NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF MANAGEMENT SCIENCES

COURSE CODE: FMS 731

COURSE TITLE: RESEARCH METHODOLOGY

FMS 731

RESEARCH METHODOLOGY

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SUMMARY

INTRODUCTION

Research Methodology exposes you to the concepts and theories of research as a field of inquiry, and then equips you with skills necessary for conducting a research. It enables you to understand the methods of seeking knowledge in general, and knowledge generated through scientific research in particular. It proceeds to examine in details other issues such as: Meaning of research and scientific research; conceptual steps in the research process; significance and challenges of research in public administration; basic concepts of research; types of research; practical steps in executing research (general templates for executing a research project); literature review in a research; types and styles of bibliographical citations; research design; research proposal; surveys and sampling techniques; functions and types of measurement; methods of collecting and analysing data, and lastly, proving of qualitative hypothesis, and testing of quantitative hypothesis.

With the preceding overview, I am pleased to tell you that this is an interesting course which will enable you to seek knowledge not only for the sake of clearing your ignorance, but also for the sake of providing solutions to the numerous problems facing the society in which you live. It is a course that increases your inquisitiveness to know and to solve societal problems.

This course in Public Administration has developed over the years from being purely qualitative in approach (i.e. non-statistical, historical, philosophical and descriptive), to being today a combination of qualitative and quantitative (statistical) approaches. These two different but complementary approaches have shaped the orientation of those who teach the course or supervise students' projects. On the one hand, Lecturers with qualitative orientation teach the course or supervise students' projects from a non-statistical background (i.e. without **testing** hypothesis in the strict statistical sense, but only **proving** it with largely documentary evidence). On the other hand, Lecturers with quantitative orientation, teach the course or supervise' projects with a statistical approach (i.e. testing hypothesis in the strict statistical sense). Sometimes such Lecturers have over-emphasized statistics thereby making many students to develop phobia for Research Methodology.

The approach in this Course FMS 731 recognizes the existence of these two traditions. Secondly, it emphasizes the usefulness of both qualitative and quantitative orientations. Thirdly, and however, it makes you to know the importance of statistics in public administration research and also to know how easier a quantitative research can be without necessarily turning you into a statistician. Consequently, statistics is assigned a supportive role in public administrative research as well as in the execution of your project. It is my conviction that you would find this course very interesting as you read along.

What you will Learn in this Course

Going through FMS 731 will remove some of the fears students usually have about research methodology. First, this course will remove the phobia students normally have for research methodology. This phobia revolves around the fears that the course is a difficult one, mainly because of the fear of statistics – i.e. number-related phobia. This phobia will vanish because students will learn that Statistics is a servant of research methodology and not its master – it is only a helpful tool to execute research and not the research itself. This phobia is overcome by utilizing the services of Statisticians and paying attention to the interpretation of results

which the researcher then uses. Secondly, FMS 731 will enable students to pay attention to systematic or orderly nature of research and that understanding this nature will make the research process interesting and no longer boring. And lastly, FMS 731, will simplify by demystifying the so-called areas of research methodologythat students will be in a position to execute their researchprojects without the usual fears.

COURSE AIMS

The aims of this course are three-fold namely to: (a) enable the students to understand the conceptual and theoretical knowledge of the field of scientific enquiry which involves the gathering and analysis of relevant data; (b) expose the students to the various methods of executing a research project; and (c) equip them with the practical skills necessary for planning and executing research generally, and research projects specifically in an academic institution.

COURSE OBJECTIVES

At the end of this Course, students would be able to:
- ➢ Understand the sources of knowledge;
- ➢ Define research and understand the research process;
- ➢ Know the significance and challenges of conducting research in the discipline of public administration;
- ➢ Define, describe and use basic concepts (e.g. variable, hypothesis, operational definition, research design etc) in the conduct research;
- ➢ Acquire and use the literature review skills in conducting research;
- ➢ Acquire and use the skills needed for proper bibliographic citations;
- ➢ Identify the different typologies of research particularly the quantitative and qualitative ones and know their implications in conducting research;
- ➢ Understand and use the different chapter outlines for quantitative and qualitative research undertakings;
- ➢ Know how to write a good research proposal;
- ➢ Understand the different types of research designs and know how to use them;
- ➢ Know the functions of measurement and the four main types of measurement;
- ➢ Use the Likert scale of measurement in drafting a questionnaire;
- ➢ Know what a population and sample are in conducting a survey;
- ➢ Know what a sample size is, and how to use any preferred method to select;
- ➢ Understand the meaning and types of sampling techniques;
- ➢ Understand the issues of validity and reliability in conducting a research;
- ➢ Know the different types of questionnaire and how to use them in conducting a survey;
- ➢ Identify the characteristics of a good questionnaire;
- ➢ Understand the features of interview schedule and Focus Group Discussion in conducting a survey;
- ➢ Know the importance of observation in collecting research data;
- ➢ Understand the main features of a documentary research;
- ➢ Understand the application of descriptive and inferential statistics in proving and testing hypotheses.

WORKING THROUGH THIS COURSE

To complete this course, you are required to read the study units, and other materials provided by the National Open University of Nigeria (NOUN). Each unit contains self-assessment exercises, and at a point in the course, you are required to submit assignments for assessment purposes. At the end of the course, is a final examination. The course should take you about 16 - 17 weeks in total to complete. Below you will find listed all the components of the course, what you have to do, and how you should allocate your time to each unit in order to complete the course successfully on time.

COURSE MATERIAL

Major components of the course are:
 ➢ Course Guide
 ➢ Study Units
 ➢ References /Further Reading
 ➢ Assignment
 ➢ Presentation Schedule

COURSE UNITS

The Study Units of this Course are:

Module 1: Introductory Issues

Unit 1: Sources of Knowledge

Unit 2: The Definition of Research and the Research Process

Unit 3: Research in Public Administration: Significance and Challenges

Module 2:Basic Concepts, Literature and Citation Skills in Research

Unit 1: Basic Concepts of Research

Unit 2: Literature Review Skills in Conducting Research

Unit 3: Citation Skills in Conducting Research

Module 3: Typologies of Research, Chapter Outlines, and Research Proposal

Unit 1: Typologies of Research

Unit 2: Chapter Outlines for Different Research Approaches

Unit 3: Research Proposal

Module 4: Measurements, Surveys and Sampling Techniques

Unit 1: Functions and Types of Measurement

Unit 2: Scales of Measurement

Unit 3: Survey Research, Sample Size and Sampling Techniques

Units 4: Issues of Validity and Reliability in Research

Module 5: Methods of Data Collection and Analysis

Unit 1: The Questionnaire Instrument

Unit 2: Interview Instrument and Focus Group Discussion (FGD)

Unit 3: Observation and Documentary Methods of Data Collection

Unit 4: Role of Statistics in Research: Descriptive and Inferential Statistics

ASSESSMENT FILES

There are seventeen assignments in this course. The seventeen-course assignment which cover all the topics in the course material are there to guide you to have proper understanding and grasp of the course.

PRESENTATION SCHEDULES

As determined by NOUN

ASSESSMENT

There are three aspects to the assessment of the course: first is the self-assessment test; the second is tutor-marked assignments; and third, is a written examination.
In tackling the assignments, you are advised to be sincere in attempting the exercises; you are expected to apply information, knowledge and techniques gathered during the course. The assignments must be submitted to your tutor for formal assessment in accordance with the deadlines stated in the Presentation Schedule and the Assignment File. The work you submit to your tutor for assessment will count for 30% of your total course mark.
At the end of the course, you will need to sit for a final written examination of 'three hours' duration. This examination will count for 70% of your total course mark. These are all in line with the prescribed minimum benchmark of the National Universities of Commission (NUC)

TUTOR-MARKED ASSESSMENT (TMA)

There are eight tutor-marked assignments in this course. You only need to submit six of the eight assignments. You are encouraged, however, to submit all eight assignments in which case the highest six of the eight marks will be counted. Each assignment counts 5% towards your total course mark.

Assignment questions for the units in this course are contained in the Assignment File. You will be able to complete your assignment from the information and materials contained in your reading, references and study units. However, it is desirable in all degree level education to demonstrate that you have read and researched more widely than the required minimum. Using other references will give you a broader viewpoint and may provide a deeper understanding of the subject.

When you have completed each assignment, send it together with a TMA (tutor- marked assignment) form, to your tutor. Make sure that each assignment reaches your tutor on or before the deadline given in the Presentation Schedule and Assignment File. If for any reason, yon 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.

FINAL EXAMINATION AND GRADING

The final examination FMS 731 will be of three hours' duration and have a value of 70% of the total course grade. This is in line with the new NUC guidelines. The examination will consist of questions, which reflect the types of self-testing, practice exercise and tutor-marked problems you have previously encountered. All areas of the course will be assessed. The work you submit to your tutor for assessment will count as the other 30% of your total course mark.
Spend the time between finishing the last unit and sitting for the examination to revise the entire course work. You might find it useful to review the self-tests, tutor-marked assignments and comments on them before the examination. The final examination covers information from all parts of the course.

COURSE MARKING SCHEME

Total Course marking Scheme are as presented below:

ASSIGNMENTS	MARKS
Assignments 1-9	Nine assignments, best six marks of the nine count @ 5% each = 30% of course marks
Final Examination	70% of overall course marks
Total	100% of course marks

COURSE OVERVIEW

Module 1: Introductory Issues

UNIT	TITLE OF WORK	WEEKS ACTIVITY	Assignment (End of Unit)
	COURSE GUIDE		
1	Sources of Knowledge	1	
2	The Definition of Research and the Research Process	1	Assignment 1
3	Research in Public Administration: Significance and Challenges	1	Assignment 2

Module 2:Basic Concepts, Literature and Citation Skills in Research

UNIT	TITLE OF WORK	WEEKS ACTIVITY	Assignment (End of Unit)
	COURSE GUIDE		
1	Basic Concepts of Research	2	Assignment 1
2	Literature Review Skills in Conducting Research	1	-
3	Citation Skills in Conducting Research	1	Assignment 2

Module 3: Typologies of Research, Chapter Outlines, and Research Proposal

UNIT	TITLE OF WORK	WEEKS ACTIVITY	Assignment (End of Unit)
	COURSE GUIDE		
1	Typologies of Research	1	Assignment 1
2	Chapter Outlines for Different Research Approaches	1	-
3	Research Proposal	1	Assignment 1

Module 4: Measurements, Surveys and Sampling Techniques

UNIT	TITLE OF WORK	WEEKS ACTIVITY	Assignment (End of Unit)
	COURSE GUIDE		
1	Functions and Types of Measurement	1	-
2	Scales of Measurement	1	Assignment 1
3	Survey Research, Sample Size and Sampling Techniques	1	-
4	Issues of Validity and Reliability	1	-

Module 5:Methods of Data Collection and Analysis

UNIT	TITLE OF WORK	WEEKS ACTIVITY	Assignment (End of Unit)
	COURSE GUIDE		
1	The Questionnaire Instrument	1	Assignment 1
2	Interview Instrument and Focus Group Discussion (FGD)	1	-
3	Observation and Documentary Methods of Data Collection	1	Assignment 2
4	Role of Statistics in Research: Descriptive and Inferential Statistics	1	-

HOW TO GET THE MOST OUT OF THIS COURSE

In distance learning, the study units replace the university lecturer. 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 that a lecturer might set you some reading to do, the study unit will tell you when to read your other materials. Just as a lecturer might give you an in-class exercise, your study units provide exercises for you to do at appropriate points.
Each of the study units follows a common format. The first item is an introduction of the subject matter of the unit, and how a particular unit is integrated with the other units and the course as a whole.

Next is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit. You should use these objectives to guide your study. When you have finished the unit, you must go back and check whether you have achieved the objectives. If you make a habit of doing this, you will significantly improve your chances of passing the course.

The main body of the unit guides you through the required reading from other sources. This will usually be cither from a Reading Section of some other sources. Self-tests are interspersed throughout the end of units. Working through these tests will help you to achieve the objectives of the unit and prepare you for the assignments and the examination. You should do each self-test as you come to it in the study unit. There will also be numerous examples given in the study units, work through these when you come to them too.

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 help, do not hesitate to call and ask your tutor to provide it.
(1) Read this course guide thoroughly.

(2) Organise a study schedule. Refer to the course overview for more details. Note the time you are expected to spend on each unit and how the assignments relate to the units. Important information e.g. details of your tutorials, and the date of the first day of the semester will be made available. You need to gather all this information in one place, such as your diary or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates for working on each unit.

(3) Once you have created you own study schedule, do everything you can to stick to it. The major reason that students fail is that they get behind with their coursework. If you get into difficulties with your schedule, please let your tutor know before it is too late for help.

(4) Turn to unit I and read the introduction and the objectives for the unit.

(5) Assemble the study materials. Information about what you need for a unit is given in the 'Overview' at the beginning of each unit. You will always need both the study unit you are working on and one of your references, on your desk at the same time.

(6) Work through the unit. The content of the unit itself has been arranged to provide a sequence for you to follow. As you work through the units, you will be instructed to read sections from your other sources. Use the unit to guide your reading.

(7) Well before the relevant due date, check your Assignment File and make sure you attend to the next required assignment. Keep in mind that you will learn a lot by doing the assignments carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the exam. Submit all assignments not later than the due date.

(8) Review of the objectives for each study unit confirms that you have achieved them. If you feel unsure about any of the objectives, review the study material or consult your tutor.

(9) When you are confident that you have achieved a unit's objectives, you can then start on the next unit. Proceed unit by unit through the course and try to face your study so that you keep yourself on schedule.

(10) 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 also written on the assignment. Consult your tutor as soon as possible if you have any questions or problems.

(11) 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/TUTORIAL

There are 17 hours of tutorials provided in support of this course. You will be notified of the dates, times and location of these tutorials, together with the names and phone numbers of your tutor, as soon as you are allocated a tutorial group.

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 mail your tutor-marked assignments to your tutor 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 by telephone, e-mail, or discussion board if you need help. The following might be circumstances in which you would find help necessary.

CONTACT YOUR TUTOR IF:
- ➢ You do not understand any part of the study units or the assigned readings.
- ➢ You have difficulty with the self-test or exercise.
- ➢ You have a question or problem with an assignment with your tutor's comment 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 to 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 question list before attending them. You will learn a lot from participating in discussions actively.

We hope you enjoy your acquaintances with the National Open University of Nigeria (NOUN). We wish you every success in the future.

COURSE MATERIALS

This Course comprises 5 Modules and their various Units presented as follows:

Module 1: Introductory Issues

Unit 1: Sources of Knowledge

Unit 2: The Definition of Research and the Research Process

Unit 3: Research in Public Administration: Significance and Challenges

MODULE 2:Basic Concepts,Literature and Citation Skillsin Research

Unit 1: Basic Concepts of Research

Unit 2:Literature Review Skills in Conducting Research

Unit 3: Citation Skills in Conducting Research

MODULE 3: TYPOLOGIES OF RESEARCH,CHAPTER OUTLINES, AND RESEARCH PROPOSAL

Unit 1: Typologies of Research

Unit 2: Chapter Outlines for Different Research Approaches

Unit 3: Research Proposal

MODULE 4: MEASUREMENTS, SURVEYS AND SAMPLING TECHNIQUES

Unit 1: Functions and Types of Measurement

Unit 2: Scales of Measurement

Unit 3: Survey Research, Sample Size and Sampling Techniques

Units 4: Issues of Validity and Reliability in Research

MODULE 5: METHODS OF DATA COLLECTION AND ANALYSIS

This Module comprises of four units presented as follows:

Unit 1: The Questionnaire Instrument

Unit 2: Interview Instrument and Focus Group Discussion (FGD)

Unit 3: Observation and Documentary Methods of Data Collection

Unit 4: Role of Statistics in Research: Descriptive and Inferential Statistics

MAIN COURSE

MODULE 1: INTRODUCTORY ISSUES

Module 1 provides an introductory foundation for this Course. Specifically, it provides the epistemological foundation of the Course. Epistemology deals with the sources of knowledge and the issues around it. The aim is to enable students have a solid foundation necessary for understanding many of the issues discussed subsequently.In doing this, Unit One of the Module discusses the various sources of acquiring knowledge,while Unit Two examines the definition of research as well as that of the research process. It identifies the various steps involved in the research process. Lastly, Unit Three examined the significance and challenges of conducting research in the field of public administration. Altogether, thethree units are presented under thisModule.

Contents

This Module comprises three Units presented as follows:

Unit 1: Sources of Knowledge

Unit 2: The Definition of Research and the Research Process

Unit 3: Research in Public Administration: Significance and Challenges

UNIT 1: Sources of Knowledge

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1.0 Introduction

2.0 Objectives

3.0 Main Content

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5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction

The starting point in Research Methodology, is the examination of the sources of knowledge?, Put differently, what are the methods people use to seek and acquire knowledge as they struggle to make life worth living every day? Research is all about the search for knowledge (truth), preservation of acquired or existing knowledge, as well as the advancement of the frontiers of existing knowledge. A discussion of the methods for acquiring knowledge therefore, is very important because everyone is involved in this search for useful knowledge in our daily lives. The essence of discussing these sources is to enable you to know the link between the sources and research.

2.0: Objectives

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

- Identify themain sources of knowledge;
- Understand and be able to discuss with examples the main sources of knowledge;
- Explain the meanings of deductive and inductive reasoning;
- Identify and clearly explain the unchangeable characteristics of the scientific method.

3.0: Main Content

Sources of Knowledge

There are many sources through whichanyone can gain knowledge in everyday life. Some scholars discuss these sources as methods of seeking knowledge (see Jones, 1971; Cohen and Manion 1980; &Obasi, 1999), while some other(s) discuss the sources as alternatives to research (see for example Neuman, 2000).A comprehensive list of these sourcesor methods of seeking knowledge are as follows: (a) Authority, (b) Tradition, (c) Media Myths, (d) Experience, (e) Faith, (f) Reason, and (g) Science (See Neuman, 2000; Jones, 1971; Obasi, 1999; & Cohen and Manion, 1980).I will now elaborate briefly on these sources.

3.1*Authority as a Source of Knowledge*

Authority as a source of knowledge comes from 'parents, teachers, experts as well as from books and television and other media. When you accept something as being true just because someone in a position of authority says it is true or because it is in an authoritative publication, you are using authority as a basis of knowledge' (Neuman, 2000). This source is usually the starting point for receiving knowledge particularly from parents to their children, from teachers to pupils and students etc. The person designated as an Authority is not ultimate nature, as he/she derives such knowledge from other sources sometimes designated to be higher in the knowledge-acquisition hierarchy.

3.2*Tradition as a Source of Knowledge*

According to Neuman (2000), tradition is a special form of authority (i.e the authority of the past), and tradition means you accept something as being true because *it is the way things have always been.* But this may not always be true as things may change because of changing circumstances in society. Again, modernity sometimes questions the basis of tradition and such a challenge may trigger an abandonment of such tradition.

3.3*Media Myths as a Source of Knowledge*

The media in general foist a particular way of looking at something repeatedly that every one would believe it to be true. This may be far from the reality. But whatever is the case, many people acquire knowledge from what Neuman(2000) called 'myths of a culture' or 'media hype'. For example, the media according to him, can create a feeling that a problem exists when it may not. The media informs as much as it misinforms hence its role as a source of knowledge is usually subjected to further scrutiny from other more credible or higher sources of knowledge.

3.4 *Experience as a Source of Knowledge*

The encounters we have in daily lives including the deliberately designed ones and the accidental ones (which in totality become the conditions we pass through in life), constitute an experience. The lessons derived from the encounters constitute the knowledge gained. It is often heard or claimed that 'experience is the best teacher'. It is also often heard that 'there is no substitute for experience' or that 'we all learn by experience'. All these claims are attempts to establish the primacy of experience as a method for acquiring knowledge or skill(Obasi, 1999).

Experience is no doubt a useful tool for gaining knowledge, for as Cohen and Manion (1980) observed: 'we are heavily dependent upon experience' and hence its 'value in this context should not be underestimated'. Again according to them, its role should not be 'overlooked in the specialist sphere of research where they provide richly fertile source of hypotheses and

questions about the world'. Furthermore, the adage that "once beaten, twice shy" underscores the importance of experience as a means of gaining knowledge necessary for taking precautions against likely future unpleasant occurrences. Lastly, experience provides an authoritative guidance for future encounters especially when the encountered conditions have not changed or remain relatively the same (Obasi, 1999).

These strength not-withstanding, experience is not always necessarily the best teacher, and in fact, substitutes for experience may exist. First, we may learn from other people without passing through the experience they went through. Secondly, when conditions or circumstance change, the lessons of previous experience may no longer provide useful guidance. For example, the talk about generation gap in the family, is simply a talk about the issue of differing experiences in which new conditions including changes in value and technology, make the younger generation to believe that the wisdom of the older generation no longer provides a useful guide for their actions. Thirdly, communication gap are known to exist sometimes as a result of varying experiences. Finally, in the search for ultimate truth therefore, experience may not provide a complete picture of an issue especially in their isolated occurrence (Obasi, 1999).

3.5 *Faith as a Source of Knowledge*

Faith is belief on revealed knowledge as contained in The Sacred Books (i.e. The Bible, The Koran e.t.c). Such belief is based on the spiritual or divine (the Unseen) rather than on the physical thing. As Iheonunekwu (1998)rightly points out, faith is 'a way of knowing and seeing with our spiritual eyes invisible realities that are infinitely more important than the realities we can see with our biological eyes'.The Holy Books of different religions have their definitions of faith. For example in Christian religion, Hebrews 11.1, says that 'faith is confident assurance concerning what we hope for, and conviction about things we do not see'.

For many people of different religions,faith is a very important source of knowledge as it shapes their values and guides their behaviours. Knowledge acquired through faith are utilized by those who have the same religious belief and non-adherents hardly subscribe to knowledge acquired through faith.This means that faith-based knowledge is only universal mainly within the circle of adherents.

3.6 *Reason as a source of Knowledge*

Reason refers to mental reflection which emphasizes ideas more than material substances. We accept certain things as being true because they seem to have logical interconnections (Jones 1971).

It is usually said that the difference between man and animal is the reasoning power in man. The power to reason is therefore an important distinguishing attribute of man. Without passing through a particular experience for instance, we can accept what we are told of that experience, to the extent that the thing makes sense to us. It follows then, that a sensible story is more likely to be accepted by a sensible man, than a story that is not sensible (Obasi, 1999).

For purpose of this course, we can discuss two types of reasoning as a method of seeking knowledge and these are deductive reasoningand inductive reasoning. According to Cohen

and Manion (1980) 'deductive reasoning is based on the syllogism which was Aristotle's great contribution to formal logic'. And 'in its simplest form the syllogismconsists of a major premise based on a priori or self- evident proposition, a minor premise providing a particular instance, and a conclusion … The assumption underlying the syllogism is that, through a sequence of formal steps of logic, from the general to the particular, a valid conclusion can be deduced from a valid premise'. An example of deductive reasoning based on syllogism is:

> All Nigerian girls are beautiful,
> Miss **N** is a Nigeria,
> Therefore, Miss N is beautiful.

The principle guiding deductive reasoning is that in articulating an idea, one should start from a general statement and end with a particular conclusion.

With respect to inductive reasoning, the principle is that one should start articulating an idea from specific observation of individual cases and then end with a conclusion based on the high number of the cases observed. It is in a way the reverse of the process of deductive reasoning i.e. moving from aggregation of specific cases and then to general conclusion. An example is a situation in which an Immigration Officer at the Heathrow Airport checks twenty-five Nigerian ladies in one flight that came in and notices that twenty of them are very beautiful. The officer would no doubt conclude that all Nigerian ladies are very beautiful regardless of the fact that this may not actually reflect the reality in Nigeria. The fact is that induction builds on preponderance of individual cases in a particular context or what is called population in Statistics.

3.1.7 *Science as a Source of Knowledge*

Knowledge can be acquired through science, and this is made possible by following what is called the scientific method. Science is simply a systematized body of knowledge. Put differently, it is knowledge acquired through a systematic and logical process. Science can therefore be seen as both a body of systematized knowledge as well as a method of gathering such knowledge. It is in the words of Jones (1971) both the product of investigations and the procedures employed in those investigations.

The acquisition of knowledge through the scientific method has remained a major breakthrough in man's attempt to understand the world. Science has the unique feature or advantage of combining the strengths of empiricism (experience), rationalism (reason) and fideism (faith). Hence as Abcarian and Masannat (1970) rightly observed, 'the fundamental functions of science is to provide explanations of natural phenomena by discovering and describing their relationships'.

What then are the major characteristics of the scientific method that make its knowledge seeking enterprise superior to other methods?The scientific method involves a logical, empirical, systematic and integrated process of collecting and analyzing data with the aim ofproviding understanding, explanation and prediction.

A review of the works of scholars like Isaak (1969), Kerlinger (1977) and Cohen and Manion (1980) shows that the scientific method has the following time-tested, unchangeable and incontrovertible characteristics:

- There is the assumption of some form of determinism or 'law of universal causation' (Isaak, 1969). This implies that scientists assume that things do not just occur accidentally.
- The scientific method is empirical in nature. This inter-alia means that is based on observations and it is value-free (Isaak: 1969). Put differently, the empirical basis of science means that investigations are focused on concrete facts or realities which are amenable to verification by observation.
- The scientific method is systematic nature. Science follows a logical or orderly process in its investigation, presentation and analysis of data. In other words, science is theory-oriented and theory-directed. In the words of Isaak, (1969) the objectives of science are 'to formulate and verify empirical generalizations, develop systematic theory, and finally explain and predict'.
- The scientific method is based on objectivity. Scientists are expected to report, describe, analyse and explain facts as they are, without bias.
- The scientific method is cumulative in the sense that it builds on existing corpus of knowledge and at the same time aims at expanding its frontiers (see Obasi, 1999).

4.0 Conclusion

Understanding the important sources of knowledge opens your eyes to their strength and weaknesses (limitations). These sources which are also called methods of seeking knowledge provide people at different stages in life (their educational levels inclusive) useful knowledge to keep them going. The seeking of knowledge from any source depends on what type of knowledge one is seeking for, as well as its uses. Although, knowledge seeking methods are not arranged or discussed hierarchically, there is the understanding of the existence of hierarchy in terms of which method provides more credible knowledge than the other.

However, for research purposes, a credible source from which you can seek knowledge is the one whose procedures *inter alia* are systematic in nature and whose claims are empirically verifiable. Knowledge which is scientifically generated occupies a higher order of importance, as it is considered more credible than other sources that are not empirically verifiable. One source of knowledge that stands out with respect to empirical observation and verification is faith (or on things we do not see and yet believe).This exists in the area of religion, some of whose tenets are beyond reason or science as sources of knowledge. But even at this, the experience people have with respect to their faith in God, are widely believable among their adherents. Again, people have used their varying positive experiences to convince and attract others to their religious denominations. Scholars/Researchers in Religious Studies also use scientific procedures to investigate some faith claims or matters. They cannot empirically observe and verify all faith issues and claims.

5.0 Summary

This Unit identified and discussed the different sources of knowledge in the field of research. These sources which are also called methods of seeking knowledge are authority, tradition, media myths, experience, faith, reason and science. The main features of each source were briefly discussed including some and strength and weaknesses. Any of these sources of knowledge can be used in line with scientific procedures to seek or advance knowledge.

6.0 Tutor-Marked Assignment

(a) Discuss the strength and weaknesses of experience, faith and reason as sources of knowledge.
(b) Identify and discuss the characteristics of the scientific method.

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UNIT 2: The Definition of Researchand the Research Process

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2.0 Objectives

3.0 Main Content

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6.0 Tutor-Marked Assignment

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1.0 Introduction

The discussion of the sources of knowledge provided a gateway for a better understanding of the meaning of research. This Unit therefore providesthe definition of research as well as a condensed conceptual steps involved in conducting research. As I already pointed out in Unit 1 earlier, research is procedure-driven hence a discussion of the steps involved will enable you to have a better understanding of research.

2.0 Objectives

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

- Comprehend the meaning of research in the context of beinga higher source of knowledge;
- Identify and explain the conceptual steps involved in the research process'

3.0 Main Content

3.1 The Definition of Research

Research can be defined as the seeking of knowledge through the application of scientific procedures.It is a process of unraveling a knotty problem through the application of the scientific procedures.This is why Selltiz*et al* (1974) sees research as the discovering of answers to questions or problems through the application of scientific procedures.Kerlinger (1977) on his part, defined research as the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. For Tuckman (1972), research 'is a systematic attempt to provide answers to questions'. In the same way, Nwana (1981) defined research as 'a process of finding out the

solution to a problem'. It is important to add that research is not just a process of finding answers to a problem, but that it is a *systematic process*. This scientific process means that it follows some standard procedures which arescientific in nature.

It is important to note that knowledge can be acquired or discovered accidentally i.e without being deliberately searched for either through experience, faith, reason or science. Examples of accidentally-acquired knowledge abound in our daily lives. For example, you can acquire knowledge through having a bad experience called misfortune. Many newspaper reports reveal from time to time, that some people die after taking certain foods whose toxicity was unknown. Knowledge gained from such misfortune (accidental in nature) may become issues for research. Armed with this accidental knowledge, scientists can thereafter research on why such foods killed. In other words, this demonstrates that knowledge can be acquired accidentally through experience, faith and reason. However, knowledge acquired through science is deliberately searched for, by following certain procedures. As a meticulous, thorough and more serious form of searching, **re-search** is therefore a higher form of searching.Put differently, **re-search**is a higher step in the search for knowledge because it involves the application of scientific procedures i.e. following what is called the research process. What then is this research process?

3.2 The Definition of the Research Process
Scientific research is a process-oriented activity. And already observed earlier, scientific research is a systematic, logical, empirical, replicable and transmittable activity (see Tuckman 1972). This means that there are steps involved in the planning and execution of a research project. By steps, we mean a series of closely related research activities geared towards accomplishing the research objectives. This series of related activities constitutes a process.

Consequently, the research process can be defined as the step-by-step actions taken in conducting a particular research. The research process presented in this Unit is a simplified conceptual version and not a detailed one to be discussed in Module 2 under the different types of executing research. Although, slightly different versions of a simple conceptual version of a research process exist in textbooks, the fact is that the differences are not fundamental or significant.For example, some scholars may merge some stages together thereby shortening the stages. What is important therefore is that the substance does not change.

The version of the scientific research process presented here is a modified version ofNeuman, (2000) seven steps process. Our adapted version recognizes the importance of including as separate steps two activities namely (a) adoption of research hypothesis, and (b) search for supportive literature to know what has been done on the topic. Furthermore, our version collapses two mental activities namely *analyze data* and *interpret data* into one step because they are intertwined in practice. Lastly, our version eliminated Neuman's last step namely *Inform Others* as it is not important in practice for students. But in its place, our version added *Write complete Report* as the last step, as this is more relevant to students when executing their research project.

Fig. 1: The Scientific Research Process (Procedures) - Adapted from Neuman (2000) but significantly modified by Obasi, I. N.

Fig. 1. Shows that the first step in this scientific research process is the selection of a topic in an area of interest to the researcher (i.e in this case, you the student). This is the first challenge you have to resolve when you start executing a research project. After this, the fundamental research question(s) to be answered in the research project becomes the second mental challenge that you would face. With the questions selected, you can immediately generate the corresponding objectives of the research – a step not included as a separate activity in Fig. 1 but which is a major sub-heading in your research project itself. The third activity is the adoption of the relevant hypotheses which must be in harmony with the selected questions and objectives. The review of relevant literature follows as the fourth step, while the selection of the appropriate research design becomes the fifth step. The collection of data follows as the sixth stage, while seventh activity is the analysis and interpretation of data. Then the last activity is the writing of the research report.

4.0 Conclusion

Understanding the scientific research process as a mental activity helps you to know how to proceed when conceiving your research project. It will also help you to have a clear sense of direction or focus. More importantly, this mental activity serves as the skeleton of the main body of the research project. And with these processes known, you can easily enrich the main body of the research project with clear sense of direction.

5.0 Summary

This Unit discussed two-related topics namely (a) the definition of research, and (b) the definition of the research process. Research is simply the seeking of knowledge through the application of scientific procedures. It is a process of unraveling a knotty problem through the application of the scientific procedures. It is important to note that research is not just a process of finding answers to a problem, but that it is a ***systematic process*** of finding such

answer(s). This systematic process means that it follows some standard procedures said to be scientific in nature. Since knowledge acquired through science is deliberately searched for, by following certain procedures, it means that research is therefore a higher step in the search for knowledge.

The research process refers to the step-by-step actions taken in conducting a particular research. These steps are systematically related and contain some standard activities (i.e. which are substantially the same) even though there may be minor differences in the details. The version of the research process presented in this Unit comprises eight activities namely (a) selection of topics, (b) development of research question, (c) adoption of research hypotheses, (d) review of related literature, (e) selection of appropriate research design, (g) collection of data, (h) analysis and interpretation of data, and (i) writing of complete research report. It is important to note that these activities are like the skeleton of the main body of the research report.

6.0 Tutor-Marked Assignment

Define research, and identify and explain the steps (i.e. activities) involved in the research process.

7.0 References/Further Reading

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Further Reading *(Note: The under-listed are also relevant in other Units of all the Modules)*

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UNIT 3: Research in Public Administration: Significance and Challenges

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1.0 Introduction

2.0 Objectives

3.0 Main Content

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6.0 Tutor-Marked Assignment

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1.0 Introduction

This Unit discusses the significance of research in the discipline of public administration and challenges of conducting research in the discipline. It also provides measures for addressing the challenges.

2.0 Objectives

- Demonstrate understanding of the significance of research in public administration;
- Identify the challenges of research in public administration and how to overcome the challenges.

3.0 Main Content

3.1: Significance of Research in Public Administration

Research generally is important in any area of human endeavour and even much more in the field of public administration because it is a field that deals public policies that touch all sectors of life. The generation of accurate data useful for making policy in the socio-economic, political, health, educational and other spheres of human life makes research very important. Without reliable data generated through research, it will be difficult to know the population dynamics of a country (such as its demographic characteristics e.g. birth and death rates, migratory patterns, age distribution etc) and to use public policy to respond to the needs of the people as shown in the demographic characteristics. Research is required to know the health, educational social e.t.c. needs of the people and how policy can respond appropriately

to the needs. Research helps the government to solve the problems of the different people in the society.

In summary therefore, research is important in public administration because (a) it helps to generate statistical and non-statistics data required for appropriate policy making; (b) it helps the government to understand better certain features of the society necessary for appropriate policy response; (c) it enables the government to understand well in advance certain trends in the different sectors of the economy and this will which in turn prevent problem overwhelming it by surprise; and (d) it enables scholars to generate new knowledge necessary for expanding the frontiers of existing knowledge in the discipline.

3.2 Challenges of Research in Public Administration

The challenges facing research in the field of public administration are not different from the ones faced by sister disciplines in the wider field of social and management sciences. Adapting the problems identified by Isaak (1969) to the field of public administration, we can identify four of such challenges as follows:

(a) **Complex nature of administrative phenomena**: Administrative issues are many and varied as they deal with problems of human beings. This makes subjectivity a necessary part of seeing things which ultimately affects objectivity of its research claims. This fails the objectivity test of science.
(b) **Unpredictability of administrative Behaviour**:Since human beings have freedom of action, their administrative behaviour and issues are difficult to predict.
(c) **Human Reaction Problem**:Administrators can always hide their actions when they know that they being studied and when this happens, it will be difficult to generate reliable data for policy making and implementation.
(d) **The Influence of Values**:Many administrative issues are driven by interests and values of the people many of which vary along ideological, religious, ethnic and other divisive lines. These differences would influence a scientific study of administrative actions and bahaviours as administrators are tempted many a time to reflect such divisive lines.

3.3 Ways to Overcome the Challenges

The challenges can be overcome by (a)) adhering to (i) the scientific procedures in conducting research, (ii) the ethics of science (research) which demands honesty and objectivity; (b) strictly applying guiding principles of conducting surveyresearch which has procedures for overcoming many of the problems identified above such as the methods of improving the validity of the research instruments and the reliability of their results.

4.0Conclusion

The Unit highlighted the importance of research in every spheres of human endeavour and underscored the fact that research is even more needed in the discipline of Public Administration. There are many reasons that justify the importance of research in Public Administration. For example, research helps the government to generate statistical and non-statistics data required for making and implementing appropriate policies to solve the problems of the society. Secondly, research enables public administration scholars to generate new knowledge necessary for expanding the frontiers of existing knowledge in the

discipline. As a student, you are expected to carry out research to help solve any practical problem in the field of public administration. In carrying out this research, you are expected to watch out for some challenges that would confront you in the area of administrative behaviour and actions of public official. However, you are also expected to find ways to overcome such challenges. Some of the measures for addressing the challenges include (a) maintaining objectivity in research, (b) strictly following the scientific procedures, (c) carrying out surveys with appropriate sampling procedures, (d) making good use of reliable statistics, (e) testing hypothesis scientifically, among many others.

5.0 Summary

This Unit examined the significance of research in the discipline of Public Administration, as well as challenges confronting such research undertakings. It pointed out that although research is important in every area of human endeavour, its usefulness in Public Administration cannot be over-emphasized. The Unit identified reasons justifying the relevance of research in public Administration. One of the reasons is that research provides useful statistical and non-statistical data to the government for making and implementing policies to solve the problems of the people.

The Unit also identified and discussed briefly four major challenges faced by researchers in the field of Public Administration. One of such challenges is the unpredictability of behaviour of administrators that make a scientific study of their actions more difficult. Lastly, the Unit identified some ways by which researchers can overcome the challenges of which is the strict adherence to the application of scientific procedures, while another is the adherence to the ethics of science such as objectivity and honesty in conducting research.

6.0 Tutor-Marked Assignment

'The significance of research in the discipline of Public Administration cannot be over-emphasized' (Obasi, I. N., 2017). Discuss this statement in the light of practical examples of areas in which research contributes to good governance.

7.0 References/Further Reading

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MODULE 2: KEY CONCEPTS, LITERATURE AND CITATION SKILLS IN RESEARCH

Module 2 builds on the epistemological foundation provided by Module 1. Specifically, it complements Module 1 by providing the conceptual aspect of the foundation of this Course.Concepts are the building blocks that enhance understanding in any discipline and its importance in research methodology cannot be over-emphasized.Consequently in the three Units of Module 2, key concepts in research methodology are discussed. Secondly, literature review skills in conducting research is examined. And lastly, useful guidesin the use of bibliographical citations are provided. Altogether, the Units are presented in this Module

Contents

This Module comprises three Units presented as follows:

Unit 1: Key Concepts in Research

Unit 2: Literature Review Skills in Conducting Research

Unit 3: Use of Bibliographical Citations in Research

UNIT 1: Key Concepts in Research

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1.0 Introduction

Every discipline has its key concepts with some of them being very central to an effective understanding of other issues in that discipline. This fact is true also of Research methodology. This Unit examines some of the key concepts in research such as variable, operational definition, hypothesis, theory, theoretical framework, research design, method and methodology.

2.0 Objectives

At the end of this Unit, students would be able to:

- Define and describe variable and give examples to demonstrate an understanding of the at least three types of variables;
- Describe the characteristics of quantitative and qualitative variables.

- Define and describe dependent and independent variables;
- Distinguish with concrete examples the terms (a) concept, (b) variable and (c) operational definition, and be able to show how three of them are inter-related;
- Identify the sources and qualities of hypothesis, and also show clearly with three different examples how hypothesis are formulated or stated in a research;
- Demonstrate how a theory contribute to the creation of knowledge;
- Show with the help of practical application, how a theoretical framework is used in a research;
- Identify and discuss various types of quantitative and qualitative research designs.

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3.0 Main Content

3.1 Variable

A variable is an empirically observable concept that can take two or more values or indicators. Put differently, it is concept which is amenable to empirical observation and measurement (Obasi, 1999).

According to Obikeze (1986), it is any characteristic of an object or concept which is capable of taking different values or falling into more than one distinct category. As Buchanan (1980: 14) rightly puts it, a variable 'is a concept broken-down into a number of quantitative values or qualitative categories so that each member of a class of phenomena may appropriately be assigned to a 'value or category'. For as Buchanan (1980) further observed, 'almost any concept may be treated as a variable so long as it has two or more possible values that are mutually exclusive. Generally therefore, scholars regard variables as elements in an empirical investigation, and in which case it can be used for both qualitative and quantitative observations.

3.1.1 Qualitative Variable

A qualitative variable according to Obikeze, (1986) 'is one which takes on values that vary in kind rather than magnitude'. Examples of qualitative variables are qualification, occupation, political party affiliation, sex, social status, ideology, position, (rank), religious affiliation, nationality and political participation. Qualitative variables can be of two types, namely: **attributes** which are called two-valued or dichotomous variables such as male-female classification for the variable sex, or reactionary- progressive classification for the variable ideology. The second form of a qualitative variable is called **Serials** which are multi-valued variables and which are rank-ordered in presentation.

3.1.2 Quantitative variable

And a quantitative variable 'is one which takes on values that vary in terms of magnitude'. This means that it may exist in greater or lesser amount and the observations have measurable magnitude', (Obikeze, 1986). Examples of quantitative variables are income, height, age, weight, distance, wealth, intelligence, and vote cast. Examples of quantitative variables, we can talk of two types also, namely: continuous variables and discrete variables in which values or measurement either goes without jumping or actually jumps respectively. For instance, while we can talk of two years, two and half years or three years, in a continuous variable such as age, we cannot talk of two and half persons between two and three persons for a variable population. As Obikeze (1986) rightly put it, continuous variables 'are those whose values assume theoretically, an infinite amount of gradations'. And on the other hand,

discrete variables are those 'whose values are expressed as whole numbers or rounded numbers'.

3.1.3 Dependent and Independent Variable

A dependent variable according to Obikeze, (1986) 'is one which is subsequent in occurrence and consequent or resultant in effect', while an 'independent variable is one that is presumed to be prior in sequence of occurrence and antecedent in effect'. The use of any of these variables in a research investigation has its implication and rules. Understanding the types of variables you are using in a research is vital towards a successful execution of the research. It is also very necessary that you specify the variables one is investigating in a research. For example, it is important to specify which variable is dependent and which one is independent variable. And by implication, the specification of values representing the variables is equally very essential. According to him, no variable is inherently dependent or independent because, a variable labeled dependent in one context may, in another become the independent variable. All depends on the function of a variable in a given context.

3.2 Conceptual and Operational Definition

Conceptual definitions are abstract or theoretical in nature. They are concepts that are defined by using other concepts. But when a variable is assigned an empirically observable, verifiable and measurable value, it becomes an operational definition. Operational definitions are empirical or real in nature, as against being abstract in nature like a conceptual definition.

Consequently, Kerlinger (1977)defined an operational definition as a specification of the activities of a researcher in measuring a variable or in manipulating it. It assigns meaning to a variable by specifying the activities or operations necessary to measure that variable. In short, an operational definition gives meaning to a variable by spelling out what the investigator must do to measure it.And for Tuckman therefore (1972), an operational definition is one based on the observable characteristics of that which is being defined. In other words, it identifies the observables criteria of that which is being defined.

Following form the above therefore, there is a connection between concept, variable, and operational definition. Jones (1971) vividly captured this when he wrote that if terms are **quite** abstract, they are called concepts; and if they are **quite specifically related to the real world,** they are called operational definitions or indicators. In general, Jones said, every concept contains several variables, and for every variable there are a number of possible operational definitions. And the first step in operationalization of concept is to specify or identify alternative ways or means for translating it into empirical indicators.

Concepts and variables belong to the theoretical world while operational definition belongs to the empirical or real world. It follows therefore that an attempt to measure concepts without operationalizing them is an exercise in futility in scientific research. This empirical dimension or requirement we would recall is a major feature of a scientific method which we discussed in Chapter One. For example, the concept of motivation can be conceptually defined with other terms such as promotion, salary, training and physical working conditions, all of which constitute variables.

3.3 Hypothesis

3.3(a) Definition of Hypothesis
A hypothesis is simply a tentative statement which is open to confirmation or rejection when exposed (subjected) to empirical verification. It is defined by Lundberg (1951) as a tentative generalization whose validity remains to be tested. Simplifying further, Lundberg described it as an unsubstantiated generalization, while Abcarian and Maasnnat (1970) described hypothesis as an explanatory shortcuts which propose tentative relationships among data and lend themselves accordingly, to confirmation or disconfirmation under strict conditions of analysis.

3.3(b) Ways of Formulating Hypotheses
For some scholars, hypothesis must have causal relationship otherwise it is not a hypothesis at all. For them still, descriptive or assertive statements for example 'Shugaba is not a Nigerian' cannot be regarded as hypothesis. Yet this is a qualitative hypothesis which needed proof either by checking through his ancestral roots (parental origin), or with the Immigration Office to see whether, (even if he was not a Nigerian by birth), he acquired citizenship by application i.e. naturalization. The evidence either in support or against, through these identified verification methods, is needed to confirm or reject the hypothetical statement that 'Shugaba is not a Nigerian'.The way a hypothesis is statedtherefore depends on the nature of the problem under study or whether it study is qualitative or quantitative. In fact as Nwana (1981) rightly observed, 'all hypothesis do not take the same form and do not cover similar concepts.

Many authorities in research methodology are in agreement on the issue that hypotheses can be formulated in different ways (see for instance Marshall and Rossman 1989; Nwana 1981; Strauss and Corbin 1990; African Development Foundation, 1993; and Selltiz, et al 1974; among others). Accordingly these eminent scholars identify the following ways of formulating hypothesis:

First, it can appear as a simple description of a phenomena or a statement of fact such as 'the administrative style of early missionary schools was authoritarian' (Nwana 1981). Put differently, it may 'assert that something is the case in a given instance, that a particular object, person, situation or event has a certain characteristic. For example '…Moses was actually an Egyptian not a Jew' (Selltiz, *et al* 1974). It is important to note that the use of the statistical term' test' is not applicable to the proving of descriptive hypotheses. It is wrong to claim that one is testing the hypothesis that 'Shugaba is not a Nigerian'. But one can provide evidence to prove one's descriptive hypotheses.

Secondly, hypothesis 'can be a comparison of two or more groups of persons, or institution, or concepts' (Nwana 1981). For example, people of higher socio-economic status are politically more conservative than those from lower socio-economic status. Or 'there is no significant difference in the morale levels of male and female university academics in Nigeria' (Obasi*et al* 1995).

Thirdly, hypothesis 'may have to do with the frequency of occurrences or of association among variables. It may state that something occurs a certain proportion of the time, or that something tends to be accompanied by something else, or that something is usually greater or less than something else'. (Selltiz, *et al* 1974). Put differently, hypothesis 'can show a

relationship between variables' (Nwana 1981:40). For example, there is no significant relationship between the workers' support for political parties and the award of salary increase by the government after every election in five years. Or there is no significant relationship between the academic ranks of Nigerian University academics and their levels of morale (Obasi, *et al* 1995).

Fourthly, hypothesis can show a cause/effect situation between phenomena (Nwana 1981:40). Or as Selltiz*et al* (1974) put it, hypothesis can 'assert that a particular characteristic or occurrence is one of the factors which determine another characteristic or occurrence. Hypothesis of this type are referred to as hypotheses of causal relationship. For example, 'there is no positive correlation between length of service and morale' or 'there is no positive correlation between academic rank and morale' (Obasi, *et al* 1995).

It is important to note that hypotheses that make comparisons or that have to do with associations and relationships, are the ones that can be tested statistically with analytical tools such as chi-square (X^2), t- test, analysis of variance (Anova), and correlation techniques among others. It is against this background that one can understand why Jones (1971) defined hypothesis as 'if – then statements' meaning that 'if something (X) occurs, then something else (Y) will also occur. The if-terms are referred to as independent variables and the then– terms are called dependent variables… the hypothesis can be deterministic (if X, then y always occurs) or probabilistic (if X, Then y is likely to occur)'. But like we have observed earlier, hypotheses do not only appear in if- then forms (i.e. as causal hypotheses only).

In conclusion therefore, we can talk about two general forms of research that bear significant relevance on the way hypotheses are formulated. An authoritative U.S.-based African Development Foundation (ADF) has something to say on this:

> *the discussion of research hypotheses is differentiated in terms of quantitative and qualitative research. For quantitative research, research hypotheses are declarative statements that express relationships between two or more variables in such a way that the relationships are testable empirically. Variable relationships and testability are two essential criteria that must be satisfied. The testability criterion implies that the variables concerned can be empirically measured, i.e. can be assigned numerical values … For qualitative research, variable relationships and testability criteria do not have to be satisfied.*

> *Given the nature of qualitative inquires, mostly exploratory and descriptive in the search for substantive grounded theory, hypotheses are characterized as 'tentative', 'intuitive', 'guiding' and 'emergent'.… They are characterized so because they emerge tentatively in the process of the research act to guide to act itself. (ADF 1993:27)*

3.3(c) Sources Good Hypothesis

A Hypothesis can be derived from a number of sources (see Selltiz*et al*, 1974) and these sources are amendable to complementary usage. First, a hypothesis can be based on **hunch**or intuition. In this case, we can talk of inspiration and originality in the origination of a hypothesis. Secondly, it may be derived from **observational experience** over time. Thirdly, it may derive from the **findings of another study** or studies, perhaps aiming at replication of a

previous study carried out in another geographical setting or different time dimension. The differences in geographical location and time may make a difference in the outcome of the new study. Getting a hypothesis from previous studies requires going through the existing literature on an issue under investigation. Finally, hypothesis may be developed from a **body of existing theory**or theories provide opportunities for testing the tenability of such theories in different geographical space and time (i.e. in spatial and temporal dimensions).

3.3(d) Qualities of Good hypothesis

Although the sources identifiedabove are widely recognized, not all the hypotheses derived from them can be regarded as researchable in terms of goodness, appropriateness, or usability. Consequently a good hypothesis should meet the following requirements:

> ➤ It should be stated clearly and unambiguously in the form of a declarative sentence (i.e. criterion of conceptual activity).
> ➤ It should have empirical referents (i.e criterion of provability, verifiability or testability);
> ➤ It must relate to the problem under investigation (i.e. criterion of purposefulness or being goal-oriented);
> ➤ It should be simply worded (i.e. criterion of simplicity or non-complexity);
> ➤ It should be relevant to, or consistent with theoretical and factual knowledge in the field of investigation (i.e. criterion of theoretical relevance or criterion of relating to a body of theory or still criterion of consistency or compatibility with existing knowledge);
> ➤ If it is a causal hypothesis, it must be amenable to deductive and mathematical elaboration of their consequences in order to demonstrate predictive power (i.e. criterion of relating to testing technique (s) or criterion of measurability);
> ➤ If it is testing relationships, the hypothesis must be specifically or explicitly stated by way of operationalization of concepts (i.e. the criterion of specificity or explicitness);
> ➤ It should be free from biases especially if is a descriptive hypothesis (i.e. the criterion of objectivity or non-subjectivity); and lastly,
> ➤ It should be expressed as economically as possible (i.e. criterion of cost-affordability) See Obasi, (1999).

3.3(e) Functions of Hypothesis

Hypothesis performs the following functions:
First, it enable researchers to understand the problem under study with greater clarity, and also provides them with a framework for collecting, analyzing and interpreting their data (Cohen and Manion, 1980).

Secondly, it suggests explanations for certain facts and guides the investigation of others. It also serves as a guide to the way in which data can be organized most efficiently in the analysis (Selltiz et al, 1974).

Third, hypothesis is a working instrument of a theory even though it can be deduced from a theory. And as relational proposition,it helps to establish probable truth or falsity of assumed relationship between variables. Consequently, hypothesis is a powerful tools for the advancement of Knowledge (Kerlinger, 1977).

3.4 Theory

3.4(a) Definition of a theory

A **theory** is simply a set related empirical generalizations (Isaak, 1969) or a verified relationship between facts or variables (Obasi, 1999). A theory contains concepts, variables, facts, principles and propositions. This is why Singer (1963) defined theory as a body of 'internally consistent empirical generalizations of descriptive, predictive and explanatory power'

3.4(b) Types of Theory

There are two broad types of theories namely empirical theories and normative theories (see Buchanan 1980; Varma, 1975). Empirical theories deal with facts; quantities and relationships. They are amenable to empirical measurement and verification and are therefore subject to hypothesis testing. Normative theories incorporate value judgements or ethical issues which are not amenable to statistical testing of hypotheses. Normative theories deal with *what ought to be* question (as against *what actually is*).

3.4(c) Functions of a Theory

Theory performs major functions such as:
- ✓ discovering of facts (i.e. discovers knowledge)
- ✓ organizing of facts(i.e. organizes knowledge);
- ✓ describing of fact(i.e. describes knowledge);
- ✓ explaining of facts (i.e. explains knowledge); and
- ✓ predicting of facts, (i.e. predicts what is likely to happen);
- ✓ summarises existing knowledge

This is why Caiden (1971) described a theory as an 'intellectual shorthand which saves each generation having to re-learn all that has already been discovered'. As Obasi (1999) pointed out, it is through these functions that a theory serves as an important instrument for the **discovery and advancement of knowledge**.

It is important to note that any discipline whose theories **predict** facts accurately is regarded as highly scientific. In reality, some disciplines have higher power of prediction than others, and can claim to be more scientific than others.

3.5 Theoretical Framework

A theoretical framework is a device for adopting or applying the assumptions, postulations, and principles of a theory in the discussion and interpretation of results of analysis in a study. It is that dynamic explanatory devise for linking the conception of a research problem of a study, discussion and interpretation of findings, to a relevant theory. That relevant theory is used for to explain the findings of the study by linking to a wider theoretical understanding. It is indeed an indispensable explanatory device in research project execution. And since some theoretical frameworks have higher explanatory power than others, it is important to apply the most relevant one in any research undertaking. A theoretical framework consequently gives a research its theoretical legitimacy, meaning, focus and relevance. Hence, the danger of crude theoretical eclecticism or application of wrong theories should be avoided (Obasi, 1999).

A student is required to use a theoretical framework in executing a research project. To do this, the student should follow these procedure:

- ➢ identify an appropriate theory such as bureaucratic theory, decision making theory, elite theory, systems theory, communications theory etc;
- ➢ describe the main the tenets of the theory such as assumptions of the theory etc;
- ➢ discuss the strength and weaknesses of the theory; and lastly,
- ➢ explain how the theory is to be applied in one's own work.However, it is in the discussion section of the chapter on Data Presentation and Analysis that the real applicationof the theory is made.

3.6 Research Design

Research design is simply a plan that specifies how data should be collected and analyzed in a research project. The nature of a research project (in terms of whether it is qualitative or quantitative) determines the type of research design adopted. It is also correct to say that when you see a particular research design, you should be able to know whether the research project is qualitative or quantitative in nature. Consequently, research design tells a project student what kinds of data to be collected, the type of hypothesis to be formulated, and the type of statistical analysis that should be carried out (Obasi, 1999).

Examples of two broad types of research design are (a) experimental research design (applicable to disciplines in the basic sciences, agriculture, engineering, medicine, pharmaceutical sciences, etc) and (b) non-experimental research design (applicable to the social sciences, management sciences, education, arts, law etc). We in public administration adopt a non-experimental research designwhich may be for quantitative or qualitative types of research. Under the quantitative type of research we can adopt survey research design with many variants such as e.g. correlational, cross-sectional, and longitudinal designsor other designs such as trend study, cohort study, panel study, ex-post facto research designs, etc. However, under the qualitative type of research in public administration the most common is the documentary or archival research design, (a variant of which is desktop research design), case (in-depth) study research design, historical research design, observational research design, among others.

In addition to all those listed above, there is also the mixed-method research design which is more of an approach that combines both quantitative and qualitative types of research. Again, there is the philosophical research design which is equally a research approach rather than design in the strict sense.

3.7 Method and Methodology

Method refers to a wide range of approaches for gathering data necessary for inference and interpretation, for explanation and prediction (Cohen and Manion, 1980). Methods are techniques associated with the scientific process in either collecting or analysing data.

Methodologydescribes and analyzes these methods, throwing light on their limitations and resources and clarifying their presuppositions and consequences (Cohen and Manion, 1980). Methodology as a broader approach comprises both methods and theoretical underpinnings of the entire research process of which method is only an aspect.

Conclusively therefore, while **methods** are the nuts and bolts or mechanics of data collection, **methodology** shapes and informs the process of research (Cornwal, *et al*, 1994).

4.0 Conclusion

Research methodology has certain key or central concepts that can be regarded as foundational in the discipline. Although, there are so many of these concepts, our discussion in this Unit was limited to variable, operational definition, hypothesis, theory, theoretical framework, method, methodology and research design. Many other concepts that havenot discussed but are also central are measurement, scale, survey, population, sample, sampling, data, validity, reliability, questionnaire, interview, observation, document, coding, research proposal, references, and bibliography. As foundational concepts, they constitute a basis for thorough comprehension of other research issues.

5.0 Summary

This Unit discussed a wide range of key concepts that would enable you to understand many other issues in research. The discussions focused on such concepts as variable, operational definition, hypothesis, theory, theoretical framework, research design, method and methodology. The nature of these concepts, their importance or functions, types as well as their uses were discussed. A variable for instance is a concept which is amenable to empirical observation and measurement. An operational definition is the assignment of empirically observable, verifiable and measurable values to a variable. A hypothesis is a tentative statement which is subject to confirmation or rejection when exposed to empirical verification. A theory is a set of related empirical generalizations. It is also defined as a verified relationship between facts or variables. Theoretical framework is a strategy or devise for applying the assumptions, postulations, and principles of a theory in the description and analysis of a research problem. Research design is a plan that specifies how data should be collected and analyzed in a research project.A method refers to various means or tools for gathering and analysing data. Lastly, methodology provides meanings to the various methods, their strength and limitations as well as their theoretical underpinnings.

6.0 Tutor-Marked Assignment
   (a) Write brief notes on (i) variable, and (ii) operational definition.
   (b) Show with practical five ways of formulating hypothesis
   (c) How does a theory contribute to the creation of knowledge?
   (d) With the help of practical application, show how a theoretical framework is used in a research.
   (e) Identify and discuss three types of quantitative research designs and two types of qualitative research designs.

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UNIT 2: Literature Review Skills in Conducting Research

Contents

1.0 Introduction

In this Unit, you will learn the art of literature review which is a very important activity in the research process. Going further, you will learn first, the functions of literature review. Secondly, you will learn the sources of literature review. Thirdly, you will learn how to arrange literature review. Lastly, you will learn the skills for applying the different styles of literature review. As you will find out in Unit 3 below, research requires originality as well as skills in the use of previous or existing works of other scholars. This awareness will enable you toavoid the unethical conduct of committing plagiarism which is a serious offence in research.

2.0 Objectives

At the end of this Unit, students would be able to:

- Understand the importance and functions of literature review in conducting research;
- Identify and use the sources of literature in conducting a review;
- Know how to arrange literature review;
- Acquire the skills necessary for applying the different styles of organizing a literature review.

3.0 Main Content

3.1 Meaning and Functions of Literature Review

The Literature Review is an important activity in any research undertaking. It is a research which critically examines previous studies done in the area of current concern or that are closely related to one's research undertaking. It focuses on identifying contributions already made on an issue under investigation. A review offers an opportunity to identify gaps in

existing literature, and through the identification of such gaps, new research problem worth investigating can be discovered.

Research is a cumulative enterprise, and in no place is this characteristic more clearly manifested than in the literature review. As Tuckman (1972) rightly observed, 'the purpose of the literature review is to expand upon the context and background of the study, to help further define the problem, and to provide an empirical basis for the subsequent development of hypotheses.' It is through a review that one can improve on one's methodology or adopt the most appropriate ones already used in previous studies. A Literature Review according to Odigboh and Osuagwu (1998) enables a 'writer to obtain state-of-the art knowledge about developments in a given subject matter'. In summary, they identified the following as the benefits of a Literature Review:

- It helps to identify ready-made solutions that may be applied to the problem at hand.
- It helps a writer to make informed decisions about a problem and provide authoritative support for a given point of view.
- It enables a writer to obtain data, recognize constraints to be used to define a given problem context and delimit its scope.
- By revealing what exists in a given research area, it enables writers not to waste time, resources and effort in solving a problem whose satisfactory solutions already exist.
- Finally, it helps writers to identify tested techniques, proven methods of analysis, and other problem-solving strategies that are applicable or which can be modified or extended to provide an elegant solution to the problem at hand (see Odigboh and Osuagwu, 1998).

3.2 Sources of Literature for Review

Materials that are available for review can be found in any of the following sources (i) books and monographs (ii) Journal and periodical articles, (iii) academic research projects commonly called theses or dissertations, (iv) government reports (official documents), and (v) unpublished materials (manuscripts) (see Tuckman 1972). Students can consult Journal Abstracts and Dissertation Abstracts for brief reports of Journal articles and doctoral dissertations. These are useful sources of current literature on issues of immediate concern. Special mention needs to be made of (a) International Encyclopaedia of the Social Sciences; (b) International Political Science Abstract; (c) International Encyclopaedia of Public Administration; (d) other Reference Books and Encyclopaedia. These are useful sources for both historical and current ideas.

3.3 Perspectives on the Nature of a Review

There are two contending perspectives on the nature of a literature review. This can be captured in a question namely: should a literature review be narrow (restricted) or comprehensive (broad)?

According to the ADF (1993), some scholars believe that a review should show that a researcher is an expert in a given area of research by demonstrating a mastery of the subject-matter. Their major thesis is that a review should demonstrate that a researcher is thoroughly knowledgeable about related research and the intellectual traditions that surround and support a study (ADF, 1993).

On the other hand, scholars like Strauss and Corbin (1990) advocate a more restricted function of a literature review (ADF, 1993). Their thesis is that for quantitative research, the review functions to identify selected previous research to indicate where there are knowledge gaps with regard to the research question; to identify variables and their relationships that are to be tested. And for the qualitative research, the review is of even more limited use in as much as the researcher should not be tied to previous theory that may not apply to the area under investigation (ADF, 1993).

Although the ADF Handbook recommends a restricted review particularly for a research proposal, we advise that for an academic research project, every effort should be made to provide a comprehensive review of relevant and available literature.

3.4 Styles of Organizing Review

There are two major styles of organizing a literature review. These are (a) the thematic style, and (b) the chronological style.

In the thematic style or approach, the reviewer organizes issues on the basis of similarity or commonality of ideas. It could be done in such a way that sub-headings are used to cover related ideas such as variables that are being studied. The use of this thematic approach makes the work more organized and easier for others to understand. For example, it makes it possible for readers to quickly go into relevant sub-headings without wasting much time.

In the chronological style or approach, the reviewer places emphasis on dates, epochs or era within which existing works were carried out. This style enables a researcher to document the origin and development (natural history) of a phenomenon under study. The importance of this approach lies in its ability to contribute to an understanding of the cumulative knowledge existing in a particular area under study especially from a historical perspective.

These two styles can be combined in a literature review if the need arises. It however calls for greater care and efforts in the organization of the review. But for short reviews, a continuous review of works without following a thematic or periodic approach can be followed.

4.0 Conclusion

Literature review is a very aspect of a process because it helps to achieve one of the characteristics of the scientific method namely the cumulative nature of research. No research is therefore complete without a literature review. In an area of research where things are very dynamic (i.e. change a lot), there is need for the literature review to be current. However, in a Course such as Research Methodology, procedures are not too dynamic (i.e.do not change so fast) because scientific method or procedures are relatively stable over centuries. They are non-subjective standards and so do not just change like new authors except when there is what is called a paradigm shift in a Course. This is part of the reasons that explains the citing of long time authors in research methodology, and these are classical authors whose ideas are re-cycled over the years with some little changes here and there.

5.0 Summary

This Unit discussed the meaning, functions, and sources of a literature review. It also discussed the perspectives and styles of carrying out a literature review. A literature review is an activity which critically examines the previous works/studies of scholars. In terms of

function, the literature review enables a 'writer to obtain state-of-the art knowledge about developments in a given subject matter, from where a new researcher (like a project student) can then continue a research undertaking at hand. The sources of literature review are books, journals, periodicals, books of abstracts, official publications, encyclopaedia etc. Literature review can be viewed from two perspectives namely (a) broad or comprehensive perspective where the review covers every important work in the area, and (b) narrow or restricted perspective where the review is limited to only very important works in the area. Lastly, the Unit also presented two main styles of carrying a literature review namely (a) the thematic style where the review is organized on issues in sub-sections, and (b) the chronological style where the review organizes the review from a historical point of view starting from the earliest to the most current development of the issue under review.

6.0 Tutor-Marked Assignment

With any practical example, discuss the styles that can be used for carrying out a Literature review.

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Unit 3: Use of Bibliographical Citations in Research

Contents

1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction

In this Unit, you will learn the very important skills used in the art of citation in a research project. First, you will learn the meaning of bibliographical citation and its functions in research. Secondly, you will learn how to arrange bibliographical citation.Thirdly, you will know the styles and how to use the styles in actual citation. Lastly, you will learn some of the principles guiding the use of different types and styles of citation in conducting research. Acquiring these skills of proper citation would help you to know the importance of originality and acknowledgement in the use of the works of other scholars in conducting research. This will help you to avoid unethical conduct of committing plagiarism which is a serious offence in conducting research and the art of writing generally.

2.0 Objectives

At the end of this Unit, students would be able to:

- Understand the importance and functions of citation in research;
- Know how to arrange different forms of citation;
- Acquire the skills necessary for using the different styles of citation;
- Understand and apply some important principles guiding the use citations in research.

3.0 Main Content

3.1 Definition of Citation

Bibliographical Citation (commonly called references)refers to the act of borrowing relevant ideas from the works of other scholars in accordance with the canons of scientific research.The use of other scholars ideas is normally done by complying with certain rules of citations otherwise such borrowing will be termed plagiarism. Bibliographical citation is therefore a very important aspect of the research execution process. The literature review we recall, constitutes a vital link between a current (on-going) research and already executed ones. If we also recall, research is a cumulative enterprise. Knowledge grows by building on existing ones and infant, the frontiers of knowledge are usually expanded when findings of today's (current) research, thereby adding value to those of yesterday. No good research undertaking therefore exists in a vacuum. The link between current and previous research undertaking is made possible through the use of bibliographical citations in the literature review component of the research execution process (see Obasi, 1999).

3.2. Functions of Bibliographical Citations

As a mechanism for linking on-going (current) research with previous ones, citation performs certain functions that are similar to those of literature review. First, it enriches an on-going work by providing both theoretical and empirical support. Secondly, it provides a historical foundation needed for giving direction to an on-going work. Thirdly, it serves as a legitimizing or justifying mechanism for ideas expressed in an on-going work. Fourthly, it can serve as a basis for explaining and interpreting ideas or findings in an on-going work. And fifthly, it is an enduring means for transferring and transmitting knowledge from one generation to another, and from one century to another. And lastly, the cumulative character of scientific research is made real through bibliographical citations (Obasi, 1999).

3.3 Ways of Arranging Bibliographical Citations

Citationsmay be arranged in different forms namely (a) Notes, (b) References, (c) Notes and References, and (d) Bibliography (see Obasi, 1999).

3.3.1 The Use of Notes

Citations may be arranged in the form of Notes. This may appear in form of footnotes or endnotes. As the name clearly suggests, footnotes appear at the bottom of the same page in which an idea has been referred to. What constitutes the lowest part (bottom or foot) of a page depends on the number of ideas made references to in that same page. On the other hand, when notes appear as endnotes, the works referred to, are usually placed at the end of the work.

Notes(whether called footnotes or endnotes) can be mere explanatory statements, clarifications or an actual citation of published or unpublished works. An explanatory note simply explains certain useful or relevant issues. The essence is to offer clarifications to enhance understanding of issues being discussed. Things explained or clarified, may be an assumption made during the writing. Notes may be indicating oral sources of ideas or even explaining the context in which the ideas arose. Again, notes may be indicating the existence of controversies surrounding an issue being discussed. Further still, notes may be drawing

attention to the existence of problems encountered while generating the ideas. Notes can therefore be explanations in citation or actual citations of works.

The use of notes is accompanied by a classic citation style which involves numbering of works referred to and a corresponding use of such numbers in the notes to indicate such works cited. A discussion of styles would come later.

3.3.2 The Use of References

Although all citations whether notes, or bibliography are references in the sense of being works made use of, consulted or found relevant in one's writing, a distinction can still be made in terms of placement, style or citation, and arrangement of the authors' names cited with respect to either alphabetical or chronological order.

References and Notes are the same when there are no explanatory or clarifying statements made along with actual citation of works. These two types of citations are also similar in terms of the use of numerical figures or numbers to indicate cited works for references, or cited works and explanations for notes.Furthermore, references and notes (endnotes) can be placed at the end of each chapterof a work but bibliographies are placed only at the end of the entire work. In other words, bibliographical list appears only once and contains citations made which had appeared in notes or references in the various chapters.

Consequently, when a work uses the heading `References', instead of notes or bibliography, the list of cited works have no explanatory notes along with actual citations of works. Secondly, the cited works are arranged chronologically with numbers in the same order they appeared in the text. Thirdly, the names of authors cited are arranged starting with first names instead of surnames as done in bibliographies. But when used under the APA (Harvard) style, surnames are used first in arrangement. This style and end-of Unit references as used in this Course provide a good example.

3.3.3 Notes and References

Bibliographical citations can appear under the combined heading `Notes and References' Scholars can adopt this combined method to show that explanatory notes are actually involved in addition to citations of works. This is really how it should be when the two things are actually utilized in the writing of a research report or academic papers, Journal articles and books.

3.3.4 Bibliography

A bibliography refers to a list of cited works (and uncited but relevant works) arranged alphabetically using surnames of authors, and placed towards the end of a research report, book, journals articles or conferences papers. Asika (1991) defined it in a shorter way as `a list of all works (Journals, books, magazines etc.), which the author used, whether such works were actually referred to in the main text or not'. According to Le Vine (1971) (cited in Gboyegan.d), a bibliography is intended to serve several purposes namely: (a) provide a list of materials used in the preparation of a text; (b) provide a list of materials that would supplement a text; and (c) provide a list of relevant materials on some given topic or subject.

Bibliographies are placed at the end of a work after end notes (when used in combination with bibliographies) and before the Appendix (if any) and also before the index as in books.

Bibliographies can further be characterized as follows: (a)) works cited are arranged in alphabetical order starting with surnames of authors; (b) cited works appear only once under the bibliography even when they have appeared many times under end-of- chapter references; (c) depending on the complexity or comprehensiveness of the bibliography', cited works can be arranged under sections namely books, Journals, official publications, periodicals, and unpublished materials; and (d) Bibliographies can be minimal or expanded. A minimal bibliography contains all the works cited in the text while an expanded bibliography comprises in addition materials (works) consulted but not cited and in some circumstances additional works on the subject. (See Le Vine 1971 cited in Gboyega (n.d); and Asika 1991).

The use of Notes, References and Bibliographies, has certain accompanying style of citation. These styles are important determinants of how References and Bibliographies are arranged. Indeed, these styles are major determinants of whether one adopts the heading Notes, References or Bibliography.

3.4 Styles of Making Citations or References

Different styles of making citations are (a) the classic style, which also goes by many names like conventional style, traditional style, Kate Turabian style or the Chicago style; (b) the APA Style (i.e. American Psychological Association) which is also called various names such as the modern style, Triple-Entry-method, Harvard style, or the Author-Date- Page style; and (c) the MLA style (i.e. Modern Language Association). A discussion of the first two styles (namely classic and APA styles) now follows since the MLA style has restricted application (see Obasi, 1999).

3.4.1 The Classic or Turabian Style

This style usually goes along with Notes, and References which as we already noted, involve chronological numbering of cited works. Apart from the fact that materials cited are chronologically(consecutively) numbered in the text and arranged in that order under the heading Notes or References, the classic or Turabian style, is characterized by the use of Latin words usually abbreviated. Examples of these Latin abbreviations are **Ibid., Op cit., loc.cit. supra, infra, vide, passim,** etc. These would be explained shortly.

The peculiar use of Latin terms in this classic style serves some purposes with respect to elimination of repetition of long referencing of already cited works. This can be seen from the meanings of these terms as presented below (see Le Vine in Gboyega (nd); Asika 1991; and Oluikpe, 1980):

(i)   **Ibid.:** This is the short form of **Ibidem**which means the 'same' and it is used when a citation is exactly the same as the one immediately preceding (or before) it. In other words, when a reference has been made to a work, and the next reference that follows it immediately remains the same work, the use of **Ibid.** applies.

(ii)   **Op.Cit.:** This is a short form of **Opere Citato**which means the `work cited earlier'. It is used when references to other works have taken place between a work cited before and a new citation of the same work.

(iii)   **Loc. Cit.:** This is a short form of **Loco citato**which means the 'same place cited' especially to indicate a page or location in a previously cited work when references to other works have intervened before the second and subsequent citation of this same work.

(iv)   **Et al:**This is an abbreviated form of **et alibi**which means 'and others' to show that there are more than two authors that wrote a book; e.g. example, Isaac N. Obasi, **et al.** If there are only two authors or editors of a book, the names of the two are written just like in one author or editor. In such a case, the use of **et al** becomes unnecessary.

(v)   **Cf.:**   This is the abbreviation for **conferre**which means 'compare' with some others and used to provide comparative emphasis to a citation. For example, according to Obasi, 'Nigeria is suffering from both political and economic diarrhea'. Then under the reference, it may read: cfP.I.Eneh: **The New Political and Economic Problems of Nigeria since the Babangida regime,** Enugu: Academic Publishing Company, 1998, p.50.

(vi) **Vide:** This means, "see", for example, **Vide** Okeke p50.

(vii)   **Supra:** This means "above" and it is used to refer a person to a work or idea cited earlier or above. The common phrase is **Vide Supra**meaning see above.

(viii)   **Infra:** This means "below" and it is used to refer a person to a work or idea discussed below or later in a write-up. Usually also it is expressed as **Vide infra**meaning see below.

(ix)   **i.e.:** This is the abbreviation for **idest**and this simply means 'that is' and it is used to further simplify something by explaining it or providing more generally understood synonym for it.

(x)   **etc.:** This is the abbreviation for **et cetera**, and it means 'and so forth' to show the existence of many of such things being named or existence of other examples of something.

(xii) **Sic:** This means 'thus' and it is used to show that something quoted though with errors (such as spelling) is exactly how it appeared from where it is quoted. It is placed in bracket.

(xiii)   **N.B.:**   This is the short form of **nota bene** which means note well.

(xv) **Passim:** This means `frequently or in every part' and it is used to indicate where some subject is generally discussed. For example `Nigerians are easily deceived by ethnic jingoists' **(I.N. Obasi, 1998,** pp 100-120, **passim).**

It is important to point out that some of the Latin words identified here (from numbers ix to xiv) are generally used in writing and are not peculiar to the Turabian style of citation. They have been explained here for purpose of general education not because they are only used under the Turabian style.

In arranging a reference under the Turabian style, the following order is observed:

(i)   Name of author (starting with first name);
(ii)   Title of book, article etc.,
(iii)   Place where publisher is located;
(iv)   Name of Publisher
(v)   Date of Publication;
(vi)   Page where citation is drawn. An example of a reference under this style is thus Isaac N. Obasi (or I.N. Obasi): *Research Methodology in Political Science*. Enugu: Academic Publishing Company,1999, p.70.

It can also be arranged in such a way that the name of publisher comes before the place of publication. Whichever order one uses, the most important thing is that one must be

consistent with that order adopted. A combination or mixing-up of the different orders of arrangement is not acceptable.

3.4.2 The APA or Harvard Style of Citation

The American Psychological Association (APA) style of referencing goes hand-in-hand with the reference list (citation arrangement) called Bibliography or sometimes References. It is called the triple entry style because of the use of author's name (surname), date of publication, and page of citation, in the main body of the text. Rather than using serial numbers for authors cited, their surnames, dates of their work and pagination where possible, necessary and desired, are used in the text. It is in this regard that it is equally called 'author-date-page style. The possible ways of using the APA style include (a) putting only the date and page in bracket. For example according to Nnoli (1998:30) …, (b) putting both the author's name and the date and page in bracket. For example, 'Nigeria is suffering from both political and economic diarrhea' (Obasi, 1990:25). In these two examples, the principle guiding the bracketing of the date and page only or all of the three, is whether the ideas of authors are expressed before or after reference to their particulars, is made. If the particulars of the authors (i.e. name, date and page) are mentioned before their ideas, then only the date and page are bracketed. But if the ideas are expressed first before the particulars are referred to, then all the three would be placed in bracket; and (c) using only the author's and date. For example, Ake (1985) posited that neo-colonialism is a major problem of Nigerian's political economy.

Some of the guidelines for using APA style include:

(a) the reference list is called Bibliography;

(b) the authors' surnames are written first, and are arranged alphabetically;

(c) paginations are not included under the reference list (i.e. bibliography) having appeared already in the text;

(d) the year of publication is placed immediately after the authors' names, with a full stop following it. This year of publication is usually bracketed. For example, an example of APA reference is: Obasi, I.N. (1999).*Research Methodology in Political Science,*Enugu: Academic Publishing Company. This is based on the APA guidelines of the 6th edition. Note that the reference list contained at the end of each Unit in this course follows this 6th edition guidelines;

(e) there is no use of Latin abbreviations such as **Ibid., Op. Cit. Loc. Cit.**etc.;

(f) regardless of how many times an author is cited in the body of the text, he or she appears only once in the bibliography except when more than one work of such author are cited;

(g) the use of APA style permits multiple referencing of authors as can be seen from the following examples. For instance Okoli (1998), Ozor (1999) and Elekwa (1986) are all in agreement that Nigerian Local Government System, has over the years suffered the problem of lack of substantial autonomy. This multiple-author referencing permits the pooling of similar ideas in such a way that brevity is achieved;

(h) Example Journal citation is: Johnson, G. (2009). Existence of Bureau-pathology in Nigeria Federal Service. *Journal of Public Administration in Nigeria,* 13 (2), 20-30, instead of APA version which goes like this Vol. 13, No. 2, pp 20-30.

(i) Example of a citation of a Chapter in a book: Johnson, G. (2017). In J. Aliyu (ed.), Nigerian Public Service as seen eye of the world, (pp. 40-50), Abuja: Ok Publishing Company.

3.5 General Principles of Citation

Regardless of types and styles of citation, there are certain principles of citation that are common and some of which are presented below:

a. All titles of published works cited (books, Journals, Monographs, periodicals and official publications) are italicized. Previously (i.e. before the advent of computer) they used to be underlined.

b. All titles of chapters in a Book of Readings cited (i.e. an edited book with chapters written by different people), are put in quotation marks (i.e. ' '), with the title of the book italicized.

c. All titles of article in journals and periodicals, as well aspapers presented in conferences, seminars and workshops, are all put in quotation marks. The same goes for titles of dissertations, theses, research reports and mimeographs. The 6th edition of APA does not retain this principle any more as shown in the last two examples under the APA style above.

d. When compiling Bibliographies or References, the listing of journal articles should include the inclusive pages of the article (i.e. from the page where the particular journal article starts to the last page where it stops). An example of how it is written is: pp. 20-33. This means that the article started in page 20 and ended in page 33. Note however, that in the body of the text, reference to this journal article will show only the relevant page cited in the article.

e. All exact quotations that are **short** are not indented but are put in quotation marks. But all **long** and exact quotations should be indented and when this is done, quotation marks are not utilized. The length of a statement that requires indentation actually varies but statements that take up to four lines and above should be indented. This according to Akuezuilo (1993) should be quotations longer than three typewritten lines.

f. All indented quotations should be typed on single line spacing.

g. When quotations are long, some not-too relevant ideas can be omitted within the quoted statements and when this is done, the use of three dots (i.e…) becomes necessary to indicate that some words or phrases or even statements are omitted.

h. The procedure for compiling a reference from an edited book using the Harvard style is thus:

> *Daudu, P.C.A. (1998).* `Evaluation of Impact of Local Government Policies on the People'. In Isaac N. Obasi and Nuhu O. Yaqub (eds)*: Local Government Policy Making and Execution in Nigeria.*Ibadan: Sam Bookman Publishers.

In this citation on Daudu, two things are observable namely (a) the starting of editor's names with first name instead of surname; and (b) the use of (eds.). Note that in Book of

Readings, surnames of authors of Chapters are used, while the first names (s) of editor(s) are used in starting their names. Writing their full names or using initials for their first two names (e.g. I.N.) is a matter of choice. Note also that the use of (ed.) for one editor or (eds.) for two or more editors of the book is to indicate that the book is an edited work with various chapters written by different people.

(i) When you want to cite an author(e.g. Johnson, 2002) who is cited in a book or journal article you are reading (written by say William, 2008), the procedure is say: According to Johnson(quoted or cited in William, 2008) … This shows that the idea in William's book is from Johnson 2002. Note that if the full particulars of Johnson's work, are contained in William, you can cite Johnson direct without reference to William. The danger however is that if William made any mistake in citing Johnson's work, the same mistake will be replicated by you also. It is therefore safer to cite Johnson in William so that any error will be attributed to William rather than you who did not physically see Johnson's work.

(j) When making reference to any work without an author, the name of the organization, body or association that owns the publication should be used. For example: Federal Republic of Nigeria (1980) …or Nigerian Political Science Association (1985).

(k) When making citation from a journal, the editor's or editor- in-chief's names are not reflected in the reference. But other relevant particulars of the Journal such as Volume Number and Issue number (e.g. Vol.1, No. 2 (old use) or 3(4) (APA 6th edition) should be included.

4.0 Conclusion

The art of conducting research (and writing generally) needs originality as well as attribution (i.e. acknowledgment) in the use of the works of other scholars. This is made possible through acquiring skills of proper citation. Doing this well, will help you to avoid unethical conduct of committing plagiarism which is considered a serious offence in conducting research and writing generally. Bibliographical citations are very important and should be carefully applied in the writing of the research report.

5.0 Summary

In this Unit, you have learnt the very important skills used in the art of citation in a research project. Through this Unit, you have learnt the meaning of bibliographical citation and the functions citation in research. Also, you have learnt how to arrange different types of bibliographical citation. Furthermore, you have learnt the styles of citation and how to use the styles in actual citation. Lastly, you have learnt some of the principles guiding the use of different types and styles of citation in research.

6.0 Tutor-Marked Assignment

Identify and discuss with relevant examples any three major ways arranging a bibliographical citation.

7.0 References/ Further Reading

Akuezuilo, E. O., (1993). *Research Methodology and Statistics*Awka: NuelCenti (Nig) Publishers.

Asika, N. (1991): *Research Methodology in the Behavioural Sciences*. Lagos: Longman Nigeria.

Gboyega, E.A. (n.d.). `Preparing Reports, Essays, Theses: A very short common-sense Guide

for students reading Political Science'. Mimeo, Department of Political Science University of Ibadan. (Originally prepared by Victor T. Le Vine, 1971, University of Legon, Ghana).

Obasi, I. N. (1999). *Research Methodology in Political Science,* Enugu: Academic Publishing Company.

Further Reading

Christensen, L. B., Johnson, R. B., Turner, L. A. (2014). *Research Methods, Design, and Analysis* (12th ed.). Boston, MA: Allyn and Bacon.

MODULE 3: TYPOLOGIES OF RESEARCH, CHAPTER OUTLINES, AND RESEARCH PROPOSAL

Module 3 deals with the typologies of research, chapter outlines of a research project, and lastly research proposal. Some of the concepts discussed in Module 2 are used differently in research undertakings. For example, quantitative variables and quantitative hypothesis are used in a particular type of research called quantitative research, and the same applies to qualitative hypothesis which are used in qualitative research. Based on this, this Module examines the different typologies of research, and then proceeds to see how quantitative and qualitative types of research affect chapter outlines in a research project. Lastly, the Module presents the features of research proposal particularly in the execution of academic-oriented research. Altogether, three Units are presented under this Module.

Contents

This Module comprises the following three Units:

Unit 1: Typologies of Research

Unit 2: Chapter Outlines for Different Research Approaches

Unit 3: Research Proposal

Unit 1: Typologies of Research

Contents

1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction

A typology is a form of classificatory scheme that identifies and presents different types of an issue or phenomenon on the basis of both similar and contrasting characteristics within the specific typical groups. Put differently, a typology consists of sets of types of an issue based on certain differentiating criteria. In this Unit, you will learn two broad typological schemes namely (a) Typology based on Purpose of Research, and (b) Typology based on Method and /or Setting of Research (See Obasi, 1999).

2.0 Objectives

At the end of this Unit, student would be able to:

- Understand the different types of research within broader typologies;
- Acquire the skills needed for executing quantitative and qualitative types of research;

3.0 Main Content

3.1 Typology based on Purpose of Research: Pure (Basic) Versus Applied Research

There are two types of research carried out within the broader typology based on purpose of research. These two are(a) pure (basic) research and (b) applied research. Consequently, research can be said to have two broad purposes namely **intellectual**(achieved through pure or basic research) and **practical purpose** (achieved through applied research)**.** Any research may aim at one of these or both of them.

(a) Pure (basic or academic) research is intellectually based and is concerned with the seeking of knowledge for its own sake and to satisfy intellectual curiosity. It is based on the desire to know or understand. It is aimed at advancing scientific knowledge through verification of hypothesis used to test theories (see Selltiz, *et al*, 1974; and ADF, 1993). Pure research has a relatively high degree of intellectual (methodological) sophistication, since its major driving force is to advance the frontiers of knowledge. In other words, it tries to add value to existing stock of knowledge or to confirm or recreate such. It is a vehicle for transmitting knowledge from one generation or century to the next. Through pure research,

the world is constantly being investigated for a better understanding of its dynamic relationships, regularities and what accounts for differences (Obasi, 1999).

(b) Applied research (also called various names such as action, policy, useful, evaluation, assessment, appraisal, or social accounting research) is primarily aimed at finding solutions to specific behavioural or organizational problems of society (ADF, 1993). It is based on the desire to know for the sake of being able to do something better or more efficiently (Selltiz, *et al,* 1974).

Pure and applied research have a mutually re-enforcing relationship. Indeed as Selltiz, *et al* observed, historically speaking, the scientific enterprise has been concerned both with knowledge for its own sake and knowledge for what it can contribute to practical concerns. And actually, neither goal can be fully realized without the other. The research projects executed by students are good examples of where these two purposes of research are achieved.

3.2 Typology based on Method: Quantitative Vs Qualitative Research
(a) Quantitative research is one that investigates phenomena that are amenable to empirical measurement and verification (i.e. variables that can be assigned figures or values which can be empirically observed and verified). As the ADF (1993) puts it, quantitative research is usually associated with the traditional model of scientific research whose processes involve moving from theory to operationalization and to observation. Its essence therefore is the verification of logically deduced theories. Quantitative research consequently places emphasis on statistical data and the use of such to test hypotheses. Although quantitative research can be highly sophisticated or methodologically rigorous, it is however very straight-forward in data collection and analysis (Obasi, 1999). It is usually executed through survey research designs. Refer to an earlier discussion on types of research designs in Module 2 under 3.6.

(b) Qualitative research is one which has variables that are not easily or objectively amenable to empirical measurement and verification. It may at times incorporate issues that are value laden (i.e. subjective) in nature. It therefore applies mostly non-statistically-based data which nevertheless can be empirically studied. Although it does not **test** hypothesis in the statistical sense of the term, it nevertheless **proves** its hypotheses, using the deductive or inductive logical method or the method of content analysis (Obasi, 1999). A qualitative research is usually executed through documentary research design. Historical and philosophical studies also fall under this category. Refer to an earlier discussion on types of research designs in Module 2 under 3.6.

3.3 Typology based on setting of Research: Experimental Versus Non-Experimental Research
(a) Experimental research is one that involves taking action to influence a phenomenon under study and then observing the consequences of the influence. It has three essential components namely; (i) independent and dependent variables; (ii) Experimental and control groups; and (iii) pre-testing and post-testing exercise or activity (ADF: 1993). An experimental research may be carried out in a laboratory setting or the natural setting. It is the main method used by researchers in the physical, biological, medical, agricultural and engineering sciences as well as in some research work in Education, Psychology and Geography (Obasi, 1999).

(b) Non- experimental research does not require the use of experimental and control groups. It does however involve the use of independent and dependent variables in its investigation. Research undertakings in public administration and the wider social and management sciences fall under the category of non-experimental research.

4.0 Conclusion

The utility of this typological presentation in the conduct of research lies mainly in their methodological implications with respect to the choice of appropriate research design. Although the different typologies are related in one way or the other especially against the background of overlapping features among some of them, there is the need to understand their different methodological demands. For example, the type of hypotheses required in a historical and/or qualitative research will be different from those of experimental and quantitative research. Yet it is important to recognize that a research project can embody (both in purpose and method) different aspects of these typological or classificatory schemes. For example, a descriptive (survey) non-experimental research can be quantitative in design etc (Obasi, 1999).

5.0 Summary

Research undertakings can be differentiated on the basis of purposes, methods and settings. Three broad typological schemes discussed are (a) typology based on purpose which comprises pure (basic) and applied research. Pure or basic research is one carried out to satisfy intellectual curiosity or for seeking knowledge for its own sake. The essence is to advance the frontiers of knowledge. On the other hand, applied research is carried out for the purpose of providing solutions to the practical problems of society. While pure research is highly theoretical or abstract in nature, applied research is practically- oriented. (b) typology based on method. Under this typology, we discussed (i) quantitative and (ii) qualitative research. Lastly, (c) typology based on setting of research which includes (i) experimental and (ii) non-experimental research (Obasi, 1999).

In quantitative and experimental research undertakings, the statistical testing of hypotheses is easy because it is possible to observe and measure variables in the investigation. On the other hand, in historical, qualitative and non- experimental research, hypotheses are not amenable to statistical testing. Through critical and logical analysis, a hypothesis under these types of research can be proved (confirmed or rejected). It is important therefore to recognize the methodological implications of different types of research (Obasi, 1999).

6.0 Tutor-Marked Assignment

Discuss the different typologies of research with specific focus on their various types of within each typology.

7.0 References/ Further Reading

African Development Foundation (ADF) (1993): *Research Grant Proposal Handbook.* Washington: ADF.

Obasi, I. N. (1999). *Research Methodology in Political Science,* Enugu: Academic Publishing

Company.

Selltiz, C. et al, (1974): *Research Methods in Social Relations* London: Methuen and Co. Ltd.

Further Reading

Berg, B. L. (2016).*Qualitative Research Methods for the Social Sciences* (9th ed.). Boston, MA: Pearson.

Flick, U. (2014).*An Introduction to Qualitative Research* (5th ed.). Thousand Oaks, CA: Sage Publications.

Glesne, C. (2016).*Becoming Qualitative Researchers: An Introduction* (5th ed.). Boston, MA: Pearson.

Silverman, D. (2013).*Doing Qualitative Research: A Practical Handbook* (4th ed.). Thousand Oaks, CA: Sage Publications.

Silverman, D. (Ed.). (2016).*Qualitative Research: Theory, Method and Practice* (4th ed.). Thousand Oaks, CA: Sage Publications.

Unit 2: Chapter Outlines for Different Research Approaches

Contents

1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction

Recall that we stated earlier that scientific research is a process-oriented activity. This means that it is a systematic, logical, empirical, replicable and transmittable activity (see Tuckman 1972). There are steps involved in the planning and execution of a research project. By steps, we mean a series of closely related research activities geared towards accomplishing the research objectives. In this Unit therefore, you will learn that two main research approaches (namely quantitative and qualitative) require their own chapter outlines. Secondly, you will

acquire skills needed to develop chapter outlines for quantitative and qualitative types of research. Lastly, you will learn to use the acquired skills to writethe various sections of chapter one of a research project.

2.0 Objectives

At the end of this Unit, students would be able to:

- Understand that the two main research approaches (namely quantitative and qualitative) require their own chapter outlines;
- Acquire skills needed for developing chapter outlines for quantitative and qualitative research;
- Use the skills to write the various sections of chapter one of the research project.

3.0 Main Content

3.1 Outlines of Quantitative and Qualitative Research Methods

In discussing the typology of research based on **method** above, we identified two types of research namely quantitative and qualitative. For purpose of our discussion in Unit 2, these two types of research are also regarded as approaches. The implication is that any of the approaches require particular chapter outline or what is called format or structure. Students are required to bear this in mind when choosing research topic. Students should know right away that a topic has implication for the method of executing the research. In other words, research outlines vary according to the nature of the research approach (i.e. the method used to execute the research).

Let us now present the chapter outlines of the two approaches.

3.1(a) Outline of a Quantitative research

In a quantitative research approach, a five chapter outline (format) is usually in use across many disciplines. This outline is just a skeleton of the detailed outline of the research report. Research in basic and applied sciences follow a five chapter outline. This template is now followed by many other disciplines that adopt a quantitative method of executing research. An example of quantitative research outline is shown below:

Five Chapter-Outline of a Quantitative Research
    Chapter One: Introduction
    Chapter Two: Literature Review (including Theoretical Framework)
    Chapter Three: Methodology
    Chapter Four: Data Presentation, Analysis and Discussion
    Chapter Five: Summary,   Conclusion   and   Recommendations

3.1(b) Outline of a Qualitative research

In a qualitative research approach, the number of chapters depends on the depth of issues involved. In other words, the number of chapters is unspecified nevertheless it may range from five, six or more chapters. An example of a qualitative outline is shown below:

Unspecified Chapter Outline of a Qualitative Research

Chapter One: Introduction(which may contain Methodology)

Chapter Two: Literature Review (including Theoretical Framework)

Chapter Three: Methodology if not included in Chapter One

Chapter Four: Organizational Context of the Study – which provides organizational background such as itshistory, structure and functions. Note that the placement of the organizational context in chapter four depends on where the Methodology chapter was placed i.e. either in chapter 1 or 3. For example, if Methodology was placed in Chapter 1, this chapter will become chapter 3.

Chapter Five: Data Presentation, Analysis and Discussion – this chapter may contain two or more chapters of the variables involved are many especially in higher degree programmes.
Chapter   Six: Summary,   Conclusion   and   Recommendations

3.2 Guiding Notes on Variations in Practice

In practice, there are minor variations that should be noted. First, some project supervisors may ask their supervisees to put *Literature Review* in chapter one. This may be done to make students review only relevant literature or to reduce the number of chapters. Although this practice is less common, it is important to note its existence. Tuckman (1972) has for instance argued that this practice has a justification. The reason is that building the review into the introductory chapter has the advantage of forcing the writer to keep it relevant to the problem statement and hypotheses.

Secondly, the idea of placing *Methodology* in chapter one is because qualitative research projects do not usually involve elaborate methodological descriptions or specifications such as population of study, sample size, and sampling techniques etc. All of these detailed specifications are required in a quantitative research. But a qualitative documentary or historical research for example, may just require the collection of official records and their critical analysis. When this is the case, it will not require a separate chapter on methodology.

Thirdly, the existence of a separate chapter has to be justified regardless of whether it is quantitative or qualitative in nature. For example, in spite of what we said in the last paragraph, an elaborate and sophisticated documentary research for either a master's or doctorate degree may entail separate chapter on methodology if the justification for it exists.

3.3 Skills needed for writing details of Chapter One

The chapter one of a research project appears to be the most difficult for students. This is because, getting started in any writing is not usually easy. This is why this Unit devotes this section to focus on it to provide useful guides on how to proceed. These guides are the skills you need to be confident in starting the chapter.

First, the chapter one of the research report is called **Introduction.** Secondly, this title is usually put in capital letters like all other chapter headings in the project. The detailed outline of this chapter is as provided below, and depending on minor variations across Departments or Facultiesor Universities, all or most of the listed sub-headings below are found in chapter one:

Detailed Outline of Chapter One
Background of the study
Statement of the problem
Objective (aims or purpose) of the study
Significance of the study (justification)
Research hypotheses or Hypotheses of the study
Scope and limitations of the study
Operational definitions (or definition of terms or still operationalization of concepts).

Some guiding skills on writing the details of these sub-headings are as follows:

3.3(a) The Background to the Study.

The background to the study provides the context of the problem being investigated. It could be in the form of providing an antecedent to the problem. Some reports ignore the background and move straight to the problem statement. But a background is necessary because it tells you where you are coming from with respect to the issue being investigated. This serves as a bridge between the past-related -issues and the present problem under study. Providing a background should not be confused with the statement of the problem as students often do. The background focuses on the '**How' related issues** and not on the why' of the issues. It is **descriptive** and **assertive** of past things that have bearing on the problem. Furthermore, it usually adopts a **historical approach** and restricts itself to identifying certain salient factors in the past which have relevance to the problem being studied.

Once more, the guiding principle is to focus on the 'hows' and not the 'whys' of past-related-issues. The background should be logical and historical in its description. It is not supposed to be analytical because it is not the section to ask the 'why-question' which the 'statement of problem' addresses. In other words, it should not therefore be raising questions in the way the 'statement of problem' raises. For example, if one is investigating 'the impact of hate speech on inter-ethnic relations in Nigeria, one would be required under the Background to recount past experience on the rise of hate speech and also describe **how** it impacted on inter-ethnic relations, as well as on peace and stability in Nigeria. The question as to **why** hate speech is on the rise and its impacted on inter-ethnic relationsis the left for the section of **Statement of Problem** to address or ask.

3.3(b) Statement of the (Research) Problem

What a Statement of Problem is:

This is the most crucial introductory issue in any research. Simply defined, a research problem is the fundamental question that requires an answer. It is the most worrying issue or task that needs to be properly examined and understood. It is a fundamental question because many other specific research questions derive from it. As ADF (1993) rightly put it, a research problem is 'an unsettling intellectual challenge, a matter of doubt, difficulty or dissatisfaction that one experiences when an unsatisfactory situation is encountered… *A statement of the research problem;* is usually a declarative statement of what is wrong, doubted and unsettling'.

The research problem is the fulcrum or hub around which the research objectives and hypotheses revolve. The objectives and hypotheses derive their meaning from the research

problem and when divorced from it, the research becomes unfocused and meaningless. There has to be harmony among the statement of problem, objectives and hypotheses.

Under the statement of problem, the researcher is expected to examine the 'why'- related issues. The researcher does not only describe as such but rather raises questions that attract curiosity and expectations in terms of answers. The 'why' of an issue differs from its 'how', for example, what is the complexion of the Vice-Chancellor of NOUN? This is a 'how-question' which requires a clear, straight and objective answer. For those who know the VC, different answers can hardly arise. If the answer to the question is black colour, then we can go further to ask, why is the VC black? The answer to this why question requires analytical insight. Answers may vary according to the different understanding or rationalizations of people. But the correct answer requires examination of hereditary issues, use or misuse of cosmetics, effect of weather etc. All those who do not know the complexion of the VC's parents would first of all establish that before offering an explanation.

The point being made is not that the use of 'how' and 'what' cannot be found in the formulation of research questions, but it is that in articulating the statement of problem, efforts should be made to differentiate description from analysis i.e. differentiating **what** exists from **why** it exists. We can describe and state what exists under the background, while we raise questions as to why it exists under the statement of problem. This is an important guiding principle that can lessen the usual 'agony' students pass through in trying to articulate the statement of problem. There is usually a general lack of understanding among students of what a statement of problem requires.

What a statement of problem is not:

Perhaps it is more helpful to state what a Statement of problem it is not. First. A statement of problem is not the listing of problems that a researcher encounters in a study. Some research students for example, state that there is dearth of literature in the study or that they did not have enough funds to do an extensive survey, or still that there was lack of cooperation from the respondents.

Secondly, a statement of problem is not the listing of problems one expects to identify in a study or one already identified in a study. Some students for example state that the problem of the study is that there is poor leadership in the organization, or that there is widespread corruption during the political party primary elections. These are findings already, and if answers the research is supposed to discover are already known and stated before embarking on the study, then why carry out the study. Yet from these known problems the statement of problem can be articulated. For example, under the background of a study, it can be observed that there are widespread media reports that there is increasing rise of hate speech in the social media and this **appears** to be affecting inter-ethnic relations. Then under the statement of problem, doubt would be introduced as a basis for warranting a research. One may then begin by raising the issue as to whether it is true that hate speech is on the rise, or one may also ask: why is hate speech on the rise? Then again, one may ask: what is the impact of hate speech on inter-ethnic relations in the public service?

Thirdly a statement of problem is not the section for stating the purpose of the study or its significance as some people do, unless one wishes to integrate all these under one section which is usually not the case for an academic research project.

Styles used in writing a statement of problem

In writing a statement of problem, one can use different styles. First, one can be argumentative in approach by raising doubt to what apparently exists, or disagreeing right away from what apparently exists, or disagreeing right away from what apparently (seemingly) looks accepted. Secondly, one can be declarative in style by making assertive statement(s) from a particular school of thought which is of course subject to further investigation. Thirdly, one can be **historically analytical** by critically looking at antecedence to an issue. This is different from being **historically descriptive** as done under the background of study. Furthermore, one can proceed by looking at the findings of other scholars or theoretical postulations which require further investigation.

Whichever style one adopts at the end of the day, the statement of problem is reduced to specific researchable questions of say three to five in number. Although there is no optimum number of questions, it is advisable that the number should be a manageable one that would make the research report less voluminous. Research questions are narrow and specific in scope and are usually derived from the research problem which is wider and general in scope. The role of the research questions is to reduce the problem to a researchable (i.e. clearly observable and/or measurable) level. It is advisable to use the research questions to end the statement of problem, but it can be separated from the statement of problem and put as a sub-heading. Whatever is the case, these research questions are called principal research questions to differentiate them from questions contained in the questionnaire and interview instruments. Such questions in these instruments are called minor questions as they are in turn derived from the principal questions. Clusters of minor questions in a questionnaire are usually derived from the various principal research questions.

3.3.(c) Objectives of the Study

Under the objective(s) of the research, one is required to state in concrete terms, what is or are 'expected to be achieved at the end product of what is being researched upon, in terms of the expectation or solution required. One is therefore required to present identifiable or concrete (i.e. not nebulous things to be accomplished by the research. The success of a research can therefore be assessed in terms of whether those concrete things hoped for, have been realised. Every research should have a main or major objective (usually one) and thenspecific objectives whose number corresponds with the number of principal research questions.

The usual mistakes which students make in research with respect to the objective (s) include: (a) stating objectives in ambiguous and complex terms, (b) stating objectives in unobservable and/or unmeasurable terms, (c) stating conflicting objectives or stating them in conflicting terms with respect to methodological implications or requirements; and lastly, but more importantly, (d) stating objectives that are not consistent with, or derivable from, the research problem or questions.

Consequently like good hypotheses, good research objectives are ones that are clear, specific (concrete), observable and/or measurable in terms of methods of data collection and analysis, manageable, less complex, and consistent with research problem, questions, and hypotheses. A lack of consistency among these creates a serious problem of lack of direction or purpose.

As research questions are derived from the problem, the objectives in turn derive their root from them but more specifically from the questions. A principal research question for example, may read 'why is the incidence of hate speech on the increase in Nigeria? Then a corresponding or logically derived research objective would read: The objective is 'to examine, (or identify, find out, explain etc.) the rising incidence of hate speech in Nigeria'. When therefore this link is borne in mind, then it will always be easier for students to articulate concrete and clear objective that is consistent with the research focus.

In stating objectives, the style of expression is important. First, the main objective is stated and secondly, the specific objectives are stated using active verbs or phrases as shown in the following examples. The varying use of these active verbs will minimize the use of few repetitive ones. For example, the specific objectives of the study are to:

(a)   Examine …
(b)   Analyze…
(c)   Determine . . .
(d)   Find out . . .
(e)   Explore . . .
(f)   Ascertain . . .
(g)   Describe . . .
(h)   Explain . . .
(i)   Identify . . .
(j)   Investigate . . .
(k)   Compare . . .
(l)   Establish . . .
(m)   Recommend, (proffer, provide or prescribe) . . .

3.3.(d) Significance of the study

The significance of the study is (a) the value or contribution which the research is going to make to existing knowledge (in terms of theoretical justification or relevance) or (b) the solution the research is going to provide towards ameliorating a practical problem of concern. A researcher who embarked on inventing a cooling apparatus (e.g. electric fan), would have had his objective achieved if he successfully invents one. The significance of this invention still needs to be explained in terms of its utility as a means of cooling our homes in period of heat. Another title for 'significance of study', is 'Justification of the Study'.

Justifying a research can be on the basis that: (a) it is timely, topical or auspicious; (b) it is closing an existing gap in knowledge or the literature; (c) it is theoretically relevant; (d) it is practically relevant; (e) it is in accordance with national priority; (f) it is in accordance with priorities set by funding agency of a particular research; (g) it is wider in scope than existing research undertakings in terms of issues covered or geographical areas covered (i.e. permits wider generalizations), and (h) it is useful for confirming or rejecting existing findings on issues under study. These constitute the various criteria for justifying a research undertaking.

3.3(e) Research Hypotheses

Readers are requested to refer back to our earlier extensive discussion on hypotheses particularly in terms of the various ways in which they can be formulated. It is relevant here to point out that hypotheses should be related to the research problem, fundamental questions,

and objectives. They should all be linked in a consistent manner. Students should therefore avoid the common error of stating hypotheses that stand in isolation of the research problem, question and objectives. It is worth restating that research is a systematic and logical enterprise, and this should be reflected in stating problems, questions, objectives and hypotheses.

3.3(f) Scope and Limitations of the Study.

A good research needs to be delimited to a manageable scope. Delimitation of research refers to the definition of the scope (extent or boundary) covered by the research. The scope of a research can be operationally defined in terms of (a) the issues covered; (b) the period (time-frame) covered; (c) subjects or things studied such as people, organizations, groups etc; (d) geographical area covered; and (e) sector of an economy such as public and private sectors, or industrial, agricultural, energy, health, educational etc.

Scope or delimitation of a study is different from its limitations. The limitations of a study refer to the constraints, factors or problems that in one way or the other affect adversely the quality of the research in terms of say validity of data collection instruments, or reliability of findings of the study, or still in terms of generalization such as utility of the findings among others.

3.3(g) Operational Definitions

You are advised to refer back to an earlier discussion on this. It suffices here to state that operationalization of concepts is an important aspect of the study. It should therefore be given the seriousness it deserves. The common mistakes students make here is to provide conceptual definitions rather than operational ones. Conceptual or theoretical definitions usually have general, abstract and multiple meanings while operational definitions have specific, concrete, empirical and clear meanings. Again, an operational definition is not a textbook definition which is usually general and theoretical. It is a specific definition that should be provided by the researcher to permit the observation and measurement of the variables in the study. It must however be a relevant and valid definition.

4.0 Conclusion

Through this Unit you would have learnt that the two main research approaches (namely quantitative and qualitative) require their own chapter outlines. Secondly, you would have acquired the skills needed to develop chapter outlines for quantitative and qualitative types of research. Lastly, you would have learnt how to use the acquired skills to write the various sections of chapter one of a research project.

5.0 Summary

This Unit identified the two main research approaches and their specific chapter outlines. It showed that a quantitative research approach goes with a five chapter outline, while a qualitative approach goes with unspecified number of chapters which may range from five to six or more chapters. The Unit also drew your attention to the existence of minor variations in practice. In the last sections of the Unit, some principles guiding practice how to write the different sections of chapter one were discussed. Applying the skills learnt, it is expected that

you are now in a position to know how to begin to write chapter one which students usually find difficult.

6.0 Tutor-Marked Assignment
In what ways are the background of the study different from the statement of the problem in a research project? Illustrate this with practical examples.

7.0 References/Further Reading

African Development Foundation (ADF) (1993): *Research Grant Proposal Handbook.* Washington: ADF.

Obasi, I. N. (1999). *Research Methodology in Political Science,* Enugu: Academic Publishing Company.

Tuckman, B. W. (1972). *Conducting Education Research*. New York: Harcourt Brace Jovanovich, Inc.

Unit 3: Research Proposal

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1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction
In this Unit, you will learn the nature of academic research proposal as well as the different types of proposal. Furthermore, you will be in a position to make a draft of a good academic research proposal preparatory higher degrees.

2.0 Objectives

At the end of this Unit, students would be able to:

- Demonstrate a good understanding of the nature of academic research proposal;
- Understand the different types of research proposal;
- Be in a position to write an academic research proposal.

3.0 Main Content

3.1. The Meaning of Proposals

A proposal is a plan or scheme outlining and describing how an action is to be executed. A research proposal 'is a plan of attack on a researchable problem. It is a strategy that the researcher intends to use in the search of a solution to the problem or as an answer to a question.' (ADF, 1993). As a plan, a research proposal 'contains steps or stages of what must be done to achieve whatever goal is being sought: from the selection of a research problem, the specification of the types of data needed to resolve the problem, the specification of data-collection and analysis methods, to the expected research findings and their relevance' (ADF, 1993).

3.2 Types of Proposals

There are different types of proposals. Two major distinctions however can be made namely (a) proposals written in the world of learning specifically in educational and research-oriented institutions, and (b) proposal written in the wider world of work. In the world of work, contract or project proposal can simply be defined as `a written offer to solve an identified technical problem, for a specified sum of money' (Odigboh and Osuagwu, 1998). In this type of proposal, (i.e. contract proposal) one is required to prepare a time-table of a plan of action (activities), as well as a budget estimate supporting those activities to be executed. For some grant-awarding bodies, one is also expected to specify how one would disseminate the findings of the proposed study. And for some others, one is expected to specify the expected results (findings) i.e. provide some ideas as to what one expects to find in the study. This Unit limits itself to a discussion on proposal written in the world of work.

Proposals in the World of Learning

The world of learning seeks primarily to understand phenomena (social, economic, political, educational, health etc.), as well as expand the frontiers of knowledge. Secondly it seeks to provide practical solutions to problem of society. These we will recall constitute the *raison d`etre* of pure (basic) and applied (action) types of research. In the world of learning, research projects are carried out as an important requirement for the award of degrees. The execution of such projects requires the development of research proposals. Proposals for this purpose can be called **degree-oriented research proposals, or simply academic research proposals** to include other non-degree research proposals. And since one of the major functions of academics, is to conduct research geared towards advancing knowledge as well as providing solutions to practical problems of the society, there exists a second type of proposals in the world of learning. This type of proposals can be called **grant-soliciting (or oriented research proposals).**

Degree-Oriented Research Proposals

The essence of degree-oriented research proposals is to develop a researchable project topic that can be executed within the limited period of an academic programme. These are proposals that describe the research project to be executed in partial fulfillment for the award of degrees. In practice, there is hardly any formal requirement that diploma and first degree students should write and present research proposals before executing their project. However, at informal level, the supervisor may require that a Supervisee should show in a brief manner what he or she wants to study. Some Supervisors may demand that there should be a mini-proposal comprising statement of problem and justification (significance) of the study among few things. But whether it is a mini or full proposal that is demanded, the important thing is that research students should know what is required and what to do. At the master's degree level, students are formally required to write proposals in many departments. And at the doctorate degree level, students in all departments are required to write and present formally before a panel, their research proposals.

These entail choosing a research topic after identifying a problem. Then a statement of problem is presented, and a brief review of significant works is done. Furthermore, hypotheses are formulated and then a research design is presented. In actual execution, the research student is expected to articulate and present the above in three Chapters as follows:

Chapter One: Introduction
- Background of the Study (This may be excluded)
- Statement of Problem (with research questions)
- Objectives or Purpose of the Study
- Significance or Justification of the Study
- Hypotheses
- Scope and Limitations of the Study.

Chapter Two: Literature Review
- Literature Review
- Theoretical Framework

Chapter Three: Research Methods

- Specification of research design
- Methods of data collection
- Methods of data analysis

The chapterization of this type of proposal is one of the ways by which a degree-oriented proposal differs from a grant-soliciting proposal. However, in some disciplines, an academic proposal is not chapterized, but numbered consecutively. Research proposals are usually written in future tense expressional form (expression). For example, one is required to say `this study **will** investigate . . .´ which differs from the past tense 'this study investigated…´ normally used when writing the final version of the research project. Experience shows that some project students who correctly wrote the proposal in future tense sometimes times make the serious mistake of not changing to the past tense- form of expression when writing the final version of the project report. Such act of omission should be guided against.

4.0 Conclusion

The essence of degree-oriented research proposals is to develop a researchable project topic that can be executed within the limited period of an academic programme. These are proposals that describe the research project to be executed in partial fulfilment for the award

of degrees. In practice, there is hardly any formal requirement that diploma and first degree students should write and present research proposals before executing their project. However, at informal level, the supervisor may require that a Supervisee should show in a brief manner what he or she wants to study. Some Supervisors may demand that there should be a mini-proposal comprising statement of problem and justification (significance) of the study among few things. But whether it is a mini or full proposal that is demanded, the important thing is that research students should know what is required and what to do.

5.0 Summary

This Unit underscores the importance of acquiring the skills needed for writing an academic proposal. A proposal was defined as a plan or scheme outlining and describing how an action is to be executed. A research proposal was therefore defined as a plan to solve a researchable problem. In brief, it contains steps such as the identification of a research problem, objectives, hypotheses, short literature review, and research design (i.e specifying the data needed, methods of data collection and analysis).

Furthermore, a major distinction was made between (a) academic research proposals that seek to advance knowledge which exist in the world of learning), and (b) contract proposals which exist in the world of work. This Unit focused on academic research proposals which are towards producing research projects to meet the requirements for getting a degree. It was pointed out that academic research proposals are mainly required at the master's and doctorate degree programmes.

In writing an academic research proposal, students are advised to apply the skills needed in writing the various sections of chapter one, as well as those for writing literature review all of which have been discussed earlier in this Course.

6.0 Tutor-Marked Assignment

Select any topic of your interest and draft an academic proposal of not more than 5 pages.

7.0 References/Further Reading

African Development Foundation (ADF) (1993): *Research Grant Proposal Handbook*. Washington: ADF.

Obasi, I. N. (1999). *Research Methodology in Political Science,* Enugu: Academic Publishing Company.

Odigboh, E.U. and Osuagwu, C.C. (1998): *Effective Communication of `Technical Ideas in Science and Engineering*.Nsukka: University of Nigeria Press Ltd.

MODULE 4: MEASUREMENTS, SURVEYS AND SAMPLING TECHNIQUES

Module 4deals with the all important issues of measurements, survey research and sampling techniques which are very central in the execution of a quantitative type of research. Measurement and scales of measurement are discussed in details in Units 1 and 2, while survey research, sampling size and sampling techniques are examined in Unit 3. Lastly, Unit 4 discusses the issues of validity and reliability of instruments and their results. Altogether, the four units of the Module are presented as follows:

Contents

Unit 1: Functions and Types of Measurement

Unit 2: Scales of Measurement

Unit 3: Survey Research, Sample Size and Sampling Techniques

Units 4: Issues of Validity and Reliability in Research

Unit 1: Functions and Types of Measurement

Contents

1.0 Introduction

In this Unit, you will learn the functions of measurement in conducting research. You will also understand the types of measurement and the nature of data they measure. The scientific status of research in the discipline of public administration is raised higher by the use of appropriate measurements. The Unit starts with the definition and functions measurement, and then goes further to identify and discuss in details the four types of measurement as well as the types of datathey measure.

2.0 Objectives

At the end of this Unit, students would be able to:

- Demonstrate an understanding of what measurement means and its importance in the field of public administration and social and management sciences generally;
- Identify the particular types of data that are measured by different measurements.

3.0 Main Content

3.1 Definition and Functions of Measurement

Measurement is an important attribute of the scientific method for it gives precision to research findings and helps to minimize doubts and its resultant controversy. For example, the use of scale by meat sellers in our markets minimizes the tortuous haggling that often takes place between meat sellers and buyers (especially women). What then is measurement? Measurement is the assignment of numerals (figures) to objects, events or persons according to rules (Stevens, 1951, as quoted in Black and Champion, 1976).

Measurement performs four major functions in the research execution process. These are (a) classificatory (b) descriptive, (c) statistical, and (d) testing functions, (see Black and Champion 1976). The classificatory function of measurement enables researchers to differentiate between the objects being studied according to the properties they possess. In order words, individuals or objects being studied can be classified on the basis of their

possession of certain characteristics. Secondly, its descriptive function helps researchers to provide accurate description of phenomena empirically in the manner that would aid the formulation of hypothesis about the phenomena. Thirdly, measurement makes it possible for data to be quantified thereby becoming amenable to statistical manipulation and treatment. And lastly, through its testing function, measurement makes it possible for hypotheses and theories to be subjected to empirical verification much more easily.

3.2. Types of Measurement

There are four types (which are also called levels) of measurement have been identified (see for instance Black and Champion, 1976; Obikeze, 1986; Obasi, 1999). These four types are (a) nominal, (b) Ordinal (c) interval, and (d) ratio measurements.

3.2(a) Nominal Measurement:

This is the lowest or most simple level of measurement. As the word nominal means to name, nominal measurement involves just the classification or categorization of subjects, responses (or variables) into classes. Things are named or classified into categories, classes or groups and within such groups no differentiation is made. The assignment or use of numbers here to represent the groups does not mean a score but is used to indicate the frequencies of the different groups or classes. With this introduction of classification into groups, a researcher can for instance establish the frequency or percentage of each group. For instance, in a study involving university students, we may be interested in the gender composition of the students (Note that the variable we are interested in here is sex or gender). Consequently we can classify the students into two, namely male and female. Again we may be interested in their discipline, ethnic origin, level of study, religious affiliation, social clubs they belong to, etc. In all these cases, we can always classify them by identifying the appropriate different groups in which they fit into. For example, with respect to level of study of the students, they can be classified as Year 1 (100 level), Year 2 (200 level), Year 3 (300 level), etc. The principle guiding the classification of the variable is simply what the researcher is interested in highlighting with respect to the composition of the subjects being studied. From our examples for far, it is clear that nominal measurement deals with what is called nominal data and variables, which are all qualitative in nature. Nominal data therefore are data gathered from qualitative variable.

The importance of such appropriate classification should not be under-estimated because as Blalock (1981) rightly observed, classification is fundamental to any science. This is so because, all other levels of measurement no matter the degree of their precision, basically involves classification as a minimal operation.

3.2(b) Ordinal Measurement

As the name indicates the word 'Ordinal' means to order. Ordinal measurement enables researchers to rank order their subjects or responses of their subjects in such ways like greater than, less than, more than or less than, higher than, or lower than etc. As a higher level measurement in relation to nominal measurement, the ordinal measurement enables a researcher not only to differentiate groups, but also to express them in greater than or less than relationships with numbers used to represent the groups. The numbers used show the relative positions of the differentiated groups. Examples of variables conforming to the ordinal scale are social class, prestige rankings, ratings of universities and organizations and many attitudinal phenomena (see Black and Champion 1976). For example, after acquiring

your postgraduate diploma, your qualification will be higher than another person with only a first degree. Consequently, ordinal measurement deals with ordinal data and variables such as qualifications, rank, social class, etc. Ordinal data are also gathered from qualitative variable with the additional property of ranking (rather than grouping or classifying) the data on the basis of greater than, less than etc.

In spite of its usefulness, ordinal measurement still has a shortcoming. Since the numbers assigned to subjects or responses only represent their position in a rank order, it is not possible to specify the magnitude of the difference between the numbers assigned to the elements (Wright, et al, 1970; Blalock, 1981).

3.2(c) Interval Measurement

This type or level of measurement has all the properties of the nominal and ordinal levels of measurement in addition to showing equal spacing between the intervals (Black and Champion 1976). Put differently, it does not only rank order things, it equally show the interval or distance between them (Tuckman 1972). And as Wright *et al* (1970) rightly observed, interval measurement takes care of the inadequacy of ordinal scale. However, its limitation is that it does not have an absolute zero point to enable one make a ratio statement. Examples of interval variable are intelligent Quotient (I.Q), height, age, among others see (Black and Champion, 1976). Interval data are therefore data gathered from quantitative variable and is amenable to higher statistical analysis.

3.2(d) Ratio Measurement

The ratio level of measurement has the properties of the interval scale as well as an absolute zero point. And a score of zero corresponds to the absence of the characteristic being measured (Wright *etal*, 1970, Tuckman 1972). The major difference therefore between the interval and ratio levels of measurement, is the absolute zero distinction. The importance of a measuring instrument that gives us a zero result can be underscored by temperature measurement. Assuming that a temperature measurement does not tell us that the weather is -10 degrees centigrade as is found in winter season, then it means that people would go out without protecting themselves which could lead to death. Examples of ratio variables are income, weight, time, and length (Black and Champion 1976).

In conclusion, it is important to note that these different levels of measurement require what Black and Champion (1976), called 'particular set of statistical procedures and techniques of analysis that are permissible under certain scientific and mathematical rules'. This therefore calls for proper understanding of the nature of ones data so as to know which appropriate statistical technique of analysis should be applied. What this means is that nominal measurement which ends up generating frequencies and percentages will not be amenable to inferential statistical analysis. It will all end up being analysed by descriptive statistical tools.

4.0 Conclusion

Measurement is central in conferring the status of science to disciplines in the social and management sciences. The scientific status of public administration is today no longer in doubt by the application of the principles of measurement in the conduct of research. For instance, the principle of ensuring that certain types of data are measured by appropriate

measurement instrument is of such principles. In practice, this means that normal data are measured by normal measurement and so forth and so on.

5.0 Summary

This Unit discussed the nature and functions of measurement in the conduct of research in public administration. The Unit went further to identify and discuss in details four types of measurement namely nominal, ordinal, interval and ratio management. For each type of measurement, the appropriate data measured are identified. As a result of this fact, it is important that a student knows the nature of data he or she has generated and then select the appropriate statistical tools for analysing the data. For example, nominal measurement which ends up generating frequencies and percentages are not amenable to inferential statistical analysis. It will all end up being analysed by descriptive statistical tools.

6.0 Tutor-Marked Assignment

Identify and discuss with practical examples, four types of measurement in the conduct f research in public administration.

7.0 References/Further Reading

Black, J. and Champion, D (1976): *Methods and Issues inSocial Research*. New York: John Willey and Sons

Blalock, H (1981): *Social Statistics*. Auckland: McGraw-Hill Book Co.

Kerlinger, F.N. (1977): *Foundations of Behavioural Research* New York: Holk, Rinehart and Winston.
Obikeze, D.S. (1986): *Introductory Statistics for the Social Sciences*, Enugu: Fourth Dimension Publishers.

Tuckman, B.W. (1972): *Conducting Educational Research*. New York: Harcourt Brace Javanovich, Inc.

Wright, D.S. etal (1970): *Conducting Educational Psychology*: An Experimental Approach. Harmondsworth: Penguin.

Unit 2: Scales of Measurement

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1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 Introduction

This Unitis a follow-up discussion on measurement. It focuses specifically on the scales of measurement in the conduct of research. It offers the definition of what a scale means and proceeds to offer an extensive discussion on Likert scale of measurement given its wide usage in research social and management disciplines. The Unit ends up with a practical demonstration of the use of Likert scale in the conduct of research.

2.0 Objectives

At the end of this Unit, students would be able to:

- Demonstrate a good understanding of what a scale of measurement means as well as its significance in measuring the intensity of opinion of respondents which would have been otherwise not possible;
- Practically demonstrate the use of Likert scale in the conduct of survey research.

3.0 Main Content

3.1 Scales of Measurement

Scales are devices constructed or employed by researchers to quantify the responses of a subject on a particular variable (Tuckman (1972). And by applying a measurement standard, a scale enables individuals (respondents) to be compared relative to one another regarding the properties they individually possessed (see Black and Champion (1976). Although there are various types of scales namely Likert Scale, Thurstone Scale, Guttman Scale and Semantic differential, we are limiting our discussion here to Likert Scale. This is mainly because it is the most commonly used due principally to the easiness or convenience of its application, as well as the simplicity of interpreting its measures.


3.1(a) Likert Scale of Measurement

A Likert Scale is a five-point scale in which the interval between each point on the scale is assumed to be equal, and it is used to register the extent of agreement or disagreement with a particular statement of an attitude, belief or judgement (Tuckman, 1972). As Black and Champion (1976) rightly pointed out, RensisLikert was instrumental in developing this method of summated ratings used for differentiating between subjects according to their possession of varying degrees of some ordinal characteristics, typically attitudinal in nature.

3.1(b) Practical Use of Likert Scale

Survey research in the discipline of Public Administration makes good use of the Likert Scale in eliciting attitudinal and judgemental data from respondents. This is usually carried out through the use questionnaire and interview instruments. A Likert Scale of measurement can be used by the questionnaire to elicit information from respondents.

There are various ways of expressing the responses from a Likert Scale measure in a questionnaire. The most widely used form is the Agree-Disagree response pattern. In this application, respondents are asked questions that require different or varying intensity of responses. The questions are usually put in a statement form such as 'I like my job'. Now the responses elicited from a Likert scale are:

Strongly   Agree   Undecided   Disagree   Strongly
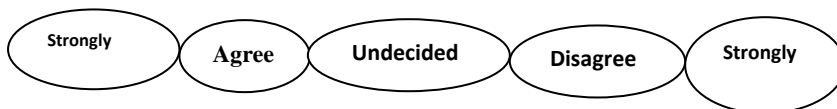
In order to convert these qualitative responses into a form amenable to quantitative analysis, the use of figures is introduced. The assignment of weight to each response makes this quantitative analysis possible. All positive statements like the one above, are assigned weights in the following way:

S   A   Und   D   SD

5   4   3   2   1
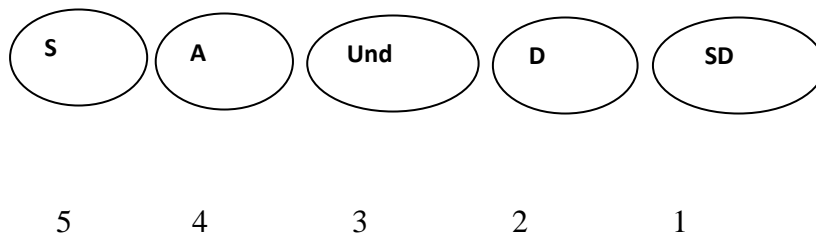
On the other hand, if the statement is negatively phrased such as 'I do not like my job', the weighting will change direction as shown thus:

SA   A   Und.   D   SD

1   2   3   4   5
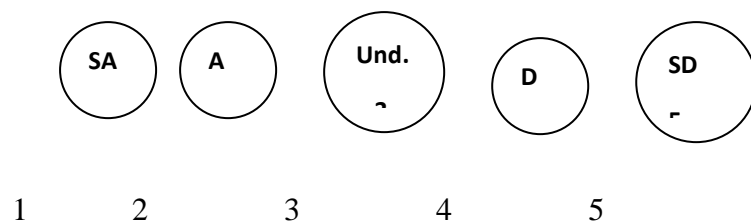
With these weights, a survey research which would have ended up as a qualitative study can now be quantitatively analyzed with different types of statistical tools.

Likert Scale responses can also be expressed in other forms to apply to appropriate statement ('question') asked such as:

- Very Satisfied, satisfied, undecided, dissatisfied and very dissatisfied;
- Highly satisfied, satisfied, undecided, dissatisfied and highly dissatisfied;
- Very high extent, high extent, undecided, low extent, and very low extent;
- Very high, high, undecided, low very low;

- Very strong, strong, undecided, weak, very weak.

In using Likert scale measures in a questionnaire, **statements**(e.g. My supervisor has a domineering attitude) rather than **questions**(e.g. Does your supervisor have a domineering attitude?) should be used. This is because the statements can easily fit into the various response patterns such as **strongly agree, agree**e.t.c). The use of a question will attract a **yes** or **no** answer which does not allow the measuring the **intensity** of opinion. They can also be formulated very easily. This means that respondents are provided with statements to which they are expected to indicate their intensity of their opinions i.e. the degree of their agreement or disagreement, satisfaction or dissatisfaction, etc. depending on the response pattern used by the researching student. A further discussion of the application of the Likert scale in a questionnaire would be made in Module 5 later in this Course.

The data generated from a Likert Scale measurement, can be analyzed simply with percentages and means. But more advantageously, they can be analyzed with higher tools of statistical analysis such Chi-square test, t-test, analysis of variance Analysis of variance, (ANOVA), correlation analysis, etc.

4.0 Conclusion

The scientific status of research in public administration has been raised higher by the use of scale of measurement in the conduct of research. The Likert Scale of measurement which is the most popular in management and social sciences, is a five-point scale that measures opinions, attitudes, belief, judgement, etc.

5.0 Summary

This Unit has underscored the importance of scales of measurement in research. It identified the various types of scales namely Likert Scale, Thurstone Scale, and Guttman Scale among others. Furthermore, it focused on Likert scale and demonstrated its use in a questionnaire. The various response patterns used in a Likert scale were identified and their use with appropriate statements were practically demonstrated.Further demonstration of the use of Likert scale would be made later in Module 5.

6.0 Tutor-Marked Assignment

In your opinion, why is a scale of measurement considered very important in the conduct of research in public administration?

7.0 References/Further Reading

Black, J. and Champion, D (1976): *Methods and Issues inSocial Research*. New York: John Willey and Sons

Obasi, I. N. (1999). *Research Methodology in Political Science*. Enugu: Academic Publishing Company.

Tuckman, B.W. (1972): *Conducting Educational Research*. New York: Harcourt Brace

Javanovich, Inc.

Wright, D.S. etal (1970): *Conducting Educational Psychology: An Experimental Approach.* Harmondsworth: Penguin.

Unit 3: Survey Research, Sample Size and Sampling Techniques

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2.0 Objectives

3.0 Main Content

4.0 Conclusion

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6.0 Tutor-Marked Assignment

7.0 References/Further Reading

Contents

1.0 Introduction

This Unit examines the important topic of survey research which we mentioned earlier in the discussion on research design. This Unit discusses its uses and limitations in the conduct of research. Furthermore, the Unit examined the determination of sample size as well as the various types of sampling techniques for use by researchers.

2.0 Objectives

At the end of this Unit, students would be able to:

- Demonstrate an understanding of the major characteristics of survey research;
- Know the uses and limitations of a survey research in the execution of research;
- Define and apply the concepts of population, sample, sampling, inference, unit of analysis, and sample size in the conduct of research;
- Know how to select a sample size from a Sample size table;
- Use an appropriate sampling technique(s) in the execution of a research project.

3.0 Main Content

3.1 The Survey Research

Survey research refers to a process of eliciting data from a target population through either questionnaire or interview instruments, or subjecting such data to statistical analysis for the purpose of drawing conclusions. Survey remains a major breakthrough in the field of social and management sciences' research. It is to social and management sciences what laboratory experiment is to the physical and biological sciences.

Through questionnaires and interviews, survey research makes

> *it possible to measure what a person knows (knowledge or information), what a person likes and dislikes (values and preferences), and what a person thinks (attitudes and beliefs). Questionnaires and interviews can also be used to discover what experiences have taken place (biography) and what is occurring at the present. This information can be transformed into numbers or quantitative data by using the attitude scaling...or counting the number of respondents who give a particular response thus generating frequency data* (Tuckman, 1972: 173).

Social and management scientists 'have learned from survey research a great deal about human and organizational behaviour that could not have been discovered by any other method' (see Buchanan, 1980). It is on this basis that Jones (1971) observed that surveys provide an important means of gathering information especially when the necessary data cannot be found is statistical records.

In summary therefore, surveys have the following advantage. First, surveys help to accumulate information from individuals at relatively low cost. Secondly, they permit generalization to be made to wider population even when only a sample was studied. Thirdly, surveys are flexible to permit the use of a variety of data collecting techniques. Fourthly, they sensitize researchers to potential problems that were originally unanticipated or unknown.

Lastly, surveys are useful tools for verifying theories(see Black and Champion, 1976).On the other hand, surveys are criticized for:

- being superficial reflections of population sentiments;
- being unstable reflections of population characteristics;
- offering the researcher little or no control over individual responses to surveys (see Black and Champion, 1976).

Other limitations of surveys include the following:
- They are subject to sampling error.
- Data gathering techniques may be faulty and therefore lack validity.
- Surveys are not applicable to certain kinds of research.
- respondents may provide biased and subjective information.
- respondents may be unwilling to co-operate.
- opinions of respondents are subject to change from time to time.
- the results of surveys may not be reliable due to many errors and.

Surveys suffer from the problem of unpredictability indeterminacy and changeability of human behaviourIsaak (1969).

3.2. Sampling as a Hallmark of Survey Research

Sampling is the process of selecting a part (called a sample from the whole (called a population or universe) in order to make inferences about the whole. A sample then is that small part selected from the whole or population. It is a subset of the population. As Forces and Richer (1970) rightly observed, the main purpose of sampling is to reduce the time and money that would be spent if the total population were studied, and still generate data that are accurate representations of the entire population.

The place of sampling in survey research is underscored by the statement by De Cola (1979) that the problem of surveying 'is that of gathering data from a sample of cases selected from a usually larger population'. The two then are intertwined. De Cola also captured this relationship when he said that whenever one is trying to gather original data from a group of people, places, or things, one is facing a problem in surveying and sampling.

De Cola (1979) has identified three important issues which need to be resolved before a survey design can be carried out. First, the **Population** to be studied needs to be defined or determined. Population refers to the large aggregate that one is interested in studying or describing. After defining the population in terms of context (geographically speaking for instance), the **sample size** to be studied needs to be determined. The relationship between a sample and the population is illustrated as follows:

Fig. 2: Relationship between a sample and the Population
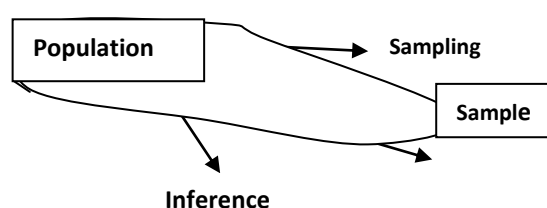
From Fig.2, it is clear that the essence of a survey research is to make **inference** from a population (i.e. make conclusions from the population based on information from the sample). Consequently as De Cola rightly observed, 'if the population is ill-defined, the processes of sample selection and inference, will correspondingly suffer'.

The second issue that needs to be resolved before carrying out a survey design, is the determination of the **unit of observation or analysis.**Unit of observation refers to the subject being studied with respect to whether individuals, groups, family units, organizations (such as schools, local governments, state governments, nations, firms etc.) are being studied. So specifying the data units or entity to be observed or studied, is very important in executing a survey design.

The third issue is the specification of the variables for which data will be generated by the survey. This is because every question asked on the questionnaire should produce values for one or more variables to be described or analyzed in relation to other variables.

If (as we earlier said) sampling is the hallmark of survey research, how then can a sample be drawn in such a way that inferences based on the sample adequately reflect the characteristics of the population. Put differently, what are the various sampling techniques available for making a sample representative of the population? But before we examine this, a brief note on the determination of the sample size is appropriate here.

3.3 The Determination of a Sample Size

You would recall that we defined a sampleas a small part selected from the whole called a population. It is therefore a subset of the population. A sample size is the actual figure or number that is selected from a population. Some factors affect the actual size of a sample. According to Nwana(1981) for example, the larger a sample becomes, the more representative of the population it becomes, and so, the more reliable and valid the results based on it will become. Secondly, the larger the sample, the more expensive the data collection becomes. Thirdly, a well selected small random sample can be more representative than a bigger one not properly selected. Fourthly, a heterogeneous population requires higher sample size than a homogeneous one. And finally, a sample size has to some degree a measure of proportional relationship with the size of the population.

In terms of how to **determine a sample size**, there are various methods. Three methods can be identified here namely (a) using the appropriate sample size formula for either to estimate a proportion of the population or to estimate a population mean, (b) using the percentage principle, and (c) using *The Research Advisors'* (2006) table.

The use of sample size formula is the oldest method but it sometimes scares away students with phobia for such calculations. Students who are interested in this can consult a statistician. In this Course, we are recommending the use of percentage principle or **The Research Advisors'** formula because they are very simple or straightforward to apply. In any case, they also give the same result required.

In using the percentage principle, Nwana (1981:72) recommends that:

If the population is a few hundreds, a 40% or more sample will do; if many hundreds a 20% sample will do; if a few thousands a 10% sample will do; and if several thousands, a 5% or less sample will do.

In using the Research Advisors' table, students are required to visit this website: http://research-advisors.com, for a complete table. For purpose of this Course, I am reproducing here a simple version that provides what need you without hassles. Generally, in determining a sample with a formula or through this simple table, you need to operate at a particular **confidence level** (to be discussed in Module 5), and the most popularly used level is **95%**. Secondly, you need to know the **margin of error** which could be between 1-5%. The most popularly used is **5%** especially in social and management sciences or 1% for those in medical sciences. Lastly, you need to have a particular **population figure** from which to draw the sample. All these three things are usually provided as you will find in **The Research Advisors'** table below.

Population Size (for different figures)	Sample Size at Confidence Level of 95%& Margin of Error of 5%
100	80
150	108
200	132
250	152
300	169
400	196
500	217
600	234
700	248
800	280
1,000	278
1,200	291
1,500	308
2,000	322
2,500	333
3,500	346
5,000	357
7,500	365
10,000	370
25,000	378
50,000	381
75,000	382
100,000 etc for other table figures.	383 etc for other table figures.

Source: Adapted and extracted from *The Research Advisors',* (2006). Available at: http://www.research-advisors.com

Although not shown in the table, a different margin of error of say 3.5% will give higher sample figures for the same population sizes in all the numbers above. For example, a population size of 500 and a margin of error of 3.5 at the same 95% confidence level will

give a sample size of 306 (instead of 217 for margin of error of 5%) and so forth and so on. Again for a 100,000 population size for instance, at 3.5% margin of error at the same 95% confidence level, the sample size will be 778 instead of 383. The principle is that the smaller the margin of error, the bigger the sample size.

Another guiding principle is that for all population sizes that are not in this table, you are advised to select the closet sample size to the one on the table. For example, if your population size is 45,000 which is not on the table, you are advised to look for the population size closest to it which is 50,000 on the table and select its figure of 381.

A word on The Research Advisors' table: As a table produced by professional statisticians, there is no doubt about the reliability of the figures provided. Hence for convenience, students are advised to use it with confidence.

3.4 Types of Sampling Techniques
Generally speaking two major types of sampling methods are distinguishable and these are: (a) probability sampling; and (b) non-probability sampling (see Forcese and Richer 1970; Selltiz, *etal*, 1974; Black and Champion, 1976; and Eboh, 1998). The various methods under these two broad types will now be examined.

3.4.1Probability Sampling Techniques

A probability sample is one in which every member of a population has a known assurance or likelihood of being included in a sample to be studied. This known likelihood makes it possible for a sampling error to be calculated. Put differently, if a researcher is interested in making good estimation of the characteristics of a population, probability sampling methods are the most suitable and desirable. What then are these probability sampling methods? These are (i) simple random sampling; (ii) stratified sampling (iii) systematic sampling; and (iv) cluster sampling. A brief discussion on these will now follow:

3.4.1(a) Simple Random Sampling

This is a sampling technique where every member of the population has **equal** and independent chance of being selected in the sample to be studied. This equality of chance for each member of the population is the most distinguishing feature of simple random sampling. And as Black and Champion (1976) observed, an independent chance of being included means that the selection of one person or element, does not affect the chances of another person or element, does not affect the chances of another person being included.

3.4.1(b) Stratified Sampling Technique

When certain composite characteristics of a target population are known to a researcher, and he feels that such characteristics are likely not to be adequately taken care of by a chance factor, then the need for stratified sampling technique arises. Some critical conditions are therefore important in the use of stratified sampling. The first is **awareness** of different characteristics of a target population. The second is the **conviction** that such characteristics may not be adequately represented without stratification. And the third is the **need** to include the different strata before a reliable generalization can be made.

Consequently, a stratified sampling technique is one that recognizes different groups (or the composite characteristics) of a target population and takes appropriate measures to include

them in the sample. There are two types of stratified sampling namely: proportional and disproportional stratified sampling. In the proportional type, the representation of each stratum (group) of the population into the sample is based on their numerical strength in relation to the population. In the disproportional type, such strength is not strongly taken into consideration. Some strata may be more represented in the sample than others.

In practice, researchers adopt a multistage approach to sampling to maximize the benefits of both simple random and stratified sampling methods. This means that the population is first of all classified into different groups (strata) and within each stratum; a simple random sampling method is adopted. The multistage approach may involve more than two sampling methods used for illustration here.

3.4.1(c) Systematic Sampling Technique

Systematic Sampling technique involves selecting every **nth** element or person from the target population. The **nth** elements represent or mean the desired respondents that should be included in the sample chosen in a sequential order hence the term systematic. The first **nth** person is chosen in a random manner and the rest then follows a systematic order of say every 5th house or person along a street in an area being studied for example in a household survey. The rest may even follow a sequence of say every 10th, 20th, 50th or 100th persons. This sequential choice is discretionary but depends on the size of the population as well as the desired sample size.

The **nth** elements may be chosen from a list containing the members of the population if such list exists. The use of such list saves time and effort. This method is therefore easy to adopt as well as easy to cross-check the inclusion or non-inclusion of **nth** elements especially in educational institutions both in classrooms and hostels.

3.4.1(d) Cluster Sampling Technique

Cluster or Area Sampling involves selecting members of a sample in groups rather thanindividually. The members of the target population may be grouped on the basis of geographical clusters, occupational clusters, religious clusters etc. A random sampling method is usually used to select the sample from the identified clusters. In this type of research, the unit of observation is the group and not individuals who make up the group.Cluster Sampling is suitable when the target population is too large and by implication, it minimizes costs that would have been spent on covering large sample.

3.4.2 Non-Probability Sampling Techniques

Non-probability sampling is one in which the likelihood or assurance of every member of a target population being included in the sample, is not known. There are research situations which make the use of non-probability sampling necessary.

According to Selltiz, etal (1974), if the goal of a survey is to obtain ideas, good insights, and experienced critical appraisals, a purposive type of non-probability sampling is suitable. Again, if the goal is not to estimate population characteristics, then a non-probability sampling is suitable. This is because it has the major advantages of convenience and economy. If again, a researcher is interested in particular issue which very few people have knowledge about a purposive decision has to be taken to include only such knowledgeable people. The need for quota type of non-probability sampling is justified on the grounds that

certain critical groups of the population should be included according to the number of such groups required. Let us now discuss briefly two major types of non-probability sampling namely quota and purposive.

3.4.2(a) Quota Sampling

This involves obtaining a **desired number** of elements by selecting those most **accessible** and those that have certain **required characteristics.** The objective is to fill a quota reflecting the population (see Black and Champion, 1976). The name quota implies a predetermined number of what is desired. For example, a study that has gender bias might insist on including a certain number of women and certain number of men. This should not be mistaken for proportional stratified sampling because it lacks the quality of randomness which probability samples have.

3.4.2(b)Purposive or Judgemental Sampling

This involves hand-picking desired sample elements to ensure that such elements are included. This high degree of selectivity involved, is meant to guarantee that all relevant strata are represented in the sample (see Black and Champion, 1976). As observed earlier, purposive sampling is very useful, in certain research situations where the goal of generalizing on the population is not needed.

As we also pointed out earlier, there might be need to reflect purposive sampling considerations in probability sampling techniques. For example, according to Selltizetal, (1974), an investigator may take a probability sample of elements (by random selection) within a non-probability sample area (by purposive selection). Such a combination is meant to serve many research purposes such as convenience, cost minimization, representativeness and time maximization.

4.0 Conclusion

Survey research provides a window of opportunity for conducting quantitative research in the social and management sciences. The use of surveys has helped over the years to raise the scientific status of public administration as a discipline. The use of various sampling techniques has made this scientific process smoother. The need to adopt a multistage sampling approach was underscored as a means of enhancing the reliability of the results. Finally, the need to combine both probability and non-probability techniques in some research situations, was also highlighted.

5.0 Summary

This Unit gave the definition of survey research and underscored its importance. Then sampling was recognized as the hallmark of survey research in the sense that sampling makes survey research realizable, practical and economical. Furthermore, three methods for determining sample size were identified and discussed. Thereafter, the various types of sampling techniques were identified and discussed. Two broad types of sampling technique namely probability and non-probability techniques were identified. Those under probability sampling are simple random sampling, stratified sampling, systematic sampling, and cluster

sampling. And those under non-probability samplings are quota sampling, and purposive sampling.

6.0 Tutor-Marked Assignment

What are the main characteristics of a survey research? Discuss the any two types of sampling techniques that can be used together to select a sample from a heterogeneous population of any Federal Ministry in Abuja.

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Units 4: Issues of Validity and Reliability in Research

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1.0 Introduction

This Unit examines the twin issues of validity of an instrument and reliability of results generated by the data collection instruments. First it examines the definition of validity and secondly discusses ways of improving the validity of instruments. Thirdly, it provides a definition of reliability and subsequently, identified the methodsof determining the reliability of results of a measuring instrument.

2.0 Objectives

At the end of this Unit, students would be able to:

- Under the twin issues of validity of measuring instruments and the reliability of results of measuring instruments both of which give credibility to research findings in any research;
- Practically demonstrate an understanding of the ways of improving the validity of an instrument;
- Practically demonstrate how to determine the reliability of results of an instrument using the test-retest method.

3.0 Main Content

3.1 The Definition of Validity

According to Goode and Hart (1952), a scale possesses validity when it actually measures what it claims to measure. For Black and Champion (1976), validity is concerned with the question: Does the instrument measure what it is supposed to measure? In other words, is one measuring what one thinks one is measuring? If these two definitions appear too abstract even when they are very concise, let us advance our understanding further by looking at the definition by Selltiz, et al (1974). According to them, the validity of a measuring instrument refers to the extents to which differences in scores on it reflect true differences among individuals, groups or situations in the characteristic which it seeks to measure. Or true differences in the same individual, group, or situation from one occasion to another, rather than constant or random errors.

3.1(a) Ways of Improving Validity

Validity of a measuring instrument can be guaranteed and improved by the following methods either separately or in combination (a) logical validation, (b) Jury opinion, and (c) known-groups (see Goode and Hart, 1952).

When a careful attempt has been made to ensure that an instrument contains what it is supposed to contain by applying the theoretical knowledge in the field about what is being studied, and by convincing oneself that from a perspective of common-sense, the items or questions in the instrument are logically reflective off what is being studied, then we can say that an instrument has been logically validated. The mention of common-sense does not really imply that the sense is actually common. Rather among those that are knowledgeable in what is studied, there should be agreement that an instrument (questionnaire) contains the right questions of what is being studied. So common-sense here actually means the sense that is common among those that are knowledgeable in what is being studied.

This logical validation leads us to the process of validation through seeking the opinion of experts in the field in which an issue is being studied. Jury or expert opinion is important in ensuring validity because of their knowledge and experience which can be brought to bear on the preparation of a questionnaire or other measuring instruments.

The use of Known-Groups to ensure and improve validity involves first identifying the characteristics of the group being studied; secondly identifying also the characteristics of another group that has opposite characteristics; and thirdly, comparing the differences of these two groups through the results yielded by a measuring instrument. If the instrument yields results that confirm the differences existing between these antithetical (or opposing) groups, then, the instrument can be said to have validity.The discussions so far logically lead us to the examination of the different types of validity.

3.2 The Reliability of Results

How do we ensure that the results of a measuring instrument is consistent, dependable and believable (credible)? This is an important task for any measuring instrument. When the results of a measuring instrument are consistent over time, dependable and credible, then we can say that the measuring instrument is **reliable.** Reliability therefore refers to the ability of an instrument to produce the same consistent results over time when applied to the same sample (Goode and Hart, 1952; Black and Champion 1976; McCormick and Tiffin, 1975).

The reliability of a measuring instrument can be determined through the following methods, namely: (a) External consistency procedures made up of test-retest method and alternate forms method also called parallel forms of the same test; and (b) Internal consistency measures comprising the split-halves method and item discriminatory analysis (see Black and Champion, 1976). For purpose of this Course, we shall limit ourselves to external consistency method particularly the test-retest method.

3.2(a) External consistency methods of reliability.

External consistency methods of reliability involves comparing the tests of a group at two different time periods or comparing two different tests on a group at the same time. We now discuss one of them namely the **Test-Retest Method.**This method assumes that people maintain consistent views or beliefs over time if certain conditions remain stable. It is on this basis that a reliability test is conducted at two different time periods; **A**, on a sample and its results are recorded and kept. Then at another time period, **B**, (not too long from period **A,** like say, after two weeks), the same test is conducted on the same sample and its results are correlated with the earlier test results. If there is a high coefficient of correlation, between the two results, then we conclude that the results of the tests are reliable.

This method has the advantage of being simple and easy to apply since both the tests and the sample on which they are applied, remain the same. However, the people may suffer the problem of memory loss in which case they may forget what they said, earlier in the first test. The inability to recall views expressed earlier may introduce element of inconsistence which may not be intentional. Secondly, people may deliberately change views if, they now realize that the earlier ones expressed no longer suit their new position or purposes.

4.0 Conclusion

5.0 Summary

This Unit examined the issue of validity and reliability of measuring instruments. The various types of validity namely content, predictive, concurrent, construct and criterion-related validity, were identified and discussed. Furthermore, the different forms of reliability namely test-retest method, alternate forms, split-half, and item discriminatory analysis, were also identified and discussed. Finally, the Unit examined the importance of pilot study or test in the execution of research.

6.0 Tutor-Marked Assignment

With the help of practical examples, identify and discuss the ways of improving the validity of a measuring instrument.

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MODULE 5: METHODS OF DATA COLLECTION AND ANALYSIS

Module 5 discuses methods of data collection and analysis. It aims at enabling students to demonstrate a good knowledge of the wide range of data collection methods; know how the different methods are used in quantitative and qualitative approaches to research; demonstrate a good knowledge of how the different methods can be combined through what is called triangulation, and lastly provides them with basic skills in data analysis. As there are different types of research, so also are there appropriate data collection instruments to meet their data needs. Specifically, the Module focuses on four broad methods of data collection namely questionnaire, interview, observation and documents and thereafter discusses their uses and limitations within the wider family of quantitative and qualitative research approaches. Lastly, the Module examines the role of statistics in research particularly on the functions played by descriptive and inferential statistics. This Module therefore comprises of four Units presented as follows:

Unit 1: The Questionnaire Instrument

Unit 2: Interview Instrument and Focus Group Discussion (FGD)

Unit 3: Observation and Documentary Methods of Data Collection

Unit 4: Role of Statistics in Research: Descriptive and Inferential Statistics

Unit 1: The Questionnaire Instrument

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1.0 Introduction

This Unit discusses the questionnaire as an important survey instrument suitable for collecting quantitative data. First, it discusses the nature of a questionnaire in terms of its structured and unstructured feature, and its advantages and disadvantages. Secondly, it discusses the guidelines for preparing a good questionnaire, identifies things to avoid in the preparation of a good questionnaire. Finally, it examines the ways of coding a questionnaire data.

2.0 Objectives

At the end of this Unit, students would be able to:

- Demonstrate a good knowledge of the nature of a questionnaire as an instrument of data collection;
- Know the types, advantages and disadvantages of a questionnaire, as well as when a questionnaire is most suitably used;
- Be in a position to utilize the relevant skills acquired in preparing a good questionnaire.

3.0 Main Content

3.1 Definition of Questionnaire and its Uses in Public Administration Research

A questionnaire is a data gathering instrument in which respondents are given standardized or uniform questions to complete in written form. The distinguishing features are uniformity of questions and response options, as well as the written (typed or printed) nature of the questionnaire. Questionnaire is useful for collecting data on people's knowledge, values, beliefs, preferences, attitudes, activities, behaviours. For example, it is useful for collecting information about (a) the level of knowledge, awareness, and consciousness (i.e. education) of bureaucrats, as well as their attitudes, activities and behavior; (b) for carrying out customer satisfaction survey (i.ecustomers' opinion on the level of their satisfaction with services provided by public servants); (c) the nature of citizens' policy demands and preferences; and (d) the level of citizens' support to government development programmes, etc.

The purpose of collecting data on these issues are necessary for (a) having deeper and better understanding of the activities of public servants; (b) evaluating the implementation public policies and their operational constraints; (c) general policy evaluation in terms of effectiveness, efficiency, costs and benefits (intended and unintended); (d) policy impact (negative and positive) and other externalities; and (e) assessing the organizational effectiveness of extra-ministerial bodies like the universities, public enterprises, commissions and boards etc.

3.2 Types of Questionnaire

Types of questionnaire refer to the way questions appear in the questionnaire i.e. in terms of the format or structure. Threetypes of questionnaires are therefore distinguishable namely: (a) the structured questionnaire, (b)the unstructured questionnaire, and (c) the semi-structured questionnaire.The structured and unstructured types are dominantly in use and discussed.

In a structured questionnaire, the possible (range of responses) answers are predetermined by the researcher and provided for the respondents to choose from. For example, a question trying to determine one's year of study will provide the range of possible answers like Year1, Year 2, Year 3, Year 4,etc, and the respondents are expected to select their answer from the options.A structured questionnaire is suitable for generating responses that can easily be coded, given scores and analysed statistically. Although a structured questionnaire is time-consuming during preparation, it is however easy to analyze as it is amenable to statistical manipulation. But one of its weaknesses is that it forces an opinion on respondents because of the predetermined nature of the answers. However, in a structured questionnaire, there may be few unstructured (open-ended) questions towards the end of questionnaire. This inclusion of few questions does not make the entire questionnaire to be called semi-structured.

With respect to unstructured questionnaire,the questions are in an open-ended format (even though they may all be similar to those on structured nature), and the possible range of responses are not predetermined by the researcher. It is open-ended because respondents have the choice of what to say, how to begin to say it, and when to stop saying it.The respondents are therefore given the discretion or option to provide whatever they think are the answers to the questions. An unstructured questionnaire is particularly suitable when a researcher is interested in having deeper insights into an issue. This is because unstructured questions provide opportunity for respondents to give details or reasons justifying their answers. Secondly, an unstructured questionnaire is very useful when a researcher is interested in generating answers from respondents either because he does not have good knowledge of the possible range of responses or because the range of responses are so many that restricting

them, may affect the quality of the responses. Thirdly, unstructured questions are easy to formulate or prepare. On the other hand, unstructured questionnaire generates responses that are difficult to code and analyse statistically as they are mostly useful for a qualitative research. The wide range of responses for instance, makes coding very cumbersome and tedious. The opportunity given to respondents to provide their own answers, is at times abused by some respondents who would not only give very lengthy answers but would also end up providing irrelevant ideas. Such lengthy and irrelevant responses usually end up wasting the time of the researcher. These shortcomings notwithstanding, unstructured questions should be inserted in the questionnaire, when and where they are most appropriately needed particularly when a researcher wants to probe further or deeper on an answer to a structured question. Consequently, unstructured questions play very good complementary role in survey data collection.

Lastly, in the semi-structured questionnaire, there are both the structured and unstructured questions in the same questionnaire. There is flexibility in the appropriate of both structured and unstructured questions. Consequently, in characterizing a questionnaire (in terms structured, semi-structured or unstructured), the guiding principle is to look for what constitutes the dominant or overriding format of the questions. This means that when the questions and expected responses are largely pre-determined by the researcher, it is called structured questionnaire. Then, when they are open-ended and responses are left to the discretion of respondents, it is called unstructured questionnaire. And lastly, when the questions have attributes of both structured and unstructured questions, it is called semi-structured questionnaire.

3.3 Advantages and Disadvantages of Using Questionnaire

On one hand, a survey of the literature shows that the following are the merits of using a questionnaire:

- ✓ It is used to generate data from a large number of people;
- ✓ It is less expensive;
- ✓ It requires less skills to administer;
- ✓ It saves time and effort as it can be administered to many respondents at the same time;
- ✓ The anonymity of respondents has a better chance of being guaranteed;
- ✓ It permits greater uniformity in measurement;
- ✓ Questionnaires generate data that can easily be coded, scored and analysed statistically; and
- ✓ The response rate is high because of its convenience and guarantee of anonymity especially the mail questionnaires.

On the other hand,

- ✓ as a result of its written and standardized form, a questionnaire does not apply to illiterate members of the population.
- ✓ When worded ambiguously or in a sophisticated and complex manner, respondents may be misled thereby making responses unreliable.
- ✓ Open-ended (unstructured) questions are difficult to code and analyze.

- ✓ Questionnaires may produce opinions that are shallow or superficial due to lack of opportunity to probe deeper into the motives behind and beyond the responses given.
- ✓ Structured questions may restrict the choice of answers thereby forcing opinions on respondents.

3.4 Guidelines for Preparation of Questionnaire

A questionnaire is made up of three broad and major parts namely: Part one dealing with *Introductory Issues:* Part Two dealing with *Socio-Demographic* or *Background Issues; and* Part Three dealing with the *Substantive Issues* of the survey. Let us discuss these various parts further especially in terms of the specific things required.

3.4(a) Introductory Issues

The questionnaire needs a covering or introductory letter in which the (a) identity of the researcher; (b) the topic of the research; and (c) the main purpose of the research are all stated. The closing part of the letter should contain a statement guaranteeing anonymity and protection of respondents' identity. This is an important ethical requirement in scientific research undertaking. In order to save cost, this introductory letter is normally placed on the first page of the questionnaire where the second part of the questionnaire begins.

3.4(b) Socio-Demographic or Background Information

This part of the questionnaire contains questions on the background information of the respondents. It is important to note that the topic of the research and the units of analysis (i.e. whether it is workers, students, organization, or groups that are subjects of investigation), determine the kind of background data to be sought. Put differently, the nature of socio-demographic data required from respondents first depends on whether the topic of investigation requires such data, and secondly whether the study is on individuals, groups or institutions which are different units of analysis that can be studied generally. With this observation at the back of our mind, we can now identify the following socio-demographic variables which a questionnaire can contain. It is important to note that there is no need to include name of respondents as this is part of the guarantee of anonymity.

(a)*Sex (Gender)*: This is usually a dichotomous classification of male and female.

(b)*Age:* This is better put in grouped form, for example (a) 20 years and below, (b) 21-30 years

(c) 31-40 years, (d) 41-50 years and above. The range allowed depends on those being studied. For example, a study on primary and secondary school children and students would start from say 6 years and below, while those studying university students would start from say 16 or 17 years, and those on workers etc would start at say from 20 years or more years.

(d) *Unit or Section, or Department or Institutional or organizational affiliation,* as the study may demand.

(e) *Qualification:* The various relevant qualifications can be listed out for the respondents to tick the applicable ones. Depending on the nature of the research, what may be required is just highest qualification.

(f) *Rank (Position):* This may just involve listing out Junior, intermediate and senior categories of staff. But where the research requires further classifications, it should be done to accommodate such need.

(g) *Length of Service:* This may require grouping of the years such as 5 years and below; 6-10 years; 11-15 years; 16-20 years; 21 years and above. The highest length of service expected can serve as a useful guide on what should constitute the range of years. It is important to note that length of service can yield the same information which age and rank yield**.** Each of these three variables can be a proxy for the others. For example, most of those who are old may also be the ones that have stayed long in the service (and with the exception of old and long serving junior staff), these old and long serving senior staff are equally the ones that are most senior in rank for members in the same profession

(h) *Religious Affiliation:* Classification of this may be dichotomous, trichotomous or more, depending on what is being studied. The classification may be intra-religious (i.e. denominational) rather than inter-religious. For example, a dichotomous inter-religious classification would be (a) Christianity and (b) Islam. And then a trichotomous inter-religious classification would include another religious group such as Traditional African religious or Buddaism.

(i) *Ethnic Affiliation or Group* if it is relevant.

(j) *Year of study* if the study is on students.

(k)*Region, or regional location,* (e.g. East, West, North etc.).

(l) *State of origin*if it is relevant.

(m) *Local Government*(Origin) if it is relevant.

(n)*Zone* (for example geo-political zones) if it is relevant, etc.

3.5Substantive Issues in the Questionnaire

This major part of the questionnaire may have several sections depending on the extensiveness of the issues covered by the questionnaire. For example, each major or principal research question (recall our discussion earlier in Module 3, Unit 2) may constitute a sub-heading or section in the questionnaire. Several questions may be addressing one principal research questions and data from such questions constitute the basis for testing of hypothesis. It is very important to take note of this point because in the presentation, analysis and discussion of data, some project supervisors may insist that either the principal research questions or the hypotheses should constitute the basis of organizing the presentation.
Two important issues which need to be tackled under the substantive part of a questionnaire, are the nature of question formats, and response modes, to be adopted. (see Tuckman 1972, and Jones 1971 for further and detailed discussions on these)

3.5(a) Question Formats and Response Modes

Our earlier discussion on the forms of a questionnaire in terms of structured and unstructured types, form the basis of this present discussion. The following question formats which are accompanied by certain response modes are usually used in surveys:

(i) *Open-ended Question*

An Open-ended question which is a good example of unstructured question, allows respondents to provide answers according to their own understanding of, and thinking, on the question. It is open-ended because respondents have the choice of what to say, how to begin to say it, and when to stop saying it. As an unstructured type of question, an open-ended question format, is useful for gaining deeper knowledge, but problematic when such knowledge requires quantification and analysis.

(ii) *Fixed-Alternative Question*

This is a form of structured questions in which respondents are provided with predetermined responses from which to choose. Various types of fixed-alternatives are:

- ✓ *Dichotomous Question:* This type of question presents only two options such as Yes or No, Agree or Disagree, True or False etc. Dichotomous question format is useful for capturing responses which exist in *either this or that categorization*. It should however be avoided when other alternatives to the either –or category exist. This is why it is called a categorical question.
- ✓ *Trichotomous Question:* This form of question presents threealternatives especially when such is not fully captured by a dichotomous question. For example, a 'No-idea' option can be included in the dichotomous question. It could as well be an undecided option.
- ✓ *Multiple-Choice Question:* Any question that provides three or more response options can be called a multiple choice question. These response options can be without weights attached. But a particularly useful form of multiple type of fixed-alternative question is the Likert Scale type or format to which we now turn.
- ✓ *Likert Scale Question Format:* This type is used to establish the intensity of opinion of respondents after their direction of opinion has been established through a dichotomous question of simple Yes or No format. But generally, a Likert question format is used when series of attitude statements are presented and respondents are required to endorse or reject them within a framework of a five-point-scale of say strongly Agree, Agree, Undecided, Disagree and Strongly disagree (see Module 4 for a discussion on the Likert Scale of Measurement).
- ✓ *Ranking-Order Question:*In this form of question, multiple answers are presented asoptions but rather than choosing just any one, the respondents are asked to rank-order them (i.e. place them in order of importance). The respondents may be provided a ranking criterion such as 1-6 or (a) – (f). The data generated can be analyzed statistically by simple percentages or summing the rank of the responses. This summation is a form of ordinal measurement.

3.6Things to be avoided in the Preparation of Questionnaire

- ✓ *Lengthy Questionnaire:*As much as possible, lengthy questionnaires should be avoided so as not to scare away potential respondents.
- ✓ *Haphazard Placement of Questions:* The questionnaire should contain questions (or statements on attitude) that are only arranged in logical sequence.
- ✓ *Ambiguous Questions or Statements:* All questions or statements should be clear as much as possible.

- ✓ *Overlapping Questions or Statements:* The existence of overlapping questions would generate confusion with respect to responses, hence should be avoided.
- ✓ *Biased, Offensive and Objectionable Items:* All such questions and statements should be avoided so as not to scare away potential respondents.
- ✓ *Questions and Statements with Underlying and Unfamiliar Assumptions:* Such items have the potential of misleading respondents, and therefore should be avoided.
- ✓ *Direct and Emotionally-Loaded Items:* All questions and statements that are very direct and at the same time emotionally loaded, have the tendency to offend respondents and thereby discouraging them from completing the questionnaire. Efforts should be made to eliminate phrases or words of such nature.
- ✓ *Leading Questions* which suggest the existence of only one acceptable answer;
- ✓ Complex Questions which are too long and confusing (see Cohen and Manin, 1980; Obasi, 1999; Nueman, 2000, among many others.

3.7. Coding of Questionnaire Data

3.7(a) Introduction

Research undertaking is a tedious exercise yet it can be very interesting especially when important findings come out from such an exercise. Good data management does not only centre on the appropriate choice of analytical techniques and successful analysis of data, it involves more importantly also (from the beginning), good planningof how to arrange data in such a way that processing would be made easier in analysis either manually, or by either a calculator or a computer.

Before the invention of the computer, research was going on well. But researchers used their brain to do statistical computation of their data through frequency counts and manual calculation of results involved. The introduction of the **calculator** made such tedious exercise easy and simpler too. Then came the computer.The computerthereforemade analysis much easier and simpler especially in terms of time usage, (speed) and accuracy.

With the application of computer in research, research undertaking has become easier, less tedious and of course much more interesting. One of the useful aids in computer application in research is coding. In fact, coding is a common computer language. This is why we are discussing some introductory issues on coding in this Unit.

3.7(b) Definition and Functions of Coding

Coding is a discretionary assignment of numbers to both qualitative (i.e. nominal and ordinal) and quantitative (interval and ratio) data to represent such data in analysis. Although letters (instead of numbers) can be used, it is common to use numbers because of computer programme requirements. A non-computer application of coding can freely use either letters or numbers. Back to our definition, the assignment of numbers is discretionary because one has the freedom to use any number of one's choice in so far as such use is consistent, in terms of its interpretation.

A code therefore is a number (discretionarily assigned), used to represent data in statistical analysis or in other non-statistical analysis such as in wartime situations. Generally, codes can serve the function of protecting secrecy especially in wartime situation. Secondly,

specifically in statistical and computer analysis, codes serve the important function of transforming data into numerical forms that can be used and analyzed by the computer. Ordinarily, such data in their collected and raw forms would not have been analyzable by the computer. Thirdly, deriving from the specific function above, codes serve the function of reducing large volume of data, into more compact, more manageable, more flexible and more analyzable size. Finally, according to Jones (1971) the function of the code is to assign a unique number for each possible value of the variable. It is actually this assignment of number to each possible value of a variable that makes computer analysis of a research data, a delight. With such assignment to possible values, the computer can do all possible and desired calculations for the research. All one needs to do is to give the computer or the computer analyst, the relevant instructions. How then is coding done?

3.7(c) Coding Procedures

Two types of coding procedures can be identified and these are what we can hereby call (I) pre-survey coding procedure (i.e. pre-questionnaire delivery coding), and (ii) post-survey coding procedure (i.e. post-questionnaire retrieval coding). The pre-survey coding system usually produces what is called pre-coded questionnaire which is of interest to us here.

Pre-Survey (Pre-coded) Coding Procedure.

This procedure involves coding questionnaires before they are distributed to respondents. Where it is possible, this pre-coding of questionnaire (as it is generally called) is recommended because it saves time and effort in addition to reducing the complexity of the coding procedure.

Pre-survey coding procedure involves assigning numbers to all values of the variablesin the questionnaire. In other words, all numbers assigned to the values (i.e. male and female for a variable gender) of the variables in the questionnaire represent also their code. With this done, there will be no need to develop a coding manual or codes or providing interpretations to the various codes at the stage of post-questionnaire retrieval coding . Again, computer data entry clerks (i.e. those who feed in or key-in the data into the computer) can pick the questionnaires and feed in the data directly into the computer even without much orientation or guidance.

Furthermore, pre-coding makes the purchasing and use of coding form or sheet irrelevant. The data entry clerks can key-in the data directly and print them out for correction. Lastly, pre-coding reduces errors that usually emerge when coding passes many hands; for example, moving from those who record or enter data into the coding form to computer data entry clerks. For more on pre- and post - coded questionnaire, see Obasi, (1999).

4.0 Conclusion

The use of questionnaire is at the heart of Survey research and a student who understands what has been provided here o questionnaire is certain to carry out a good research project. This is because, a successful conduct of a field work on the administration of a questionnaire, is already on the way to carrying out a good research project. Again, this flows from the fact, the analysis of data with the SPSS will facilitate the analysis, presentation, interpretation and discussion of research finding s of the study.

5.0 Summary

This Unit discussed one of the four principal methods of data collection namely the questionnaire. It provided a detailed description of it in terms of definition, formats, types, merits, demerits, guidelines on uses, as well as its preparation etc. Lastly, the Unit provided an introduction on the use of coding in the analysis of data.

6.0 Tutor-Marked Assignment

Why is a questionnaire popularly used in the conduct of survey research? Discuss the three types of questionnaire with practical illustration of how questions are framed.

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Unit 2: Interview Instrument, and Focus Group Discussion (FGD)

Contents

1.0 Introduction

2.0 Objectives

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1.0 Introduction

This Unit discusses the Interview Schedule as an important survey instrument suitable for collecting qualitative data. In doing this, the Unit first of all discusses the nature of the Interview Schedule, and secondly identifies its merits and demerits. Thirdly, the Unit provides some guidelines for using the Interview Schedule, and finally, it identifies and focuses on a special type of an Interview instrument called Focus Group Discussion (FGD) with respect to providing the guidelines on its usage in the conduct of a survey research.

2.0 Objectives

At the end of this Unit, the students would be able to:
- Understand the nature of an Interview Schedule as a means of collecting qualitative data;
- Know the areas of similarities and differences between an Interview Schedule and a Questionnaire instrument;
- Comprehend how an Interview Schedule can be used in practice by knowing its merits and demerits;
- Get acquainted with the guidelines on its usage;
- Understand and use the Focus Group Discussion (FGD) in conducting research in both the rural and urban settings particularly with respect to the implementation of community-based programmes of the government.

3.0 Main Content

3.1 Definition of an Interview Schedule

The Interview Schedule is a survey instrument involving a face to face communication interaction between the seeker and giver (provider) of information. Put differently, it is a data gathering instrument that enables a seeker of information to have in-depth knowledge of an issue of concern through a face to face interaction (at times by telephone conversation) with the provider of such information. Much of the things we said about a questionnaire in terms of its uses as a survey instrument equally apply to the interview schedule. For example, it is used for gathering data on peoples' knowledge, values, preferences, attitudes, beliefs and life experience. But unlike a questionnaire, it gives opportunity for in-depth investigation or deeper probing into an issue under study during the interviewing interaction.

The respondents (i.e. interviewee) involved in an Interview are usually called critical informants because they are said to have greater knowledge of what is being studied by a researcher. Secondly, they are selected through a purposive sampling technique in order to target the right audience in the study. For example, if a researcher is assessing the human resource policy of an organization, he/she wants to collect qualitative data through an interview, the critical informants are the human resource officials in the organization. It will

be wrong to select those in the Finance Department. If the study has to do with issues of finance, it will be wrong to be interviewing those in other departments unless it has to do with common issues that affect the others.

The Interview schedule can be structured or unstructured. Its structured nature has to do more with the uniformity of questions and the sequence of their arrangement during the interview session. In its unstructured nature, it has the characteristics of an open-ended type of question in a questionnaire. But unlike the questionnaire, in its open-ended nature, the interviewer can exercise control over what is said by the interviewee. For example, the interviewer can check irrelevances by interjecting when the interviewee is moving in a direction considered irrelevant or unnecessary.

3.2 Merits and Demerits of using an InterviewSchedule

On the one hand, the following are considered to be the merits of an Interview schedule:

- ✓ It can apply to a wider segment of the population both literate and illiterate ones;

- ✓ An interview can reveal much more in terms of depth than a questionnaire;

- ✓ It's face to face communication interaction can enhance clarity and better understanding of issue at hand;

- ✓ It can permit greater flexibility to accommodate unforeseen situation during an interview session

- ✓ It provides opportunity to discover the emotional or temperamental dimension of interviewee's behaviour during an interview session.

- ✓ The face to face communication interaction can enhance clarity and better understanding of issue at hand;

- ✓ It can permit greater flexibility to accommodate unforeseen situation during an interview session;

- ✓ It provides opportunity to discover the emotional or temperamental dimension of interviewee's behaviour during interview session.

On the other hand, the following are the demerits of an Interview Schedule:

✓ It can be quite expensive because of the face–to–face contact and the personalized nature of an interview session;

✓ Conducting an interview is time consuming and energy-wasting;

✓ An Interview requires greater skills to execute;

✓ People may be discouraged from granting interviews because of lack of anonymity;

✓ When different people conduct the interview, variations may occur.

3.3 Guidelines for Using the Interview Schedule

First, it may not be necessary to seek for respondents' personal data (i.e. socio-demographic variables). This is because selection of interviewees is by purposive sampling based on the interviewer's knowledge of the interviewees.

Secondly, issues under discussion should be narrowed down to permit the maximization of depth rather than breadth. This is because the depth of issues covered in an interview constitutes one of its merits over a questionnaire.

Thirdly, the interview questions should be logically arranged to capture the major objectives of the research. Such logical organization would go a long way to minimizing the problems usually associated withanalyzing data generated through the interview schedule.

Fourthly, an interviewer should have mastery over the use of interviewing equipment such as tape recorder, and other recording materials.
Fifthly, an interviewer needs good public relations skills to be able to persuade prospective interviewees to grant an interview.

3.4 Focus Group Discussion as an Innovative Method of Interviewing

One of the methods of interviewing techniques which focuses on group and communityneeds, values, belief, preferences, characteristics, practices, problems, dynamics, is the Focus Group Discussion (FGD). This is an interviewing method targeted at groups and facilitated by the researcher and an assistant. The conventional interviewing technique is individually targeted and focused. But a Focus Group Discussion is group-centered. This is a major difference between these two methods of interviewing.

The FGD focuses on a small group of people of varying numbers ranging from about 4-10, or 5-10 or even more as the situation demands. This group of peoplewho are selected and interviewed together are characterized by shared values, experiences or other backgrounds. They may be people living in the same community or working in the same organization but simply selected on the basis of similar occupation, gender, community needs,common practices, common problems, etc.The FGD can be used to study artisans, rural farmers, market women, old men and women, physically challenged people, primary school teachers, university lecturers, civil servants, medical doctors, and people of all categories. In focussing

on these groups, they can still be stratified (re-grouped) further if the situation demands it to achieve better results.

Some guidelines in using the FGD are:

✓ A researcher has to prepare an interview guide to be used during the interview session;

✓ The research has to engage a research assistant to help record the proceedings of the interview both on tape and on paper. The main researcher serves as the moderator of the interview session as the assistant records;

✓ During the interview session, the moderator would first of all gather the personal particulars of group members. It is also his/her duty to see that every member of the group participates fully in the discussion. This is achieved by preventing those who have the tendency to dominate the discussion from doing so;

✓ At the end of the interview session, the data generated are thematically organized and thereafter a narrative can be prepared from the different themes bearing in mind the aim of the interview which may aim at solving a problem or enriching understanding of the group.

Prior to the interview, knowledge aboutthe group being studied maybe generated from existingliterature from a comparative perspective. Such knowledge of similar group problems, their similarities and differences can enrich input made towards addressing the group's problems.

One of the major problems of this interviewing technique relates to its expensive nature in terms of gathering all the group members. In some cases, these group members may demand payment for their participation. Secondly, there is organizational problem in terms of getting all the people together at the same time and in one place. In reality, some members may fail to turn up at all, while some others may arrive so late and at times when the interview session is already over. These problems are experienced more when studying communities in either rural or urban areas, than when the groups studied are in organizations where they can easily be mobilized.

4.0 Conclusion

Different types of data gathering instruments are used for particular purposes. The Interview Schedule is used to collect qualitative data which the questionnaire by its design is not able to gather in great details. Such qualitative data may be used to explain (or provide deeper understanding of) quantitative data from a questionnaire or they may be used in a stand-alone manner to understand a problem better. A researcher should know when to use an interview schedule alone or when to adopt what is called a *mixed-method approach* which involves a combination of the interview and a questionnaire instruments. Whatever is the case, using the interview schedule provides a deeper knowledge and understanding of a research problem.

5.0 Summary

This Unit examined the Interview Schedule as a good means of gathering qualitative data. The Interview Schedule is defined as a survey instrument involving a face to face communication interaction between the seeker and giver (provider) of information. Going further, the Unit explained the some similarities and differences between the Interview Schedule and the Questionnaire Instrument. The Unit also identified the merits and demerits of the Interview Schedule as well as some guidelines on how to use it in practice.Lastly, the Unit discussed the Focus Group Discussion (FGD) which is an innovative form of an interviewing technique.

6.0 Tutor-Marked Assignment

Using an Interview Schedule, prepare 10 questions to ask the critical informantson any topic of your choice.

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Unit 3: Observation and Documentary Methods of Data Collection

Contents

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1.0 Introduction

This Unit presents together two methods of collecting data namely the observation and documentary methods. In discussing the observation method, its definition, usefulness, types and guidelines for its use, are presented. Furthermore, in discussing the documentary method, issues discussed relate to its definition, importance and problems facing the execution of documentary research.

2.0 Objectives

At the end of this Unit, students would be able to:

- Understand the nature of documentary research and its importance in the discipline of public administration;
- Know where to collect and use credible and timely documentary data both nationally and internationally.

3.0 Main Content

3.1.1 Definition and Uses of Observation

Observation is simply the act of seeing or watching something happen. By looking at something that is taking place either in an involved capacity or not, makes one an observer. But observation as a method of data gathering in research is much more than mere noticing or watching of say the administrative behaviour of people, groups and institutions.

Scientifically therefore, observation can be defined as a purposefully planned and systematically executedact of watching or looking at the occurrence of events, activities and behaviours which constitute the subject or focus of research or study. In other words, a scientific observation is one that is directed to achieve a research purpose as well as executed logically towards achieving this purpose. For example, the collection data in an experiment in a science or field (e.g. agricultural) laboratory is usually done through a careful observation through which reading (i.e. collection of data) is systematically taken.

It will be recalled that in Module 1, observation was identified as one of the major characteristics of the scientific method. This is because observation and verification of empirical phenomena are necessary in the conduct of scientific research. Observation therefore serves useful purposes in public administration research as follows:

- ✓ Through observation of administrative phenomena, accurate descriptionsandexplanations of such phenomena can be achieved;

- ✓ Through observation, the historical trend, and dynamics (i.e. particularly the 'how' and 'why' of things happening) of administrative phenomena are recorded and studied;

- ✓ Observation can generate data which can be used to support or disprove the findings made through other data gathering techniques. It is therefore a good complementarydata gathering technique;

- ✓ Observation can be used first to explorethe nature of administrative phenomenon especially when not much has been known of such phenomena. For example, observing what public officials do as against what they say, would go a long way to unmask their hypocrisy. Such exploration can thereafter serve as a springboard for further investigation of the phenomenon through the survey method.

3.1.2.Types of Observation and their Merits and Demerits

Two board methods of carrying out observation can be distinguished. The first is what is popularly called participantobservation, and non-participant observation (called here as Onlookeror SpectatorObservation.

In *participant observation*method, the observer (i.e. the researcher) is directly involved in what is happening that constitutes the focus of observation. As the name indicates, the researcher is a participant in the actions being observed. This direct participation constitutes the strength of this method of observation. Yet it is the greatest source of its weakness. On the positive side, participant observation gives adequate rooms for total observation and subsequent accurate description of the activities. This would ultimately enhance the quality of analysis, (explanation) and conclusions made on the activities. However, on the negative side, this source of strength can also be a weakness in the sense that such participation can adversely affect one's sense of judgement. When a participant observer is emotionally involved, his/her level of objectivity becomes adversely affected. There is for instance the tendency for him/her to be biased thereby protecting certain interests, especially selfish ones.

In the *non-participant* (*Onlooker or Spectator type of observation),*the observer is non-involved in the activities being watched. As a non-participant observer, he/she is restricted to watching only the activities that he has opportunity to watching only the activities that he/she has opportunity to watch. The limitation of access to what can be fully observed, is one of the weaknesses of this method of observation. The observer is therefore not in a position to give full and accurate description and analysis of things happening. This may ultimately affect the quality of conclusions or generalizations made. On the other hand, non-participant observation has its strength. First, a non-participant (spectator) may see more of the things happening than those taking part like in football game. Secondly, the non-emotional involvement of the non-participant observer may reduce the level of bias therefore enhancing the objectivity of the research. Lastly, since those being observed may not know that someone is observing their actions, the problems associated with participant observation (i.e. concealment, hypocrisy, disguising, and pretence etc, would be reduced. This means that an on-looker is in a position to capture the happenings in their natural or normal occurrence (see Obasi, 1999).

3.1.3 Observational Guidelines

According to Nwana (1981), an 'investigator needs to adopt a systematic approach' in the process of observation. Consequently, the following activities are recommended as a general guide:

- ✓ The aim of the project (research) should be clearly spelt out;
- ✓ The list of attributes to be observed should be complied;
- ✓ Decisions should be made on how to record the observations;
- ✓ A model for recording the observations should be constructed;
- ✓ Administrative arrangements for the observations, should be made;
- ✓ Actual observations should then be carried out;
- ✓ Things observed should finally be recorded. (see Nwana, 1981).

These procedures make an observation to be a systematic exercise which would ultimately lead to a gathering of more reliable data.

3.2.1 Definition and Importance of Documentary Method of Data Collection

Documentary method of data collection is a major means of generating qualitative as well as quantitative datain a public administration research. As questionnaire instrument and interview schedule are used in survey research, so is the documentary method of data collection used in conducting documentary research. Documents can be defined as published and unpublished materials or records of activities of public and private organizations and stored by the organizations. Documents are also called official records in this context of data collection. Many public documents are found in libraries, archives as well as in the organizations that produce them. One of the most credible producers of documentary datais the National Bureau of Statistics (NBS). Also the annual reports of the Central Bank of Nigeria (CBN) constitute another source of documentary data just to mention credible sources.The collection of these documents for extraction of relevant information constitutes a good source of data for a wide range of research activities in various disciplines. Usually documentsdeal with important governance issues which researchers can examine, analyze and interpret in line with their own research focus. Documentary data can therefore be used to analyze historical dynamics and trends of governance issues.In fact, documents are indispensable source of data for empirical analysis of administrative phenomena. Statistical records provide hard facts for establishing trends in any area of public administrative research.

A good number of research projects can be carried out by students of public administration using documentary method of data collection. For example, various reports of the Millennium Development Goals (MDGs) can be collected and used in carrying out analysis of implementation of many programmes and projects. Analysis of trends can be established from existing historical data. Another area of focus is analysis of budgetary trends in the educational, health, environmental sectors among many others.

In analysing documentaryqualitative data, the content analysis method which examines main themes in the documents can be used. Documentary evidence can be used to prove qualitative hypothesis. However, in analysing quantitative data, hypothesis can be tested based on empirical data produced over the years.

3.2.2 Status of Documentary Method of Data Collection in Nigeria

Many years ago, what used to be the Federal Office of Statistics (FOS) was unable to produce reliable and timely data for use by researchers and others. However, things have greatly improved with the reform of the FOS which led to the emergence of National Bureau of Statistics (NBS). The NBS has been producing reliable and timely data that can be used by students of public administration research. Another organization where credible data are generated is the Bureau of Public Service Reform (BPSR) where students can carry out documentary research in the area of administrative reforms in Nigeria since 1999s. At the international level for example, students should consult documents published by the United Nations Organization and its various agencies. Many of these documents are found in libraries and in the websites of these various agencies.

There are still problems facing the use of documentary data in Nigeria due to corruption as many of the data produced by some public agencies are not credible due to their penchant to manipulate data production after diverting the funds meant for such data generation. Students therefore need to be cautious in the use of some data.

Furthermore, many public agencies have not enjoyed enough funding support as well as the necessary independence (autonomy) that could help them to produce valid and reliable data. For example, many years ago election results were heavily rigged and over-inflated. This makes reliance on such results very problematic.

In spite of these observations, there are credible documentary data in existence that can be used by students to execute their research project.

4.0 Conclusion

Observation is a useful method of gathering data when properly utilized through the removal of sentiments and emotional attachment and bias during recording, analysis, and interpretation of data. In our discipline, observation may not in itself constitute a distinct data gathering tool but nevertheless, it helps in tracking issues and their development over time. Such observation can help to trigger off further attention that can be followed by using questionnaire or interview schedule.

With respect to documentary method of data collection, we can still say that despite the problems associated with documentary method of data collection, documents still remain indispensable in the execution of political science research by both traditional and behavioural political scientists. For when they are available in libraries and Archives for instance, documents are relatively very economical and time-saving.

5.0 Summary

This Unit dealt with two methods of data collection namely the observation method and the documentary method. With respect to observation, it was pointed out that observation is a purposefully planned and systematically executedact of watching or looking at the occurrence of events, activities and behaviours by a researcher is interested in such activities. The Unit identified the two types of observation namely participant and non-participant observations.

Ending the discussion on observation, some guidelines were outlined to help students use this method in gathering data.

The Unit also discussed the documentary method of collecting data and noted that this method of data collection is a major means of generating qualitative as well as quantitative data in a public administration research. It equally noted that as questionnaire instrument and interview schedule are used in survey research, so is the documentary method of data collection used in conducting documentary research. Documents was defined as published and unpublished materials or records of activities of public and private organizations and stored by the organizations.The Unit observed that the content analysis method which examines main themes in the documents can be used to carry out the analysis of documentary data. Finally, the unit observed that documentary evidence can be used to prove qualitative hypothesis in this approach to research, while in analysis of quantitative data, hypothesis can be tested based on empirical data produced over the years.

6.0 Tutor-Marked Assignment

Identify and discuss the main features of both the observation and documentary methods of data collection.

7.0 Reference/Further Reading

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Obasi, I. N. (1999). *Research Methodology in Political Science.* Enugu: Academic Publishing Company.

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Unit 4: The Role of Statistics in Research: Descriptive and Inferential Statistics

Content

1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0Tutor-Marked Assignment

7.0 References/Further Reading

1.0: Introduction

This Unit introduces students to the application of different types of statistics in the analysis of data in a research project. First, the need for professional analysis of data was emphasized. Secondly, the features of the two main types of statistics were identified. Lastly, the application of different statistical tools (particularly regarding the principles guiding their use) in testing hypothesis were discussed.

2.0 Objectives
At the end of this Unit, students would be able to:
- Appreciate the need to apply a professional touch to the analysis of quantitative data by using the Statistical Package for the Social Sciences (SPSS);
- Understand the two broad types of statistics namely descriptive and inferential statistics;
- Comprehend how these statistical tools are used in relation to a hypothesis in a research;
- Understand the principles guiding the use of these statistical tools in testing hypothesis.

3.0 Main Content

3.1 Need for Professional Analysis of Data in Research
The analysis of data with a statistical software called the Statistical Package for the Social Sciences (SPSS) has considerably reduced the time spent on data analysis by project students. The use of SPSS has made students who have phobia for numbers to enjoy the use of statistical aids in analysing and presenting their data. For students using the quantitative approach through the survey research design (via questionnaire), the task has been made easy. Students who may wish to use questionnaire to generate their data, should consult a Statistician for analysis after generating their data. This measure will help the students to improve the quality of their analysis. What the students should concern themselves with, is interpretation of results. It is important that they seek understanding of interpretation of the results ofanalysis because as future policy makers, they need to be familiar with such interpretation to be able to formulate appropriate policy response. However, the use of appropriate data analytical tools and their presentation with relevantsuitable tabular and graphic representation(such as as histogram, pie chart, bar chart etc, will enhance the quality of the report. Be that as it may, this Unit focuses on helping students to understand the use of statistics in research.

3.2 Tools of Data Analysis

The nature of data generated determines the types of statistical technique used in analysis. As we noted in Module 4, data can appear in nominal, ordinal, interval and ratio nature. Two broad types of statistical tools can be used to analyze our data. These are (a) descriptive statistical tools, and (b) inferential statistical tools.

3.1(a) Descriptive Statistical Tools:

These are statistical techniques that help us `to summarize and describe our data' (Obikeze, 1986), in such a way that we would understand better their characteristics, similarities, variation, trends etc. The principal descriptive tools for analyzing data include:

- Ratio
- Proportion
- Percentage
- Mean
- Median
- Mode
- Range
- Mean deviation
- Standard deviation, and
- Coefficient of Variation

The data analyzed with these statistics, can appropriately be presented in tables, graphs and charts.

3.1(b) Inferential Statistical Tools:

There are techniques that help us 'to make prediction or generalizations about the entire population based on a sample of cases drawn from it' (Obikeze, 1988:6). These are carried out through what is called statistical tests. As Tuckman (1972:223) observed,' Statistical tests are major aid for data interpretation', and they enable researchers to 'compare groups of data to determine the probability that differences between them are based on chance, thereby providing evidence for judging the validity of a hypothesis or inference'.

There are many types of inferential statistical techniques which are used appropriately according to the nature of the data. Tuckman (1972) has made the following recommendations on the appropriate choice of statistical tests:

Nature of Data	Appropriate Statistics
1. Two Nominal variables (i.e. both independent variables are nominal) or ordinal	The Chi-Square (X_2)
2. Nominal or ordinal Independent variable and an interval dependent variable (used when two means are involved	The T- Test
3. When there are more than two means or when more than one	Analysis of variance

independent nominal variables are involved.	(ANOVA)
4. When two interval variables are involved (i.e. both independent and dependent variables are interval).	Person Product-moment correlation
5. When two ordinal variables are involved	Spearman rank-order correction.

Tuckman, (1972)

According to Obikeze (1986), the Chi-Square is about the most popular statistics employed in the social and management sciences. It has dual application. First it is used as a test of significance of difference between observed frequencies and what is expected by chance. Secondly, it is used as a measure of association between nominal variables.

The use of Chi-Square, t-test, z-test among others are normally guided by a decision rule. The result obtained through these tests, are compared with the tables values or figures provided by statistical tables. If the value calculated is greater than the table value, then what is called a Null hypothesis is rejected, it means that there is significant difference or no significant relationship between the two variables.

In hypothesis testing, two alternative hypotheses are involved namely the substantive hypothesis (called HI) and Null hypothesis (called HO). The substantive hypothesis usually reads: there is a significant difference… or there is significant relationship between say ethnicity and party choice, while the Null hypothesis reads: there is no significance difference... or there is no significant relation…

These statistical tests are also usually carried out at a particular level of significance. A. 05 level of significance is usually adopted. This means that the probability (P) is less than 5 out of 100 ($P > 05$) and that the difference or relationship is due to chance. The level of significance is therefore the `preset probability of rejecting a true null hypothesis (See Obikeze, 1986; and Tuckman 1972).

3.0 Conclusion

The role of statistics in research cannot be over-emphasized. Although, research is not all about statistics, but both qualitative and quantitative research undertakings are very much enriched by analysis of data at worst in the most elementary descriptive aspect of data. It is necessary therefore that students should make effort to understand the principles guiding the use of the descriptive and inferential types of statistics regardless of whether they have phobia for statistics or not. The approach adopted in this Course is meant to relax those who are 'terrified by statistics'. It is this group of students that Kranzler, *et al* (2006) prepared a text called *Statistics for the Terrified.*

5.0 Summary

Two broad types of statistical techniques, namely: descriptive and inferential, were discussed. Descriptive statistics such as ratio, proportion, percentage, mean, median, mode, range, mean

deviation, standard deviation and coefficient of variation, were identified. Also inferential statistics such as Chi-Square (X^2) test, t-test, Z – test, ANOVA, and correlation techniques, were identified. Equally, conditions for their appropriate application were identified. This chapter ended with a general discussion on significance testing and level of significance among others.

7.0 Tutor-Marked Assignment

Mention four examples of descriptive statistical tools and three inferential statistical tools of analysis and indicate which statistical tools can be used to test hypothesis.

7.0 References/Further Reading

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