 1

What is the relevance of research design to social research?

3.2 Components of Research Design

There are several components of a research design but ideally, a good research design contains the following elements:

A clear indication of the steps to be taken to minimize conflicting explanations for the relationship being investigated. One important fact here is that the study should be arranged in such a way that a high degree of control, comparison or manipulation of the variables is achieved. This is because different research problems require different research designs, so establishing a real relationship counts. For instance, while some research projects

require a comparative research designs, others might need just a case study design, cross-sectional design or a longitudinal design. Selection and Design of Sampling Procedures: This consists of the main steps that have to taken before data collection. These are:

- Specification and identification of the target population;
- Logical and statistical determination of the size and types of sample to be used to select the identified target population;
- Specifications of the method for drawing or selecting the sample; and
- Estimations of the margin of error allowed for in the research findings.

Selection and construction of research instrument and measurement. This involves:

i. The selection and construction of the research instrument based on the research objectives ;
ii. The setting and characteristics of the subject; and
iii. The topic of inquiry and the resources available for the inquiry.

SELF ASSESSMENT EXERCISE 2

Discuss the components of a Research Design

3.3 Types of Research Design

Research Design can be classified into three and these are:

3.3.1 Experimental Design

Experimental design is the art of planning and implementing an experiment in which the researcher has control over some of the conditions where the study takes place and control over some aspects of the independent variable(s) (presumed cause or variable used to predict another variable). It also refers to the different variations of the classical experimental study which emphasize mainly the elements of control and manipulations.

It is developed when you want to determine whether some programs or treatments cause some outcomes, which means that you want to assess the proposition like:

If X, then Y or

if the program is given, then the outcome occurs.

Unfortunately, it is not enough to just show that when the program or treatment occurs, the expected outcome also happens. This is because there may be lots of reasons, other than the program, for why you observed the outcome. To really show that there is a causal relationship, you have to simultaneously address the two propositions which may be:

If X, then Y,

and If not X, then not Y or,

if the program is given, then the outcome occurs

and If the program is not given, then the outcome does not occur.

A great deal of controversy surrounds the application of the design type in the investigation of social phenomenon. This is as a result of its complexity and nature of the subject of social phenomenon. Nevertheless, experimental design continues to be applied in social research especially in psychology because of the high precision and manipulation that it allows during observation or measurement.

3.3.2 Quasi-experimental Design

It is a form of experimental research in which the researcher does not have control in terms selecting subjects, applying treatment and comparing them with the control group. It refers to a type of research design that shares many similarities with the traditional experimental design or randomized controlled trial. But it specifically lacks the element of random assignment. With random assignment, participants have the same chance of being assigned to a given treatment condition. As such, random assignment ensures that both the experimental and control groups are equivalent. In a quasi-experimental design, assignment to a given treatment condition is based on something other than random assignment. Depending on the type of quasi-experimental design, the researcher might have control over assignment to the treatment condition but use some criteria other than random assignment (e.g. a cutoff score) to determine which participants receive the treatment.

The key difference with this empirical approach is the lack of random assignment. Another unique element often involved in this experimentation method is use of time series analysis. It also requires less effort to study and compare subjects or groups that are already naturally organized than to have a conducted random experiment of subjects. This design minimizes threats to external validity as natural

environment do not suffer same problems of artificiality as compared to a well-controlled laboratory setting.

SELF ASSESSMENT EXERCISE 2

Discuss quasi-experiment research design and state its merit and demerit.

4.0 CONCLUSION

Attempt has been made in this unit to discuss research design and its components when planning and conducting an empirical social research. It was emphasized that the design you adopt for any inquiry should be contingent on the purpose of the research because this will further determine the types of research design you choose.

5.0 SUMMARY

In this unit, you have been introduced to the main issues involved in research design; its components and types of research design have equally been discussed. To this end, you are expected to know and understand:

The meaning of research design;
Components of research design;
Relevance of research design to social research;
Types of research design;
The advantages and disadvantages of each type of research designs.

6.0 TUTOR-MARKED ASSIGNMENT

What do you understand by research design? Discuss the components and types of research design that you know.

7.0 REFERENCES/FURTHER READING

Ahonsi, B.A, and Aina, T. A (1996) "Research Design: Component and Variety" in Ahonsi, B. & Soyombo, O. (eds.). *Readings in Social Research Methods and Applications.* Ibadan: Caltop Publishers. pp 81-149.

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On-line Resources

http://en.wikipedia.org/wiki/Quasi-experimental_design

http://www.mc3edsupport.org/community/knowledgebases/types-of-research-design-800.html

MODULE 2

INTRODUCTION

This module consists of five units that are structured to make it easy for you to understand what sampling techniques and hypothesis are in social research. The module also exposes you to details of validity and reliability that would enable you have a clear understanding of principles of validity and reliability, how to choose sampling types and how to formulate hypothesis. Specifically, this module is broken down into the following units:

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

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 characteristic or feature of the population.

2.0 OBJECTIVES

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

explain what is Sampling
describe steps in Sampling Process
explain Sampling Functions
define the 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 larger 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 1

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 samples.

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 2

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 3

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 Program 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 the population that the researcher will select from.

Ideally, from the example given above, the researcher should survey 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 4

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 statistic 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 5

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 exist. In Nigeria, for instance, there is no population register that can be used for sampling purpose. The closet 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 student for a survey of the student body in a University.

SELF ASSESSMENT EXERCISE 6

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, these 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, we have explained sampling and sampling methods, the steps in the sampling process, sampling frame, sampling functions, qualities of good sample, 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

3.1 Sampling

There are two major types of sampling procedures available to researchers. These are:

1. Probability and
2. Non-probability sampling.

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 2000, 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:

3.3 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.

3.4 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 80with 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 individual from each of the subgroups.

3.5 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, e.t.c. 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.

3.6 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, a

sample may be used or may be randomly assigned to two or more treatment.

5.0 SUMMARY

Much of this unit has been devoted to the key sampling methods used in Probability Sampling. In each of the variations discussed, we 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.

7.0 REFERENCES/FURTHER READING

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 a sampling technique which 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 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, e.t.c).

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 in order 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, in order 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, behavior 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 measures 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 use 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 student 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 a distribution 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 behavior 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 individual;
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 behavior. 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 behavior 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 e.t.c.

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 time. 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 meters 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
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 called a correlation coefficient symbolize. 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.

3.3 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:

3.3.1 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

3.3.2 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 wishes 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.

3.3.3 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 item 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:

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

Where:

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

3.3.4 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:

α or $rxx = (k/k-1)\ (Sx^2-\sum S1^2/Sx^2)$
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.

3.3.5 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 behavior. One must show that the ratings assigned are not influenced by the observers own values, attitudes and other personality characteristics.

4.0 CONCLUSION

We observed 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 requires the use of criteria for the evaluation of these instruments. In this unit, we explain 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 TUTOR-MARKED ASSIGNMENT

List and discuss the different types of Validity in Social Research.

7.0 REFERENCES/FURTHER READING

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

Fraenkel, J. R. and Wallen, N. E. (1996), *How to Design and Evaluate Research in Education.* USA; Mc Graw-Hill.

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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 an Hypothesis is
examine the purposes of well-formulated Hypothesis
identify the types of Hypothesis
know 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 1

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 behavior, notices trends or probable relationships and then hypothesizes an explanation for his observed behavior. 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, hence a teacher may inductively formulate a generalization that attempt 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 significance 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

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
Determine 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

We have discussed and defined hypothesis, dwelling on its various types and testing of hypothesis. Consequent upon this, you should be able to:

Define Hypothesis;
Examine the purposes of well-formulated Hypothesis;
Identify the types of Hypothesis; and
Know how to test Hypothesis.

7.0 REFERENCES/FURTHER READING

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

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MODULE 3

INTRODUCTION

This module consists of three units. It is designed to expose you to the understanding of how to develop research questions, the nature of both quantitative and qualitative research and how to apply them.

Specifically, this module will discuss:

Unit 1 Formulating Research Questions
Unit 2 Nature of Quantitative Research
Unit 3 Nature of Qualitative Research

UNIT 1 FORMULATING RESEARCH QUESTIONS

CONTENTS

1.0 INTRODUCTION

This unit introduces you to guidelines on how to formulate your research questions. It exposes you further to the factors that could possibly assist you in understanding and developing your research questions. It is believed that this unit will help you have a sound knowledge on how to formulate research questions, the factors to be considered when developing the questions and types of research questions.

2.0 OBJECTIVES

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

define what a research question is
describe the process of formulating research questions
know the sources of research ideas
list and explain the characteristics of good research question
differentiate between research questions and research problems.

3.0 MAIN CONTENT

3.1 Definition of Research Question

A Research Question is a statement that identifies the phenomenon to be studied and part of the problem that the research wants to solve. Before you begin a research project, you should take some time out to map out your research strategy. A good first step in this direction is to formulate a research question. To develop a strong research question from your ideas, you should also ask yourself some of the following questions:

Do I know the field and its literature well?
What are the important research questions in my field?
What areas need further exploration?
Could my study fill a gap or lead to greater understanding?
Has a great deal of research already been conducted in this topic area?
Has this study been researched before? If so, is there room for improvement?
Is the timing right for this question to be answered? Is it a 'hot' topic, or is it becoming obsolete?
If you are proposing a service program, is the target community interested?
Most importantly, will my study have a significant impact on the field of study?

These questions will guide and structure the choice of data to be collected and analyzed. Some research questions focus your attention on the relationship of particular theories and concepts. For instance, how does personality relate to career choices of members of different religions? Some research questions aim at opening an area to let possible new theories emerge. Formulating a research question is a task. Good research questions are formed and worked on, and are not easily found. You start with what interests you, and you refine it until it is

workable. There is no recipe for the perfect research question, but there are bad research questions.

SELF ASSESSMENT EXERCISE 1

Explain the significance of Research Question to problem in Social Research.

3.2 Guidelines for Formulating Good Research Questions

Relevance

The question should be of academic and intellectual interest to people in the field you have chosen to study. The question should certainly develop from issues raised in the literature or in practice. You should be able to establish a clear purpose for your research in relation to the chosen field. For example, are you filling a gap in knowledge, analyzing academic assumptions or professional practice, monitoring a development in practice, comparing different approaches or testing theories within a specific population?

Manageable

You need to be realistic about the scope and scale of the research work. The question you ask must be within your ability to tackle. For example, are you able to access people, statistics, or documents from which to collect the data you need to address the question fully? Are you able to relate the concepts of your research question to the observations, phenomena, indicators or variables you can access? Can these data be accessed within the limited time and resources you have available to you?

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Substantial and Original

The question should not simply copy questions asked in other people's research project, previously undertaken. It should depict your own imagination and your ability to construct and develop research issues. And it needs to give sufficient scope to develop into a dissertation.

Consistent with the requirements of the assessment

The question must allow the scope to satisfy the learning outcomes of the research

For example, you can choose to conduct a theoretical study, one that does not contain analysis of empirical data. In this case, it will be

necessary for you to think carefully before making such a choice. This is because you would be required to give an account of your methodology, to explain why theoretical analysis was the most appropriate way of addressing the question and how you have gone about using theoretical models to produce new insights about the subject.

Clear and Simple

The complexity of a question can frequently hide unclear thoughts and lead to a confused research process. A very elaborate research question, or a question which is not differentiated into different parts, may hide concepts that are contradictory or not relevant. Getting this clearly and thought-through is one of the hardest parts of your study. You may feel tempted to make do with a broad and vague research question for the moment. However, a muddled question is likely to generate muddled data and equally muddled analysis. Therefore, having one key question with several sub-components will guide your research here and provide a clean and clear research questions.

SELF ASSESSMENT EXERCISE 2

Discuss the guidelines for formulating research questions

3.3 Types of Research Questions

i. **Existence Research Questions:** This question is usually formulated to systematically ensure the existence and reality of the subject of attention. For instance: Does X exist? Is there such a thing as HIV?

ii. **Classification Research Question:** What is X like? Is it variable or invariant?, What are the characteristics of attention? Is attention uni-dimensional or multidimensional? Is attention variable or constant?

iii. **Composition Research Question:** This type of question calls for analysis or breakdown of the subject of attention. For example, what are the components that make up X? What are the varieties of attention? what are the factors that make up or What are the principal components of the subject of attention.

iv. **Relationship Research Questions:** This asks more complex questions of relationship. For example is there an association between X and Y? Is attention related to gender? Is working memory capacity related to student performance?

v. **Descriptive and Comparative Research Question:** This asks questions such as: Is Group X different from Group Y? Are women more aggressive than men? Do young people have better memory than old adults? Are warning labels with pictographs more effective than labels with words only?

vi. **Causality Research Question:** This focuses on questions such as does X cause, lead to, or prevent changes in Y? Does practice lead to skill? Does alcohol intoxication prevent accident? Does dividing attention degrade performance?

vii. **Causality-Comparative Research Questions:** It provides answers to questions like Does X cause more change in Y than does Z? Is aerobic exercise better than problem solving exercises at enhancing cognitive performance of older adult? Effects of X are compared with a rival treatment (Z) not simply absence of treatment

4.0 CONCLUSION

This unit deals and discusses the formulation of research questions focusing more on the relevant guidelines for its formulations. It discusses the different types of research question with examples.

5.0 SUMMARY

In this unit, you have been introduced to research questions. The meaning and importance of research questions, guidelines for formulating research questions and various types of research question have been discussed with examples. At the end of this unit, you are expected to understand and know:

What the meaning of research questions is;
The relevance of research question in social research;
Describe the guidelines for and process of formulating research questions;
The characteristics of good research question; and
Differentiate between research questions and research problems

6.0 TUTOR-MARKED ASSIGNMENT

Research question is a crucial aspect of Social Research. Discuss.

7.0 REFERENCES/FURTHER READING

Bryman, A. (2004). *Social Research Methods* (2nd ed.). Oxford: Oxford University Press.

On-Line Resources:

http://www.socscidiss.bham.ac.uk/s7.html

http://hcc.cc.gatech.edu/documents/115_Fisk_research%20questions%202003.pdf

http://www.theresearchassistant.com/tutorial/2-1.asp

UNIT 2 NATURE OF QUALITATIVE RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit explains what Qualitative Research is, how it differs from Quantitative Research, and how one goes about conducting a qualitative study. It exposes you to how Qualitative Research offers the background for exploring data collection and data analysis for qualitative studies.

2.0 OBJECTIVES

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

know the meaning of Qualitative Research
describe the importance and characteristics of a good Qualitative Research
understand the various types of Qualitative Research method
evaluate the benefits of the various types of Qualitative Research
state the advantages and disadvantages of Qualitative Research.

3.0 MAIN CONTENT

3.1 Meaning of Qualitative Research

A qualitative research may be generally defined as a study, which is conducted in a natural setting where the researcher, an instrument of data collection, gathers words or pictures, analyzes them inductively, and describes a process that is both expressive and persuasive in

language. 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. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting.

Qualitative Research attempts to understand and make sense of a phenomenon from the participant's perspective. The researcher can approach the phenomenon from an interpretive, critical, or postmodern stance. All qualitative research is characterized by the search for meaning and understanding. The researcher as the primary instrument of data collection and analysis uses an inductive investigative strategy, and a richly descriptive end product. 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.

Qualitative Research demands a commitment to an extensive time in the field, engagement in the complex, time-consuming process of data analysis, writing of long passages, and participation in a form of social and human science research that does not have firm guidelines or specific procedures and is evolving and changing constantly.

SELF ASSESSMENT EXERCISE 1

What is your understanding of Qualitative Research?

3.2 Reasons for Conducting Qualitative Research

The following reasons could necessitate a qualitative inquiry:

Topics that need to be explored: This is a situation where variables cannot be easily identified, theories are not available to explain behavior of participants or their population of study.

Need to present a detailed view of the topic: This is the case where existing view is not enough to present answers to the problem.

Need to study individuals in their natural setting: This is the case where, if participants are removed from their natural setting, it leads to contrived findings that are out of context.

Need to write in a literary style: This is where the writer engages a story telling form of narration and the personal pronoun "I" is used.

Where there is sufficient time and resources to spend on extensive data collection in the field and detailed data analysis of "text" information.

3.3 Nature of Qualitative Research

1. Often researchers undertake a qualitative study because there is a lack of theory or an existing theory fails to adequately explain a phenomenon.

2. Qualitative research is inductive. That is, researchers gather data to build concepts, hypotheses, or theories rather than deductively deriving postulates or hypotheses to be tested (as in positivist research).

3. Qualitative researches build toward theory from observations and intuitive understandings gleaned from being conversant with the information in the field. Typically, findings inductively derived from the data in a qualitative study are in the form of themes, categories, typologies, concepts, tentative hypotheses, and even substantive theory.

4. The product of a qualitative inquiry is richly descriptive. Words and pictures rather than numbers are used to convey what the researcher has learned about a phenomenon.

5. Finally, data in the form of quotes from documents, field notes, and participant interviews, excerpts from videotapes, electronic communication, or a combination of some or all of these are always included in support of the findings of the study. These quotes and excerpts contribute to the descriptive nature of qualitative research.

3.4 Characteristics of a Good Qualitative Research

There are standards for assessing the quality of qualitative studies .The following list of characteristics of a "good" qualitative research is adopted from Creswell (1998) presentation:

It entails rigorous data collection. The researcher collects multiple forms of data, summarizes them adequately and spends adequate time in the field.

The study is framed within the assumptions and characteristics of the qualitative approach to research.

The researcher identifies studies and employs one or more traditions of inquiry.

The researcher starts with a single idea or problem that she/he seeks to understand, not a causal relationship of variables.

The study involves detailed methods, a rigorous approach to data collection, data analysis, and report writing.

The writing is so persuasive that the reader experiences the study as though he was present in it.

Data is analyzed using multiple levels of abstraction. That is, the researcher's work is presented in a way that moves from particular to general levels of abstraction.

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.

3.5 Types of Qualitative Research

There are several types and classifications of Qualitative Research methods, but here, only five of them based on Creswell's (1998) classification are discussed.

3.5.1 Biography /Interpretative Research

A biographical study is the study of an individual and his/her experiences as told to the researcher or found in documents and archival records (Creswell, 1998). It begins with an objective set of experiences in the subject's life, noting life course stages and experiences. The life course stages may be childhood, adulthood, or old age, written in a chronology, or experiences such as education, marriage, and employment. Then, the researcher gathers concrete contextual biographical material using interview method. Here, the researcher focuses on gathering stories as the subject recounts a set of life experiences in the form of a story or narrative.

The researcher then organizes the stories around themes that indicate epiphanies (i.e., pivotal events) in the subject's life and explores the meanings of these stories. However, the researcher relies on the individual to provide explanations and then searches for multiple meanings. In addition, the researcher looks for larger structures to explain the meanings, and provides an interpretation for the life experiences of the individual. The larger structures could be social interactions in groups, cultural issues, ideologies and historical context. If more than one individual is studied, cross-interpretation can be done.

The information gathered from and about the subject is usually very extensive and demanding. There is the need to have a clear understanding of the history context to enable one to position the subject within the larger trends in society or in the culture. The researcher needs to be able to bring himself/herself into the narrative and to acknowledge his or her standpoint, since this is an interpretive research.

3.5.2 Phenomenological Research

A phenomenological study describes the meaning of the lived experiences for several individuals about a concept or a phenomenon (Creswell, 1998). It explores the structures of consciousness in human experiences. And it involves writing research questions that explore the meaning of lived experiences for individuals, and asks individuals to describe these experiences. The researcher collects data, typically via long interviews, from individuals who have experienced the phenomenon under investigation.

The data analysis involves extracting significant statements from transcribed interviews. The significant statements are then transformed into clusters of meanings according to how each statement falls under specific psychological and phenomenological concepts. These transformations are tied together to make a general description of the experience – both the textural description (of what was experienced) and the structural description (of how it was experienced). The researcher can incorporate his/her personal meaning of the experience here. Finally, the report is written in such a way that readers understand better the essential structure of the experience.

The researcher requires a solid grounding in the philosophical precepts of phenomenology. The subjects selected for the study should be individuals who have actually experienced the phenomenon. The researcher needs to bracket his/her own experiences, which is difficult to do. The researcher needs to decide as to how and when his/her personal experiences will be incorporated into the study.

Grounded Theory

The intent of grounded theory is to generate or discover a theory. It is an abstract analytical schema of a philosophy that relates to a particular situation. This situation could be one in which individuals interact, take actions, or engage in a process in response to a phenomenon. In open coding, the researcher forms initial categories of information about the phenomenon being studied by segmenting information. Within each category (a category represents a unit of information composed of events, happenings and instances), the researcher finds several properties, or subcategories to show the extreme possibilities on a continuum of the property.

In addition, the researcher assembles the data in new ways after open coding. The researcher presents this using a coding paradigm or logic diagram in which he/she identifies a central phenomenon, explores causal conditions (i.e., categories of conditions that influence the phenomenon), specifies strategies (i.e., the actions or interactions that result from the central phenomenon), identifies the content and intervening conditions (i.e., the narrow and broad conditions that influence the strategies), and delineates the consequences (i.e., the outcomes of the strategies) for this phenomenon.

Finally, the researcher develops and visually portrays a conditional matrix that elucidates the social, historical, and economic conditions influencing the central phenomenon.
This process results in a theory that is close to a specific problem or population of study.

However, the researcher needs to set aside, as much as possible, theoretical ideas or notions so that the analytical, substantive theory can emerge. Despite the evolving, inductive nature of this form of a qualitative inquiry, the researcher must recognize that this is a systematic approach to research with specific steps in data analysis. The researcher faces the difficulty of determining when the theory is sufficiently detailed.

3.5.4 Ethnographic Research

Ethnography is a description and interpretation of a cultural or social group or system (Creswell, 1998). In such a study, the researcher examines the group's observable and learned patterns of behavior, customs, and ways of life. Here, the researcher becomes a participant observer, and gets immersed in the day-to-day lives of the people or through one-on-one interviews with members of the group. The

researcher focuses on the meanings of behavior, language, and interactions of the culture-sharing group.

The research begins with the researcher looking at people in interaction in ordinary settings and attempting to discern pervasive patterns such as life cycles, events, and cultural themes. To establish patterns, the ethnographer engages in extensive field work, gathering information through observations, interviews, and materials helpful in developing a portrait and establishing "cultural rules" of the culture-sharing group.

The researcher is also sensitive about reciprocity between the investigator and the subjects being studied, so that something will be returned to the subjects being studied in exchange for their information. Lastly, the researcher is also sensitive to reactivity, the impact of the researcher on the site and the people being studied. The researcher also makes every effort to make his/her intent known from the start to avoid any trace of deception. The researcher then does a detailed description of the culture-sharing group or individual, an analysis by themes or perspectives and some interpretation for meanings of social interaction and generalizations about human social life.

The researcher needs to have a good grounding in cultural anthropology and the meanings of social-cultural systems as well as the concepts typically explored by ethnographers. The time to collect data is extensive, involving prolonged time in the field. The style of writing, literary (almost story telling approach), may limit audience and may be challenging for some authors who are used to traditional approaches of writing social science research. There is the possibility that the researcher would "go native" and be unable to complete the study or be compromised in the study.

3.3.6 In-depth Interview

An in-depth interview is a qualitative research technique that allows a person to person discussion. It can lead to increased insight into people's thoughts, feelings, and behavior on important issues. This type of interview is often unstructured and therefore permits the interviewer to encourage a respondent to talk at length about the topic of interest. The in-depth interview uses a flexible interview approach. It aims to ask questions to explain the reasons underlying a problem or practice in a target group. You can use the technique to gather ideas, to gather information, and to develop materials for drug use interventions. One effective way to understand the reasons underlying problem behaviors is in-depth analysis. Areas in which the method can be used include: in 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, e.g., structured questionnaire and to evaluate the impacts of interventions on attitudes or beliefs.

Once the decision to use in-depth interview has been taken, very important planning decisions and preparations are needed. These include designing the study, identifying the target group, preparing for the fieldwork, and collecting and analyzing the data.

One of the first planning decisions to consider is the need for a resource person, particularly if the investigator is not confident enough with the application of the method. Other things to consider before you decide to seek the assistance of a resource person are the size of the study and the resources available to it. Identifying respondents from whom you can obtain the information you need is a very important part of the study since the sources of information affect the quality of data obtained. You must therefore identify key informants who can provide useful information for the study. Another thing to bear in mind is that in-depth interviews take much more time than structured questionnaires.

Consequent upon the time factor, it is not usually practicable to interview a large sample. Usually informants are selected for in-depth interviews in a purposive manner, that is, people with specific demographic/social characteristics are chosen to represent a defined subgroup. This involves identifying individuals from the target groups who are and must be knowledgeable about the study topic. Depending upon the nature of the problem and composition of the target population, respondents are selected from various identifiable subgroups. Respondents selected must be fairly representative of the various groups in the study population for this technique to be useful.

3.3.7 Focus Group Discussions

It is a method designed mainly to gather information about values, beliefs and understanding in a study population on issues that are central to the researcher. The use is ideal when the research interest is to seek out the processes and notions behind a prevailing generalization on a particular issue. It is often used to complement other sources of data. Focus groups are a somewhat informal technique that can help you assess user needs and feelings both before interface design and long after implementation. In a focus group, you bring together from six to twelve users to discuss issues and concerns about the features of a user interface. The discussion typically lasts about two hours and is run by a moderator who maintains the group's focus. Focus groups often bring out users' spontaneous reactions and ideas and let you observe some

group dynamics and organizational issues. You can also ask people to discuss how they perform activities that span many days or weeks.

In interactive systems development, the proper role of focus groups is to assess and to discover what users want from the system. For participants, the focus-group session should be free-flowing and relatively unstructured, but in reality, the moderator must follow a preplanned script of specific issues and set goals for the type of information to be gathered. During the group session, the moderator has the difficult job of keeping the discussion on track without inhibiting the flow of ideas and comments. The moderator also must ensure that all group members contribute to the discussion and must avoid letting one participant's opinions dominate.

Focus groups require several representative users. Because you need a flowing discussion and various perspectives, the initial focus group should have at least six users. Typically, you should run more than one focus group, because the outcome of any single session may not be representative and discussions can get sidetracked.

Types of Focus Group Discussions

Two-way Focus Group- One group watches another group and discusses the observed interactions and conclusion;
Dual moderator focus group –One moderator ensures that the session progresses smoothly, while another ensures that all the topics are covered;
Dual moderator focus group – two moderators deliberately take opposire sides on the issue under discussion;
Respondent moderator focus group- one or more of the respondents are asked to act as the moderator temporarily;
Client participate focus groups- one or more client representatives participate in discussion, either covertly or overly;
Mini focus groups- group are composed of four or five members rather than 6 to 12;
Teleconference focus group- Telephone network is used; and
Online focus group- Computer connection or the internet is used.

SELF ASSESSMENT EXERCISE 2

Discuss the various types of qualitative research that you know.

3.4 Advantages and Disadvantages of Qualitative Research Method

3.4.1 Advantage

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.

The researcher can expand his or her understanding through non-verbal as well as verbal communication, process information (data) immediately.

The researcher can clarify and summarize material, check with respondents for accuracy of interpretation.

3.4.2 Disadvantage

It can entertain biases that might have an impact on the study. Rather than trying to eliminate these biases, it is important to identify them and monitor them as to how they may be shaping the collection and interpretation of data. It can produce inaccurate data because users may think they want one thing when they need another. You can minimize this problem by exposing users to the most concrete examples of the technology being discussed as possible.

4.0 CONCLUSION

This unit deals with the nature of Qualitative Research, its importance and characteristics of good Qualitative Research. It further discusses the various types of Qualitative Research, especially as classified be Creswell (1998) focusing on their applications and usage. Finally, It discusses the merits and demerits of Qualitative Research.

5.0 SUMMARY

In this unit, you have been introduced to the nature of Qualitative Research. The importance and characteristics of good quality research as well as the various types of Qualitative Researches are also discussed with examples. At the end of the unit, you are expected to understand:

The meaning of Qualitative Research;

The importance and characteristics of a good Qualitative Research;
The various types of Qualitative Research method;
And evaluate the benefits of the various types; and
The advantages and disadvantages of Qualitative Research.

6.0 TUTOR-MARKED ASSIGNMENT

List and discuss the various types of Qualitative Research that you know.

7.0 REFERENCES/FURTHER READING

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Online Resources

http://www.socialresearchmethods.net/tutorial/Lapolt/lizhtm.htm

http://www.useit.com/papers/focusgroups.html

http://wwwdcc2.bumc.bu.edu/prdu/INRUD_2000_CDROM/.../qm_ch3.doc.

UNIT 3 NATURE OF QUANTITATIVE RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit explains what Quantitative Research is, how it differs from Qualitative Research, and how you can conduct a Quantitative Research. It exposes you to the strength in Quantitative Research and offers a background for exploring, field survey experiences, data collection and data analysis for quantitative studies.

2.0 OBJECTIVES

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

define and explain what Quantitative Research is
describe the importance and characteristics of a good Quantitative Research
know the various types of Quantitative Research method
evaluate the benefits of the various types of Quantitative Research
compare the advantages and disadvantages of Quantitative with Qualitative Research.

3.0 MAIN CONTENT

3.1 Meaning of Quantitative Research

Quantitative Research is the systematic scientific investigation of quantitative properties and phenomena and their relationships usually to develop and employ theories and/or hypotheses pertaining to a phenomenon. It can further be defined as a research that is concerned with the numeric relevance of various kinds of behavior or the generation of numerical data or that can be converted into numbers using statistical methods to count and measure outcomes of the study. The outcomes are usually objective and predetermined.

A large number of participants are usually involved in quantitative research to ensure that the results are statistically significant. Huysamen (1997) defines it as a cycle of successive phases involving hypothesis formulation, data collection, analysis and interpretation. In other words, quantitative research seeks to establish facts, make predictions, and test hypotheses that have already been stated. A large part of the data analysis of quantitative research is statistical, striving to show that the world can be looked at in terms of one reality, this reality, when isolated in context, can be measured and understood.

Once you have collected your data, you need to make sense of the responses you have got back. Quantitative data analysis enables you to make sense of data by:

organising them
summarising them
doing exploratory analysis
and to communicate the meaning to others by presenting data as tables, graphical displays and summary statistics

3.2 Reasons for Conducting Quantitative Research

The following reasons could warrant conducting a quantitative inquiry:

When there are differences between the things we study
When there is a relationship between the things we have studied.
When there a relationship between the number of periods When a researcher aims to come up with findings that are generalizable, a quantitative research approach is often the most appropriate.
It is suited for studying problems for which there are fairly well developed theories to guide the designing and utilization of

standardize d data collection procedures and structured research instrument.

When the researcher want to use statistics involving multi-way tables and significance test for different groups of phenomena

When the outcome of the research sought after a general pattern rather than a process motives.

3.3 Sources of Data for Quantitative Research

We can gather quantitative data in a variety of ways and from a number of different sources. Many of these are similar to sources of qualitative data, for example:

Questionnaires - a series of questions are formulated for the purpose of gathering information from respondents ;

Interviews - a conversation between two or more people (the interviewer and the interviewee) ensues. Where questions are asked by the interviewer to obtain information from the interviewee, a more structured approach would be used to gather quantitative data;

Observation - a group or single participants are manipulated by the researcher, for example, asked to perform a specific task or action. Observations are then made of their user behaviour, user processes, workflows etc, either in a controlled situation (e.g. lab based) or in a real-world situation (e.g. the workplace);

Transaction logs - recordings or logs of system or website activity

Documentary research - analysis of documents belonging to an organization

3.4 Characteristics and Nature of Quantitative Research

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

3.4.1 Hypotheses

When we conduct quantitative research, we are often concerned with finding evidence to either support or contradict an idea or hypothesis the researcher might have formulated. In hypothesis testing, we generally have two hypotheses: (1) a null hypothesis (which usually indicates no change or no effect) and (2) an alternative hypothesis (which is usually our experimental hypothesis). The evidence from the sample is taken to support either the null or the alternative hypothesis. When a researcher is interested in hypothesis testing, he /she will conduct an experiment to gather their data. So, we could take one sample from our population of

students, give them some training on how to search and then ask them to find some specific information. We ask another sample of students to search for the same specific information but don't give them training - and we see which group did better through a variety of different measures, some subjective and some objective. So, do the data we gather contain evidence that agrees with the alternative (experimental) hypothesis or the null hypothesis?

In testing a hypothesis (we never actually prove or disprove a hypothesis) all we ever get is evidence from a sample that either (1) supports a hypothesis or (2) contradicts a hypothesis. The Hypothesis contains concepts which need to be measured.

To do this, we need to:

translate concepts into measurable factors;
take these measurable factors and treat them as variables; and
identify measurement scales to quantify variables.

3.4.2 Causality or Cause and Effect

This is essentially concerned with showing how things come to be the way they are. To do this, we need to identify our variables:

Independent Variable – This is the variable that is deliberately manipulated by the researcher
Dependent variable – This is the variable that is measured to find out the effect of the manipulated (independent) variable
Control variables – This may be potential independent variables, but are held constant during the experiment

So, following on with our example, students are timed whilst searching for information to assess the effectiveness of their searching behaviour, some were given prior search training

Independent Variable = training - manipulate by varying training given to different students
Dependent = time taken to find information - which we can measure by timing how long to search
Control = searching behaviour may be affected by previous use, age, educational level, and even time of day. Some of these may be controllable but others may not be, e.g. degree of frustration.

So, our experimental (or alternative) hypothesis is that if we give more training it will take less time to search and conversely if we give less

training it will take more time to search - we have a cause (training) and effect (time taken). The null hypothesis is that there will be no change or effect. Independent variables are assumed to have a "Causal" impact on the dependent variable. Wikipedia defines causality as ' a necessary relationship between one event (called cause) and another event (called effect) which is the direct consequence (result) of the first'

3.4.3 Generalizability

This is pursuit of findings that can be generalised beyond the specific research - the degree to which the results of a study or research can be extrapolated to other circumstances. So, 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. In other words, can you apply what you found in your study to other people (population validity) or settings (ecological validity). For example, a study of postgraduate Masters Students in a UK university that found one method of teaching statistics to be superior to another may not be applicable with first year undergraduate students (population) in an American university (ecological).

3.4.4 Reliability or Internal Validity

Reliability or Internal Validity is concerned with repeating a piece of research in order to establish the reliability of its findings. Reliability is the consistency and dependency of a measure. Sometimes it is referred to as the repeatability or the test-retest reliability. This means that a reliable test should produce the same results on successive trials.

3.4.5 Using Software for Statistical Analysis

We can undertake our statistical analysis manually, using simple counts or 5-bar gates, but most times we use software to help us. For the Social Sciences, the best well used package is SPSS (Statistical Package for the Social Sciences) - specifically designed to deal with data and generate statistics. You can use Excel - but is best for simple calculations and some statistics. Excel is very useful for generating graphs to illustrate your results.

Quantitative data analysis is a powerful tool, but it is only as good as:

the original data;
data collection instrument;
operational definitions; and
research question.

SELF ASSESSMENT EXERCISE 1

Define Quantitative Research and state the reasons that can propel you to adopt quantitative research.

3.5 Characteristics of a Good Quantitative Research

There's no such thing as qualitative data or description. Everything is either 1 or 0.

The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed.
Researcher knows clearly in advance what he/she is looking for.
Recommended during latter phases of research projects.
All aspects of the study are carefully designed before data collection.
Researcher uses tools, such as questionnaires to collect numerical data.
Data is in the form of numbers and statistics.
Objective – seeks precise measurement & analysis of target concepts, e.g., uses surveys, questionnaires etc.
Quantitative data is more efficient, able to test hypotheses, but may miss contextual detail.
Researcher tends to remain objectively separated from the subject matter.

3.6 Types of Quantitative Research

Descriptive: Descriptive Quantitative Research involves collecting data in order to test hypotheses or answer questions concerning the current status of the subjects of the study. It determines and reports the way things are.

Correlational: Correlational Quantitative 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. The relationship is expressed by correlation coefficient, which is a number between .00 and 1.00.

Cause-Comparative: Causal-Comparative Quantitative Research: establishes the cause-effect relationship compares the relationship, but the cause is not manipulated.

Experimental: Experimental Quantitative Research establishes the cause-effect relationship and does the comparison, but the cause is manipulated. The cause, independent variable makes the difference. The effect, dependent variable is dependent on the independent variable. This involves the deliberate manipulation of an intervention in order to determine its effects. An experiment may compare a number of interventions with each other, or may compare one (or more) to a control group. If allocation to these different 'treatment groups' is decided at random, it may be called a true experiment. If allocation is on any other basis it is usually called a 'quasi-experiment.

3.7 Advantages and Disadvantages of Quantitative Research

3.7.1 The advantage of Quantitative Research

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

3.7.2 The Disadvantage of Quantitative Method

Failure to provide the researcher with information on the context of the situation where the studied phenomenon occurs;
Inability to control the environment where the respondents provide the answers to the questions in the survey;
Limited outcomes to only those outlined in the original research proposal due to closed type questions and the structured format;
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 various types of Quantitative Research focusing on their applications and usage. Finally, it discusses the merits and demerits 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 types of Quantitative Research with examples were discussed. At the end of 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 Advantage and disadvantage of Quantitative Research

6.0 TUTOR-MARKED ASSIGNMENT

List and discuss the various types of quantitative research that you know.

7.0 REFERENCES/FURTHER READING

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Creswell, John. (1994) Research Design: *Qualitative and Quantitative Approaches.* Thousand Oaks, CA: Sage Publications.

Balsley, H.L. (1970). *Quantitative Research Methods for Business and Economics.* New York: Random House. **On-Line**

Resources

http://www.russcomm.ru/eng/rca_biblio/m/matveev01_eng.shtml

http://www.learnhigher.ac.uk/analysethis/main/quantitative4b.html

http://www.gsu.edu/~polacb/8800SYFB.htm
http://en.wikipedia.org/wiki/Causality

MODULE 4

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.

3.1 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 setting. 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 tittle 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 unfulfilable 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

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 make 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 generalization 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

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

7.0 REFERENCES/FURTHER READING

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MODULE 5

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 analyzed 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 TUTOR-MARKED ASSIGNMENT

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

7.0 REFERENCES/FURTHER READING

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

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

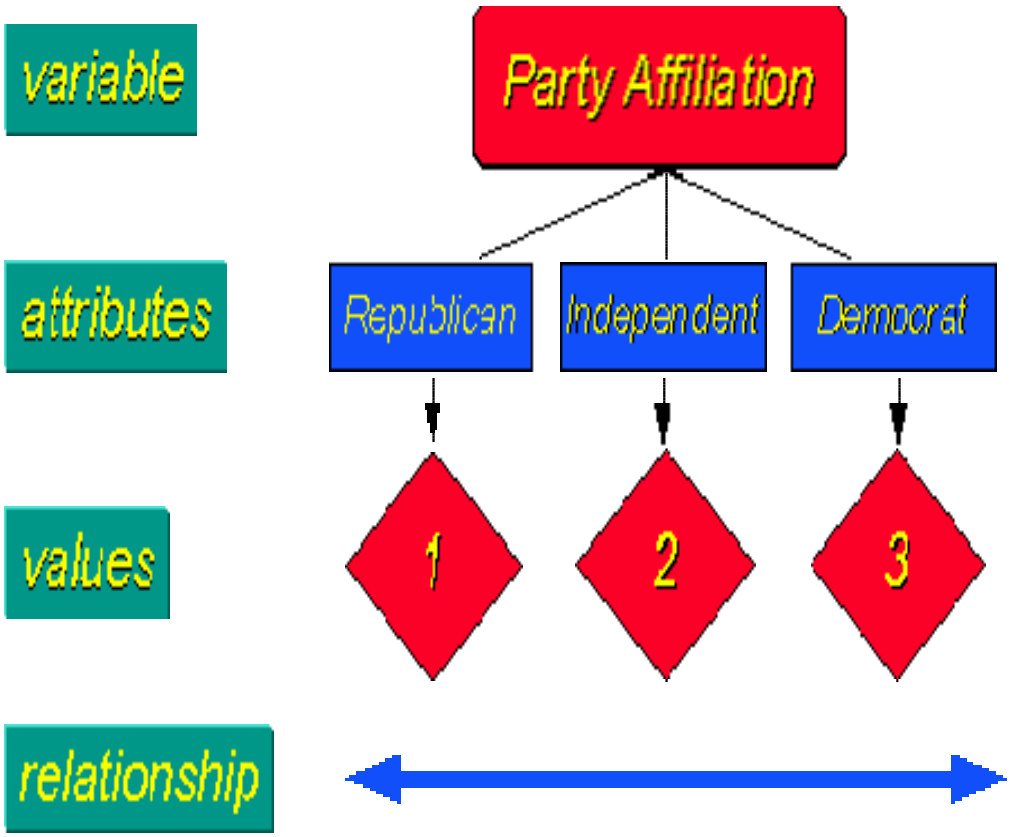

Figure 2 : Level of measurement
Source: Adopted from the Web Centre for Social Research Methods

SELF ASSESSMENT EXERCISE 1

What do you understand by Level or Scale of Measurement?

3.2 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 analyzed. 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

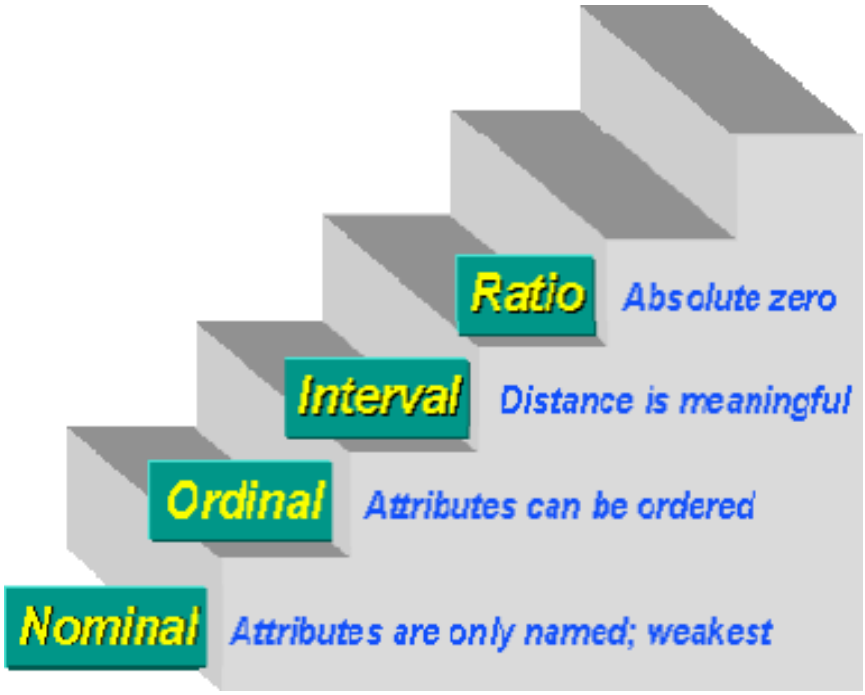

Figure 3: Level Measurement
Source: Adopted from the Web Centre for Social Research Methods

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,

1. 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.
2. An accepted "true" measurement of a quantity is a measurement when Errors on all accounts are minimized.
3. "Accuracy" means how close the measurement is with respect to "exact" measurement. It is associated with systematic error.
4. "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 1

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 TUTOR-MARKED ASSIGNMENT

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

7.0 REFERENECS/FURTHER READING

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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

CONTTENTS

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.

3.2.2 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.

Bad I I I I I I I
Good

Active I I I I I I
passive

Sharp I I I I I I I
Dull

Pleasant I I I I I I I
Unpleasant

Worthless I I I I I I I
Valuable

Hard I I I I I I I
Soft

Heavy I I I I I I I
Light

Weak I I I I I I I
Strong
Fast I I I I I I I
Slow

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

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MODULE 6

INTRODUCTION

This module consists of three autonomous but related units. It is designed to expose you to the definition, types and significance of ethics in Social Research. It further intimates you with how to carry out your data analysis and also write your report. Specifically, this module discusses ethics, Data Analysis, and Report Writing. It is broken down into the following units:

Unit 1 Ethics
Unit 2 Data Analysis
Unit 3 Report Writing

UNIT 1 ETHICS IN SOCIAL RESEARCH

CONTENTS

1.0 INTRODUCTION

This unit provides you with related information about the importance of the ethical dimension in the social research process. It aims to offer some of the historical issues underpinning ethics in researches as well as exposing you to the tools you will need to enhance your knowledge on ethical standpoint and its application in your research endeavors.

2.0 OBJECTIVES

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

define Ethics in relation to Social Research
know the importance of Ethics in Social Research

understand the concerns for Ethical issues in Social Research
assess basic principles of Ethics in Social Research
increase your knowledge of Ethical issues in Social Research.

3.0 MAIN CONTENT

3.1 Definition of Ethics

There is no single definition of the word ethics because many people have various views about it. Some tried to equate ethics with feelings but being ethical is clearly not a matter of following one's feelings. A person following his or her feelings may recoil from doing what is right. In fact, feelings frequently deviate from what is ethical. From another perspective, ethics could be perceived as religion but most religions of course, advocate high ethical standards. Yet if ethics were confined to the realm of religion, then ethics would apply only to religious people. But ethics applies as much to the behavior of the atheist as to that of the saint. Religion can set high ethical standards and can provide intense motivations for ethical behavior but ethics, however, cannot be confined to religion nor is it the same as religion.

Being ethical is also not the same as following the law. The law often incorporates ethical standards to which most citizens subscribe. But laws, like feelings, can deviate from what is ethical. Our own laws and political accountability are obvious examples of laws that deviate from what is ethical. The lack of social consensus on many issues makes it impossible to equate ethics with all that have been mentioned so far.

What then is ethics? Ethics can be referred to as a well based standards of right and wrong that prescribe what humans ought to do or the conduct of human beings, usually in terms of rights and obligations, benefits to society, fairness, or specific virtues. Ethics, for example, refers to those standards that impose the reasonable obligations to refrain from rape, stealing, murder, assault, slander, and fraud. Ethical standards also include those that enjoin virtues of honesty, compassion, and loyalty. Consequently, ethical standards include standards relating to rights, such as the right to life, the right to freedom from injury, and the right to privacy. Such standards are adequate standards of ethics because they are supported by consistent and well founded reasons.

It can further be defined in relation to the study and development of one's ethical standards. As mentioned above, feelings, laws, and social norms can deviate from what is ethical. So it is necessary to constantly examine one's standards to ensure that they are reasonable and well-founded. Ethics also means, then, the continuous effort of studying our

own moral beliefs and our moral conduct, and striving to ensure that we, and the institutions we help to shape, live up to standards that are reasonable and solidly-based.

Another way of defining 'ethics' is to focus on the disciplines that study standards of conduct, such as philosophy, theology, law, psychology, or sociology. For example, a "medical ethicist" is someone who studies ethical standards in medicine. Finally, one may define ethics as a method, procedure, or perspective for deciding how to act and for analyzing complex problems and issues. For instance, in a complex issue like global warming one may take an economic, ecological, political, or ethical perspective on the problem. While an economist might examine the cost and benefits of various policies related to global warming, an environmental ethicist could examine the ethical values and principles at stake in the issue.

Thus, many different disciplines, institutions, and professions have ethics for behavior that suit their aims and goals. These ethics or norms also help members of the discipline to coordinate their actions or activities and to establish the public's trust of the discipline. For instance, ethical norms governing conducts in medicine, law, engineering, and business. Ethical norms also serve the aims or goals of research and apply to people who conduct scientific research or other scholarly or creative activities, and there is a specialized discipline, research ethics, which studies these norms including social research.

SELF ASSESSMENT EXERCISE 1

Discuss from you own perspective, the imperative of Ethics in social research?

3.2 Brief History of Ethics in Research

Formal consideration of the rights of research subjects grew out of the revelations of the terrible atrocities that were performed in the guise of scientific research on Jews and other racial and ethnic minority groups in Nazi concentration camps during World War II. One result of the revelations of these appalling medical experiments perpetrated in the name of science resulted in the creation, in 1949, of the Nuremberg Code, a code of ethics, which starts off with the stipulation that all research participation must be voluntary. Other codes of ethics soon followed, including the Declaration of Helsinki (1964). This code was specifically developed in part as an alternative to the Nuremberg Code, which dealt exclusively with non-therapeutic research promising no

direct benefit to the subject research (Alvino, 2003). This code protects research subjects in both therapeutic and non-therapeutic contexts.
It was then agreed that every research project involving human subjects should be preceded by careful assessment of predictable risks in comparison with foreseeable benefits to the subject or to others. The right of the research subject to safeguard his or her integrity must always be respected. Every precaution should be taken to respect the privacy of the subject and to minimize the impact of the study on the subject's physical and mental integrity and on the personality of the subject.

Throughout the history of scientific research, ethical issues have captured the attention of scientists and the media alike. While extreme cases of unethical behaviors are the exception and not the rule in the scientific community, an account of these projects can provide important lessons for understanding what can happen when the ethical dimension of research is not considered holistically within the research process.

SELF ASSESSMENT EXERCISE 2

Account for the history that led to the introduction of ethics in research.

3.3 Principles of Ethics in Social Research

The following is the summary of some ethical principles that various codes address:

Voluntary Participation-: This requires that people should not be coerced into participating in research. This is especially relevant where researchers had previously relied on 'captive audiences' for their subjects -- prisons, universities, and places like that.

Informed consent-:. Essentially, this means that prospective research participants must be fully informed about the procedures and risks involved in research and must give their consent to participate.

Honesty-: Strive for honesty in all scientific communications. Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data. Do not deceive colleagues, granting agencies, or the public.

Objectivity-: Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.

Integrity-: Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.

Carefulness-: Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.

Openness- Share data, results, ideas, tools, resources. Be open to criticism and new ideas.

Respect for Intellectual Property-: Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit where credit is due. Give proper acknowledgement or credit for all contributions to research. Never plagiarize.

Confidentiality-: Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records. They must be assured that identifying information will not be made available to anyone who is not directly involved in the study. The stricter standard is the principle of anonymity which essentially means that the participant will remain anonymous throughout the study even to the researchers themselves.

Responsible Publication-: Publish in order to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.

Responsible Mentoring-: Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.

Respect for colleagues-: Respect your colleagues and treat them fairly.

Social Responsibility-: Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.

Non-Discrimination-: Avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.

Competence-: Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science as a whole.

Legality-: Know and obey relevant laws and institutional and governmental policies.

Animal Care-: Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments.

Human Subjects Protection-: When conducting research on human subjects minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly.

SELF ASSESSMENT EXERCISE 3

List and discuss the principles of ethics in social research

3.4 Importance of Ethics in Research

The application of Ethics is important in research because-:

Some of these norms promote the aims of research, such as knowledge, truth, and avoidance of error. For example, prohibitions against fabricating, falsifying, or misrepresenting research data promote the truth and avoid error.

Since researches often involve a great deal of cooperation and coordination among many different people in different disciplines and institutions, many of these ethical standards promote the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness. For example, many ethical norms in research, such as guidelines for authorship, copyright and patenting policies, data sharing policies, and confidentiality rules in peer review, are designed to protect intellectual property interests while encouraging collaboration. Most researchers want to receive credit for their contributions and do not want to have their ideas stolen or disclosed prematurely.

Many of the ethical norms help to ensure that researchers can be held accountable to the public. For instance, federal policies on research misconduct, on conflicts of interest, on the human subjects protections, and on animal care and use are necessary in order to make sure that researchers who are funded by public money can be held accountable to the public.

Ethical norms in research also help to build public support for research. People are more likely to fund research project if they can trust the quality and integrity of research. Finally, many of the norms of research promote a variety of other important moral and social values, such as social responsibility, human rights, animal welfare, compliance with the law, and health and safety. Ethical lapses in research can significantly cause harm to human and animal subjects, students, and the public. For example, a researcher who fabricates data in a clinical trial may harm or even kill patients, and a researcher who fails to abide by regulations and guidelines relating to radiation or biological safety may jeopardize his health and safety or the health and safety and staff.

4.0 CONCLUSION

This unit discussed the meaning of ethics from various perspectives. It has further exposed you to a brief historical background to the introduction of ethics in research as well as the basic principles of ethics in human related research. It further explained the significance of ethics to researchers and institutions, hoping that you will imbibe the culture of good and acceptable Ethics practices when carrying out you research.

5.0 SUMMARY

In this unit, you have been introduced to the importance of Ethics in Social Research. The various basic principles and factors that promote good and acceptable Ethical practices in Social Research have equally been discussed to sharpen your knowledge in the field of Social Research. At the end of this unit, you are expected to understand and know:

What definition of ethics is;
The importance of ethics in social research;
The concerns for ethical issues in social research;
The basic principles of ethics in social research; and
Ways of practicing good ethics when dong you own research.

6.0 TUTOR-MARKED ASSIGNMNET

Give a detailed account of the basic principles of ethics in Social Research.

7.0 REFERNECES/FURTHER READING

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ONLINE RESOURCES

http://www.sagepub.com/upm-ta/6197_Chapter_3__Hesse_Biber_I_Proof_2.pdf

www.researchjapan.jp/glossary.html

www.cpa.ie/povertyinireland/glossary.htm
crede.berkeley.edu/tools/glossary.html

www.npgoodpractice.org/Glossary/Default.aspx wales.gov.uk/about/aboutresearch/social/glossary/;jsessionid=MD20JR1R0xr57khWlvPBSTVryP7nQp2g6YwLK7ShWvppQN09JhyK!590164483

http://www.scu.edu/ethics/practicing/decision/whatisethics.html

UNIT 2 DATA ANALYSIS

CONTENTS

1.0 INTRODUCTION

This unit provides you with steps required to efficiently organize and manipulate data to bring forward the findings of the research project. This act is usually carried out after you have successfully formulated your research questions and the information or data needed for solving the problems have been collected as discussed in previous units. In addition, the unit discusses the processes like data editing, coding of qualitative and quantitative data and the real data analysis.

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
know the importance of data analysis.

3.0 MAIN CONTENT

3.1 Definition of Data Analysis

Data analysis is a process of inspecting, cleaning, transforming, and modeling data with the goal of highlighting useful information,

suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains. A variety of analytical methods exist to scrutinize or translate the data into the findings of the research. Whatever the type of data collected (qualitative or quantitative), the raw data would have to be processed, cleaned and sorted out to make them more meaningful and amenable for providing answers. Two important ways of Data Analysis are:

3.1.1 Editing

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. This also enhances the ease of coding and the quality of data. Editing provides qualities that aid analysis and these include:

i. Accuracy
ii. Completeness
iii. Clarity and Legibility
iv. Consistencies

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.

3.1.2 Coding

This refers to the process of organizing survey response into categories and number so as to aid tabulations and analysis of the data. The main reason for coding is to make the data amenable to quantifiable analysis. All types of data (open ended questionnaire, closes ended questionnaire responses) have to be coded. Coding can be done before data collection (pre-coding) and after field work (post coding). For most qualitative data, a system of classification and categorization is used to assign codes to the data before analysis. However, the coding classification and categories must be guided, according to Ahonsi (1996), by three basic principles, namely:

a. All categories must be exhaustive and should cover all areas or range of responses for a given question.
b. Code categories must not overlap.

c. Code categories must be one-dimensional, i.e must be derived from a single variable.

All coding decisions are systematized into a codebook 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 quantitative research.

SELF ASSESSMENT EXERCISE 1

Discuss the preliminary activities in data analysis process that you know.

3.2 Methods of Data Analysis in Qualitative Research

Data analysis is the most complex in qualitative research and many of the data collection strategies involved in a qualitative project may feel familiar and comfortable. However, creating a database is not sufficient to conduct a qualitative study. In order to generate findings that transform raw data into new knowledge, a qualitative researcher must engage in active and demanding analytic processes throughout all phases of the research. Understanding these processes is therefore an important aspect not only of doing qualitative research, but also of reading, understanding, and interpreting it. Furthermore, in describing their processes, some authors use language that accentuates this sense of mystery and magic.

Because data collection and analysis processes tend to be concurrent, with new analytic steps informing the process of additional data collection and new data informing the analytic processes, it is important to recognize that qualitative data analysis processes are not entirely distinguishable from the actual data. The theoretical lens from which the researcher approaches the phenomenon, the strategies that the researcher uses to collect or construct data, and the understandings that the researcher has about what might count as relevant or important data in answering the research question are all analytic processes that influence the data. 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 essentially 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. In spite of all this, some of the data analysis methods for qualitative research include:

Typology: This is a classification system, taken from patterns, themes, or other kinds of group of data.

Taxonomy: This can also be referred to as domain analysis and it is often used to develop a sophisticated typology with multiple levels of concepts. Higher levels are inclusive of lower levels and super-ordinate and subordinate categories.

Constant Comparison: It looks at document, such as field notes, indicators of categories in events and behavior, 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.

Analytic 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 fits the hypothesis. If it doesn't, 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.

Logical Analysis/Matrix Analysis: This consists of an outline of generalized causation, logical reasoning process, etc. Use flow charts, diagrams, etc. to pictorially represent these, as well as written descriptions.

Quasi-statistics: This involves counting the number of times something is mentioned in field notes as very rough estimate of frequency.

Domain Analysis: Consists of the analysis of language of people in a cultural context. It describes social situation and the cultural patterns within it, emphasizing on the meanings of the social situation to participants. It interrelates the social situation and cultural meanings. There are three different kinds of domains, namely; Folk domains, mixed domains, and analytic domains

Discourse Analysis: This consists of linguistic analysis of ongoing flow of communication which involves the use of tapes so that they can be played and replayed to analyze discussion of several people, not individual person specifically. It finds patterns of questions, who dominates time and how, and other patterns of interaction.

Content Analysis: Looks at documents, text, or speech to see what themes emerge. What do people talk about the most? How do themes relate to each other? Find latent emphases, political view of newspaper writer, which is 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 analyzed at a time

Narrative Analysis: This overlaps with other types of analysis and it refers to analyzing individual's speech or the story a person shares about self, then compares ideas with them, but avoiding negatives about self. It includes study of autobiographies. Narrative analysis could further involve study of literature or diaries or folklore.

3.3 Methods of Data Analysis in Quantitative Research

Some of the basic processes of data analysis in quantitative research include:

3.3.1 Initial Analysis or Descriptive Statistics

After data editing and coding have been completed, the next step is to get a fairly concise picture of the study content. This is to provide a descriptive background, a cursory picture or a profile of the research for the substantive and final analysis. Descriptive Statistics are used to present quantitative descriptions in a manageable form. In a research study, we may have lots of measures, or we may measure a large number of people on any measure. Descriptive statistics helps us to simplify large amounts of data in a sensible way. Each descriptive statistic reduces lots of data into a simpler summary.

Such analysis would help the researchers to assess the relative analytical limitations of the different study variables and the confidence that would be placed on the conclusion to be derived from the study. This is carried out using a descriptive analytical tool distribution samples such as frequency distribution table, histograms, pie charts, line graph and measure of central tendency such as the mean, median and mode, measure of dispersion such as deviation and variance (please refer to basic statistical textbook for details of how to compute or produce these measures and graphs). They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. With descriptive statistics you are simply describing what is, what the data shows.

3.3.2 Testing Hypotheses and Models or Inferential Statistics

Inferential Statistics investigate questions, models and hypotheses. In many cases, the conclusions from inferential statistics extend beyond the immediate data alone. For instance, we use inferential statistics to try to infer from the sample data what the population thinks. We also use inferential statistics to make judgment of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Thus, we use inferential statistics to make inferences from our data to more general conditions; we use descriptive statistics simply to describe what is going on in our data.

In most research studies, the analysis section follows these three phases of analysis. Descriptions of how the data were prepared tend to be brief and to focus on only the more unique aspects of your study, such as specific data transformations that are performed. The descriptive statistics that you actually looked at can be voluminous. In most write-ups, these are carefully selected and organized into summary tables and graphs that only show the most relevant or important information.

Usually, the researcher links each of the inferential analyses to specific research questions or hypotheses that were raised in the introduction, or notes any models that were tested that emerged as part of the analysis. In most analysis write-ups, it is especially critical not to "miss the forest for the trees." If you present too much detail, the reader may not be able to follow the central line of the results. Often, extensive analysis details are appropriately relegated to appendices, reserving only the most critical analysis summaries for the body of the report itself.

4.0 CONCLUSION

You have been exposed to the processes required to efficiently organize and manipulate data to bring forward the findings after you have successfully collected data for your research. In addition, we have discussed how to carry out data editing, coding of qualitative and quantitative data together with the real data analysis. Therefore, it is assumed that you have acquired the knowledge of data analysis to do your own data analysis for your project.

5.0 SUMMARY

This unit has exposed you to the process of data analysis. And we have to this jexture done so. It is important to note that the acts of data editing

and coding are crucial steps that precede actual interpretation of data collected from the field. By now, you are expected to:

Understand the process involved in data analysis;
Know how to carry out editing and coding;
Understand qualitative data and quantitative data analyses;
Know the importance of data analysis.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the processes involved in Data Analysis in Social Research

7.0 REFERENCES/FURTHER READFING

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UNIT 3 REPORT WRITING

CONTENTS

1.0 INTRODUCTION

This unit sets out the background and guidance for preparation of research findings and writing a research report. It discusses the roles of the researcher and further explains the process of writing your findings in a clear and legible manner. It outlines the contents and key components of research reports and provides guidance on when and how these should be used as well as the language and outline of the chapters.

2.0 OBJECTIVES

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

write a report of your research how to write a report
prepare a research report
know the basic components of a good research report
know the content and outline of a research report.

3.0 MAIN CONTENT

3.1 Preparing for Report Writing

There is no doubt that writing a research report is a time consuming and complex task. Studies have shown that time spent on organising material and planning the report can effectively reduce the need for comprehensive re-writing later on. The research objectives provide the key to the report and usually determine or strongly influence its structure. Your report should:

Introduce the study by explaining what the research questions were,

Discuss the approach used to answer these questions,

Outline the way information was gathered and describe the status of the evidence arising from the research.

All research reports contain certain key components, although the presentation of the components may vary according to the nature and design of each individual research study. However, some of the general components include:

Acknowledgements: The content is a matter for your discretion but it is usual to acknowledge everyone who has contributed substantially to the study. Acknowledgements should be cleared with anyone mentioned by name.

Contents Page: This should provide the titles and page numbers of chapters and any other components of the report, eg executive summary, annexes, references etc. Main subsections within chapters should also be listed and page numbers given in the contents.

Executive Summary or Abstract: All reports must include a concise summary of not more than 2 pages of A4 at the beginning of the report. The summary therefore needs to provide a brief account of the context, aims, objectives, methods, findings and conclusions.

Context: The research must be set in way that describes the background to the topic of study providing the necessary detail of any legislation or initiative which may be the focus of the research. This is important in order to present the study to wider areas of research.

Aims and Objectives: The aims and objectives of the research should be clearly described in the introduction to the report.

Literature Review: The student have to ensure that the literature review covers where the problem emanated from; what is already known about the problem and what other method have been used to solve the problem as well as the outcome.

Methods: The method adopted for your research should be highlighted and its limitations written out. A detailed account of the adopted methods should be given within the body of the report but detailed technical sections are best discussed in the appendixes.

Findings from Data Analysis: The research findings, which will form the bulk of the report, must be set out clearly and must be accessible and you must also demonstrate that they are adequately supported by the research evidence. Tables, diagrams and charts should be used where appropriate to enhance understanding.

Conclusions: This entails discussions on the conclusions drawn from the findings, any issues which arise from these and, where appropriate, the implications for policy concerns. Often times, it is helpful to link the discussion with other literature on the topic but the conclusions should not present significant new material that cannot be found in the body of the report.

References: You should provide full references to all sources included in the report. These should be placed in a separate section at the end of the report.

Glossary: A glossary of terms should include any technical or specialist vocabulary used in the report.

List of Abbreviations, Acronyms and Tables/Charts: This should include the list of all abbreviations, acronyms, tables and charts used throughout the report. Such a list should provide details of number, title and page number.

Annexes: Other documents that are useful, but not essential to the reader's understanding of the report should be attached as annexes. Such documents can include statistical output of the data, sampling strategies and response rates, background

information, reproductions of relevant documents, including research instruments used.

3.3 Writing the Report

This section deals with the drafting of your report. It gives guidance on how to present your report in a clear and accessible way, suitable for the wide range of readers who read research reports. The specification of the length depends on the requirement of the institution where the final report would be submitted, but usually Reports should be between 50 and 80 pages long. The final draft should be written in 1.5. According to Grower (1973), in writing the report it is pertinent to consider:
Language: Your report must be written in plain English, using language that can be understood by readers who are not experts in the topic of the report. Long, complex sentences and paragraphs should be avoided.

Clarity and Conciseness: are of prime importance but this does not mean that the writing cannot be interesting or written in individual style. The use of devices such as bullet points, footnotes, diagrams, tables, charts and examples can make your report clearer. Short paragraphs are easier for the eye to browse and make it easier for the reader to digest materials which may seem complex. You may achieve greater clarity by using active sentences.

Gender Neutral: The use of either male or female nouns or pronouns as universals should be avoided. Gender neutral vocabulary or sentence construction should be used instead. Attention to punctuation and grammatical construction is also an important aid to clarity. As a general rule, punctuation should be kept to the minimum necessary for ease of reading. In cases where it is impossible to avoid the use of unfamiliar technical or specialist vocabulary, a glossary should be provided.

Consistency: is most important in the use of tenses. Information relating to methods and research findings are generally best presented in the past tense. This helps tie the discussion of your findings to research already carried out, and avoids the implication of a more general basis for your discussion.

Presentation: The appearance of a research report plays an important part in its ability to compete effectively for readers' time and attention. Since many readers will scan a report for information that is of particular interest to them, the layout and presentational style of the page must make it as easy as possible for them to 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 important roles.

Headings and Sub-Headings: These do not only indicate content but also help to break up the text. You should use sub-headings for each change of subject and sub-headings for each new topic within that subject.

Paragraph Length: This will naturally be determined by content, but a succession of long paragraphs will quickly contribute to reader fatigue. Where it is possible, you should vary paragraph length.

Clear introductions to chapters and sections: These explain the purpose and content of the following text. Concise summaries of key points at the end of chapters, can equally help guide the reader through the report.

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

Bullet Points: Each point indicating a discrete piece of information should be bullet point. Generally, punctuation should not be used at the end of each bullet point, except where individual points involve more than one sentence.

Key Points: These can be highlighted using italic and bold text or by boxing and shading sections of text. Underlining should be avoided. Boxing and shading may also be used to emphasise conclusions and summaries of findings, although these should not be excessively used.

3.4 Outline of Chapters

3.4.1 Chapter One - Introduction

Chapter one begins with a few short introductory paragraphs with the primary goal of catching the attention of the readers. It sets the stage for the paper and puts your topic in the right perspective. The introduction often contains specific and general statements about the need for the study. Other details of the introductory chapter include Statement of the Problem depicting the problem associated with your topic of interest; Aim, that is the overall goal of the research. The purpose is a single statement or paragraph that explains what the study intends to accomplish; Significance of the Study pointing out how your study

relates to the larger issues and uses a persuasive rationale to justify the reason for your study; research questions, and hypotheses.

3.4.2 Chapter Two: Review of Literature and Conceptual Framework

Here, a review of the relevant literature is presented, as well as conceptual framework and operational definitions. This chapter is important because it shows what previous researchers have discovered or said in relation to your own topic. It is usually quite long and primarily depends upon how much research has previously been done in the area you are planning to investigate. If you are planning to explore a relatively new area, the literature review should cite similar areas of study or studies that lead up to the current research. It is one of the key elements that proposal readers look at when deciding whether or not to approve a proposal. Chapter two should also contain a definition of terms section where appropriate. Include it if your paper uses special terms that are unique to your field of inquiry or that might not be understood by the general reader. Chapter two should further contain the conceptual or theoretical framework. Whichever one you deemed appropriate care should be taken to ensure that sufficient inclusion of materials to allow readers to understand the argument used and their bases. When writing this section, concentrate on the main argument as well as on the equation as the case may be. But do not produce two or more pages of mathematics equations that readers cannot find in a standard text. You should give detailed information about equations and move lengthy derivations to appendices. It is also important to tell you reader where you are going to adopt to your research.

3.4.3 Chapter Three: Methodology

This section describes your:

Basic research plan
Instrumentation
Population and sampling
Procedure and time frame
Analytical tools and plan
Validity and reliability
Scope and limitations
Assumptions

3.4.4 Chapter Four – Presentation of Results

This chapter follows the analysis plan laid out in Chapter three. Here you restate the research questions and specific objectives as in chapter one. If the research question is testable, state the null hypothesis and the type of statistical test(s) performed. Report the statistics and conclusions, followed by appropriate tables making sure that you refer to the tables, figures and plates of pictures in the text and explain what they say.

3.4.5 Chapter Five: Summary, Conclusions and Recommendations

Begin the final chapter, this chapter presents the summary, recommendations based on your findings, areas for further research and the conclusion of the findings.

3.4.6 References and Bibliography

Referencing is a standardized way of acknowledging the sources of information and ideas that you have used in your document. It is important to reference the source of you information to avoid plagiarism, to verify quotations and to enable readers to follow up what you have written and locate the cited author's work. You can have a good reference by keeping record of the relevant page numbers of all the sources from which information is taken.

On the other hand Bibliography is a systematic list of books and other works such as journal articles. Bibliographies range from "works cited" lists at the end of books and articles to complete, independent publications. This consists of all written and internet documents that were cited and not cited but were relevant and useful to the research. This should be listed preferably in APA format and it should be alphabetically arranged. If endnotes, appendixes and index are used, the references should be placed after endnotes and appendixes. Apart from the bibliography, there are types of referencing that can be adopted for a social research and they are:

Footnote: This appears at the foot of the pages
Endnote: This is compiled together at the end of each chapter

4.0 CONCLUSION

This unit has provided the information and guidance for writing your research findings and report. It discussed the roles of the researcher and

further explained the process of writing your findings in a clear and legible manner. It outlined the contents and key components of research reports and further provided guidance on when and how these should be used as well as the language and outline of the chapters.

5.0 SUMMARY

You have been exposed to how to write research report emphasizing on the content, language, style and chapterization. It is believed that by now you should be able to:

Write a report of your own research
Know the basic components of a good research report
Know the content and outline of a research report.

6.0 TUTOR-MARKED ASSIGNMENT

Give a detailed account of how to write a research report?

7.0 REFERENCES/FURTHER READING

Soyombo, O (1996). "Writing Research Report" in Ahonsi B. and Soyombo, O. (ed.). pp 81-149 in *Readings in Social Research Methods and Applications*. Ibadan: Caltop Publishers.

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.

http://www.statpac.com/research-papers/research-proposal.htm#general.