Chalimbana University

DIRECTORATE OF DISTANCE BUSINESS

BRM3101: BUSINESS RESEARCH METHODS

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MODULE OVERVIEW

Introduction

The Business Research Methods module is designed to give you self-instruction on the rudiments of business research practices and statistical methods. It teaches you how to understand the research problem, how to select the research problem, literature review, the investigations, data collection methods, analysis, interpretations and how to present the report. It is comprehensive to help you carry out your project in research without any encumbrances. The statistical tools which you will need to present and analyse your research data have been presented in a very systematic manner so that you can use them with less difficulties. The various data collection techniques have been explained. With this you can carry out any research project with ease.

Aim

The aim of this course is to acquaint you with the basics of research methods and statistics used in business research processes. It also aims at encouraging you to learn the nature, concepts, steps and procedures for carrying out your research project or any other research study.

Learning Outcomes

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

1. Explain the concepts and processes of business research
2. Discuss the different types of research
3. Identify researchable problems in a business-related field
4. Demonstrate skills in literature review
5. Formulate research questions and hypotheses
6. Explain the different types of research designs
7. Differentiate between population and samples
8. Apply the different methods of data collection
9. Compare the different methods of data collection
10. Discuss the properties of a good instrument
11. Organize and present data using different methods
12. Demonstrate proficiency in the use of descriptive statistics
13. Use inferential statistics to test hypotheses
14. Write proposal/reports of research projects.

Rationale

The work environments are always surrounded by challenges that need researchers to investigate and provide workable solutions so as to improve performance. Therefore, there is need to equip students with knowledge and skills in business research. After going through this course successfully, you would be in a good position to pass your examination at the end of the year and apply the knowledge and skills gained in the execution of your research project and at the work place.

Summary

This course is designed to give you knowledge and skills which would help you to undertake your research project work as smoothly as possible. After going through this course successfully, you would be in a good position to pass your examination at the end of the year and apply the knowledge and skills gained in the execution of your research project. Above all, you will be able to answer such questions as can be drawn from:

- The research process;
- The research problem;
- Literature review;
- Population and samples;
- Research designs;
- Data collection technique;
- Statistical methods; and
- Research reports.

We wish you success in this practically-oriented and interesting course. We hope you will transfer what you have learnt in this course to some of your other courses that are related to this, and you will bring the knowledge from these other courses to help you perform at the optimum in understanding your research project.

We also hope you would appreciate the unique role and opportunity you have to be able to make use of the knowledge derived from this course in solving business problems within your area of specialization.

Prescribed Reading:

Ali, A. (1996). *Fundamentals of Research in Business*. Awka, Zambia: Meks Publishers.

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Denga, I.D. & Ali, A. (1983). *An Introduction to Research Methods and Statistics in Business and Social Sciences.* Jos: Savannah Publishers Limited.

Ikekhua, T.I. &Yesufu, J.T. (1995). *Exposing Research Methods in Business Study andReporting aid for Students and Beginning Researchers*. Warri: Ar B10 Publishing Limited.

Recommended Reading:

Nkpa, N. (1997). *Business Research for Modern Scholars*. Enugu: Fourth Dimension Publishers.

Ogomaka, P.M.C. (1998). *Descriptive Statistics for Research Students*. Owerri: Peacewise.

Olatian, S.O. &Nwoke, G.I. (1988). *Practical Research Methods in Business*. Onitsha: Summer Business Publishers.

Study Skills

As an adult learner, your approach to learning will be different to that of your organisation days: you will choose when you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic responsibilities.

Essentially you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to acquaint yourself with areas such as essay planning, searching for information, writing, coping with examinations and using the internet as a learning resource.

Your most significant considerations will be *time* and *space* i.e. the time you dedicate to your learning and the environment in which you engage in that learning.

It is recommended that you take time now —before starting your self-study— to familiarise yourself with these issues. There are a number of excellent resources on the internet. A few suggested links are:

http://www.how-to-study.com/

The "How to study" website is dedicated to study skills resources. You will find links to study preparation (a list of nine essentials for a good study place), taking notes, strategies for reading text books, using reference sources, and test anxiety.

http://www.ucc.vt.edu/stdysk/stdyhlp.html

This is the website of the Virginia Tech, Division of Student Affairs. You will find links to time scheduling (including a "where does time go?" link), a study skill checklist, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis, memory skills ("remembering").

Timeframe

You are expected to spend at least 36 hours of study time on this module. In addition, there shall be arranged contact sessions with lecturers from the University during residential possibly in April, August and December. You are requested to spend your time judiciously so that you reap maximum benefit from the course.

Need Help?

In case you have difficulties during the duration of the course, please get in touch with your lecturer for routine enquiries during working days **(Monday-Friday)** from 08:00 to 17:00 hours on Cell: +260963804004**; E-mail: adsikalumbi@gmail.com; website: www.chau.ac.zm.**You can also see your lecturer at the office during working hours as stated above.

You are free to utilise the services of the University Library which opens from 07:00 hours to 20:00 hours every working day.

It will be important for you to carry your student identity card for you to access the library and let alone borrow books.

Assessment

In this course, you will be assessed on the basis of your performance as follows:

Continuous Assessment **50%**

Proposal	20%	
1 Test	20%	
Presentations	10%	
Final Examination		**50%**
Total		**100%**

How to get the most out of this course

In distance learning, the study units replace the university lecturer. This is one of the huge advantages of distance learning mode.You can read and work through specially designed study materials at your own pace and at a time and place that is most convenient. Think of it as reading from the teacher, the study guide indicates what you ought to study, how to study it and the relevant texts to consult. You are provided with exercises at appropriate points, just as a lecturer might give you an exercise in class.

Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit and how a particular unit is integrated with the other units and the course as a whole. Next to this is a set of learning objectives. These learning objectives are meant to guide your studies. The moment a unit is finished, you must go back and check whether you have achieved the objectives. If this is made a habit, then you will increase your chances of passing the course. The main body of the units also guides you through the required readings from other sources. This will usually be either from a set book or from other sources. Self-assessment exercises are provided throughout the unit, to aid personal studies, and answers are provided at the end of the unit. Working through these self-tests will help you to achieve the objectives of the unit and also prepare you for tutor marked assignments and examinations. You should attempt each self-test as you encounter them in the units.

The following are practical strategies for working through this course

1. Read the course guide thoroughly

2. Organize 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 assignment relates to the units. Important details, e.g. details of your tutorials and the date of the first day of the semester are available. You need to gather together all

information in one place such as a diary, a wall chart calendar or an organizer. Whatever method you choose, you should decide on and write in your own dates for working on each unit.

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

4. Turn to Unit 1 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 table of content at the beginning of each unit. You will almost always need both the study unit you are working on and one of the materials recommended for further readings, 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 unit, you will be encouraged to read from your set books.

7. Keep in mind that you will learn a lot by doing all your assignments carefully. They have been designed to help you meet the objectives of the course and will help you pass the examination.

8. Review the objectives of each study unit to confirm that you have achieved them. If you are not certain about any of the objectives, review the study material and consult your tutor.
9. When you are confident that you have achieved a unit's objectives, you can start on the next unit. Proceed unit by unit through the course and try to pace your study so that you can 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 you 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 this course guide).

You should endeavour to attend the tutorials. This is the only opportunity to have face-to-face contact with your tutor and ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from the course tutorials, have some questions handy before attending them. You will learn a lot from participating actively in discussions.

GOODLUCK!

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UNIT 1

OVER VIEW OF RESEARCH

1.0 Introduction

Are you among the people who perceive research as an activity which is undertaken with highly sophisticated equipment, and/or an activity exclusively preserved for the lecturers and 'Research Fellows' in the Universities or tertiary institutions?

In this unit, you will be presented with a de-mystifying view of research as an activity which is not far from the routine ritual of all normal thinking human being. You will see research generally as a process of finding out the answers to a problem. To this effect, you will appreciate and find it an activity which is worth doing.

1.2 Objectives

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

- define research
- define business research
- discuss the characteristics of research
- explain the purpose of business research.

1.3 Meaning of Research

Many writers have described research in various ways, and according to the type and the area. We can say that research is the process of arriving at dependable solutions to problems through a planned and systematic collection, analysis and interpretation of data. You may have to note that the key words in this description are **planned** and **systematic**. It means that research is considered as a logical scientific thinking. This implies that a study or an activity cannot be regarded as research unless it is carried into the higher levels of vigorous and scientific reasoning.

We can also look at research as a process of seeking answers to hypothetical questions using scientific methods of inquiry to produce valid information. It means therefore, that when you use research methods to solve problems, you are more efficient than either trial-anderror attempts or "short-run" approaches. This is because you will direct all efforts towards a particular goal based on a sound hypothetical solution.

According to Leedy (1997), research is the systematic process of collecting and analyzing information (data) in order to increase our understanding of the phenomenon with which we are concerned or interested. He goes on to say that research is not:

- mere information gathering;
- transformation of facts from one location to another;
- rummaging for information; and
- a catch-word used to get information.

In their own definition, Best & Kahn (1995) agree that research is the systematic and objective analysis as well as recording of controlled observations that may lead to the development of generalizations, principles or theories, resulting in prediction and possibly, ultimate control of events.
From these and other definitions, you have to note that one of the most reliable ways of ascertaining that decisions are correctly made is to use a scientific approach to arrive at those decisions. Therefore, research is needed in order to arrive at objective conclusions. Thus, the use of data to quantify statements and assumptions with empirical evidence becomes imperative.

1.4 Business Research

Business research is implied when research activities are geared towards unravelingbusiness problems or bringing about improvement in teaching and learning. According to Ary et. al. (1972:21). Business research is "the way in which one acquires dependable and useful information about the educative process". While Travers (1964:5), says that Business research is "an activity directed towards the development of an organised body of scientific knowledge about the events with which educators are concerned". Do you notice that the descriptions of Business research above highlight some important concepts? These concepts include: dependability of the information and its scientific nature; and the fact that the subject-matter of investigation should be of interest to educators and business practitioners. This means that research in Business is a systematic attempt to define and investigate pertinent problems involved in business. This can take place within or outside the business setting or it can take place at various levels of Business in an organisation. You will again note that, implicit in this definition, is that Business research employs scientific methods to find out how business can be improved, conditions under which knowledge can be tested and verified and the conditions under which they should occur.

In his own definition, Kerlinger (1964), says that Business research is a systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomenon.

Business is mainly concerned with the processes which deal with deliberate change in the behaviour of people/organisations through the acquisition of knowledge, skills, attitudes,

interests and appreciation. Therefore, the goal of Business research is to discover general principles on which interpretations, predictions, explanations and control of the findings can be based. It means that any research in this area should contribute to some aspect related directly or indirectly to business situation. Therefore, the topic selected for investigation should be truly Business, preferably a problematic topic whose findings will add to the knowledge-bank of Business and to lead to some solution of a societal/business/organisational problem.

1.5 Characteristics of Business Research

Earlier in this unit, we have said that mere collection of facts, whether from reference books, readings in the library, historical documents, and questionnaire distribution or even from the internet, is not research, unless the information derived from the analysis of the data is used to solve problems. Based on this, let us look at some characteristics of research.

According to Anaekwe (2002), some of the characteristics are:

(i) **Research is Systematic:** This means that the steps followed have to be sequential and logical. The procedures used can be repeated by another research to verify the findings.

(ii) **Research is Objective:** This means that the findings are reported as they are. The biases, prejudices, beliefs or interests of the researcher and/or the society are not allowed to interfere with the research procedure and/or results.

(iii) **Research Report is Precise:** This is pertinent as the use of vocabulary which is capable of multiple interpretation is not encouraged.

(iv) **Research is Testable/Measurable:** Research is not speculative, but quantifiable. It becomes imperative that data collected for research must be measurable and tested against a specified hypothesis.

(v) **Research is Replicable/Verifiable:** Results or findings of a research can be verified by the researcher or any other person interested in the findings. This can be done by going through the data used in the study or the processes involved. The research can be replicated by re-administering the same instrument or similar instrument of data collection to the same subjects or similar group of subjects. This replication can help one to justify the authenticity or otherwise of an earlier conclusion.

In summary of the characteristics, we can therefore, say Research:

(i) emphasises the development of generalizations, principles or theories that will be helpful in predicting future occurrences;

(ii) is based upon observable experience or empirical evidence;

(iii) demands accurate observation and description;

(iv) involves gathering new data from primary or first-hand success or using existing data for a new purpose;

(v) is often characterized by carefully designed procedures that apply rigorous analysis;

(vi) requires expertise;

(vii) strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected and the conclusions reached;

(viii) involves the quest for answers to unresolved problems;

(ix) is characterized by patient and unhurried activity;

(x) is carefully reported and recorded; and

(xi) requires courage.

1.6 Purposes of Business Research

Have you noted that in recent times many countries of the world have shown strong concern for improving the quality and variety of Business as well as access to it? For instance, the emphasis in some countries is the provision of aconducive Business. In some other countries, considerable interest is on diversification of Business opportunities. This will show you that most countries quite legitimately worry and show concern about their Business processes and products. It shows the countries' desires to have a living, growing and responsive Business. These concerns have led to upsurge in research efforts aimed at identifying viable alternative action among many options. This leads to the introduction of research-based recommendations designed to improve Business even with insufficient resources.

You are aware that, as a result of strong concern to take Business to the doorsteps of the numerous Zambians who are in remote areas, those who have been denied access to Business as a result of one obstacle, rigid policy etc. or the other and to remove all boundaries in Business. Researches in Business come with the picture because Business process is a very complex and evolving those whose every facet must be carefully and systematically investigated, understood and implemented towards achieving the objectives.

You have noted that one purpose of research is the development of theories by discovering broad generalizations or principles. This is why Good et al. (1941). Described the chief purposes of research as an achievement in Business to include:

(i) Determining the status of phenomenon, past and present;
(ii) Ascertaining the nature, composition and process that characterize Business phenomena; and
(iii) Tracing growth, change and developmental history of persons and issues and objects.

According to Best (1976), when a research becomes **applied research**, it can take on the purpose of improving a product or a process of production. It means that it involves the testing of theoretical concepts in actual problem-situations in industrial settings. In the field of Business, it is interesting to recognise that most Business research is applied research because it attempts to develop generalizations about the business processes. You have seen that research, in general, is of immense importance in allhuman endeavours. This is why Anaekwe (2002) believes that Business researches have the following purposes, which are to:

(i) Provide training in problem-solving. This is because research involves problem-solving, and life in itself is full of problems. Therefore, knowledge of research provides training in problemsolving;

(ii) Provide valid and dependable information, which could be very useful in advancing the course of Business theories and practices;

(iii) Evaluate Business programmes, activities, practices, resources and methods of teaching; and

(iv) Provide training in understanding of the intricacies and technicalities requisite for handling research problems in particular and problems in general.

According to Ikekhua&Yesufu (1995), the four-fold purposes of Business research are to:

(i) Provide objective evidence to improve business practices;

(ii) Controvert myths surrounding certain practices and principles in Business;

(iii) Change beliefs characterizing practitioners and products of Business and the consumers of the products of Business, and

(iv) Help place the work of the organisations and its agents on a firmer ground with consumers of Business products and services.

1.7 Revision questions

1 Read through the definitions of Business research in this unit and from other sources. Formulate your own definition in your own words.

2 What is the major difference between basic research and Business research?

3. What are the four-fold purposes of Business research?

3 Discuss the purposes of Business researches as presented

1.8 Summary

In this unit, you have read some of the definitions of research. Business research has also been defined variously, but you have to remember that research in Business is one which includes the fact that it is testable, verifiable, purposeful and activity-oriented. In other words, Business research can involve those activities or processes which allow one to systematically test and/or obtain a body of information, data as knowledge about business, organisation, financial and human resource.

You also learnt the characteristics of research in which you noted that research is objective, precise, testable/measurable, replicable or verifiable etc. You have also seen the various purposes of Business research in this unit.

1.9 Further Reading

Best, J.W. & Kahn, J.V. (1995). *Research in Business* (7th Edition). New Delhi: Prentice Hall of India, 20 – 23.

Leedy, P.D. (1997). *Practical Research*: Planning and Design (6th Edition). New Jersey: Morill, 103 – 110.

UNIT 2

THE RESEARCH PROCESS AND TYPES

2.0 Introduction

Welcome to unit 2. In this unit, you will learn that that the research process provides a description of the systematic procedure which is usually adopted during research studies. As a scientific method of investigation, Business research uses investigative methods which are consistent with the basic procedures and operating conceptions of science. Hope you will enjoy the unit.

2.1 Objectives

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

- explain the steps in the research process
- discuss the types of Business research
- enumerate the limitations involved in the application of scientific method in Business research.

2.2 Steps in the Research Process

Business research process is an adoption of the basic research process which utilizes the methodology of scientific thinking and necessarily goes about its business of problem analysis in a series of stages and steps of activities. The ultimate goal of these series of activities is to search for dependable, valid and reliable answers as solutions to some defined questions or problems in the field of Business.

You will note, therefore, that Business research also shares in the values of the culture of science. These stages of steps are in logical sequence with one step leading to another and are linked for a common goal.

Business research is described as **applied** scientific method or **basic** research. It implies that a researcher in Business may take the underlisted steps of activities during research studies on any Business problem. These steps should not be considered strictly as the only satisfactory sequence. You, as a researcher or research worker or even your institution, may adopt some modifications of the research process. This is acceptable. Let us now look at the sequence recommended for any Business research:

(i) ***Identification of a Problem***

This is the most difficult step in the research process. It involves the discovery and definition of Business research problem or problems within a topical area of interest in Business. It has to be a problem or question which deals with issues of sufficient consequence to warrant investigation. The problem must be such that can be solved through scientific investigation. It must not be a solvableproblem; one whose solution is available. It must not be a question requiring 'Yes' and 'No' answers. Examples of Business problems are:

What are the causes of SME's failure to grow their businesses in Eastern province?Should grants be given to local councils to enhance their performance? What are the patterns, causes and solutions of business problems in Zambia/district etc? What are the factors affecting students' academic achievements in business studies? What are the factors affecting the performance of Zesco/Health/Chalimbana University employees?

(ii) ***Review of Related Literature***

When a problem exists, review of related literature is step two. However, in some studies this is step one as a source of the problem. You will need to review books, journals, magazines, and other materials related to the problem of study, either directly or indirectly. This will help you to identify some background information about the problem of study. It will also help you to:

(a) eliminate duplication of what has been done already;
(b) guide your formulation of research hypotheses or questions;
(c) sharpen your focus of the study as well as give you insight as to whether the problem is researchable or not; and
(d) the type of problems you may encounter in the process and how to take care of them.

(iii)*Formulating Hypotheses and/or Research Questions*

This calls for you to present clearly and concisely the logical aspects of the problem as this sharpens your focus on the problem. It involves the conjecturing of the relationship between the concepts and variables identified in the problem.

The hypothesis serves as a tentative answer to the problem. It can be from the result of employing logical processes of deduction and induction to formulate an expectation of the outcome of the study.

(iv)Selecting the Research Design

This implies the selection of the appropriate research approach for the investigation. A research design can be a specification of the operations for the testing or verification of the

hypotheses under a given set of conditions and of procedures for measuring variables. It involves the selection of persons or things to be studied. Examples can be descriptive survey, experimental, quasi-experimental, factorial designs etc.

(v) Collection of Data

This stage aims at collecting relevant information for measuring the selected variables and for building up a body of valid and reliable knowledge about the variables or the research topic. It involves the construction and administration of the measuring instruments. Prominent among the techniques are interviews, questionnaires, observations, tests, rating scales, documentary sources and records. You will learn more of these as we go on in this course.

(vi)Data Analysis and Interpretations

Data analysis implies extracting the required information which will serve to answer the research questions or test the hypotheses from the data collected and presented earlier. The data collected must be reduced, arranged and presented in an organized form for easy analysis, using suitable statistical techniques. This will enable you to generate some research findings from which conclusions and generalizations are drawn. You can employ the help of computers and/or calculators for easy and accurate data analysis.

(vii)Discussion of Research Findings

Research findings from the analysis of data are discussed to justify, interpret, explain and further the development of theories for knowledge. This discussion is done in the context and direction of the information gathered in the process of literature review. You can see that literature review is very important in this respect as it makes for very sound and balanced discussion of findings.

(viii)Conclusions, Generalisation and Recommendations

At this stage, you are expected to draw conclusions from your research findings and to make generalizations of your findings as generated from your samples to the larger population.

You will have to bear in mind that the generation of valid findings, making of correct generalisation and useful recommendations for possible applications to the field of Business help to bring about progress that may be registered in the development and practice of Business.

(ix)Writing the Research Report

This is the final stage of activities in the process of conducting research in Business. You have the responsibility of making your procedures, findings, conclusions and recommendations available to others in an intelligible form. This involves a clear, concise presentation of the steps in the study through a research report.

2.3 Types of Research

Business research can be classified into different types. These classifications may depend on the goals, methods of investigation, kind of evidence and analysis used. These classifications are:

On the Basis of Goal Typology

If we classify Business researches based on the goals of the particular investigation and the use to be made of it, then we will have basic research and applied research.

(a) Basic Research

This is a type of research, otherwise called pure research which is concerned with obtaining empirical data that can be used to formulate, expand or evaluate theory. Its main aim is to extend the frontiers of knowledge with no regards to the practical application.

It investigates relationships between methods, personal characteristics, environmental variables and learning efficiency in order to develop, illustrate, test and expand theories of learning. It is not oriented in design or purpose towards the solution of practical problems. But the findings of such studies may be applied to practical problems that have social values.

(b) Applied Research

This is the application of theories and principles from basic research to solve Business problems. It is a research performed in relation to actual problems which occur in the field and under the conditions in which they are found in practice. It is aimed at solving immediate practical problems. The findings help educators to make rational practical decisions about specific problems. Applied research can be divided into three sub-categories:

(i) Action Research

This is undertaken by Business practitioners in order to solve their practical local problems. It is aimed at developing new skills, finding new answers or approaches to solve problems of current concern. It is practical and directly relevant to an actual life situation. It is empirical and relies on actual observation and realistic information, or data rather than subjective opinions or past experiences.

(ii) Evaluation Research

This is used to assess Businessactivities, organisational policies, employee performance, marketing strategies, entrepreneurship levels etc, in order to improve their efficiency by making necessary revisions or modifications. For instance, a systemic evaluation of the practice of some programmes in the organisation system may necessitate modifications in the requirements and policies of the Business. Again, the change over from one system of Business to another may have been based on systemic evaluation. Example, the change from 6-5-4 to 6-3-3-4 and from 6-3-3-4 to 9-3-4 system may have been based on the evaluation research by practitioners.

(iii) Research and Development

This is concerned with developing and testing curricula, methods and materials to ensure maximum efficiency of Business products and practices.

On the Basis of Method of Investigation Typology

Classifying Business research based on the methods of investigation used, the following types of Business research may be distinguished:

(a) Experimental Research

In this type of research, independent variables are manipulated to observe the effects on the dependent variables. It serves to determine possible outcomes given certain conditions. There are two groups – experimental or treatment group and the control group. The experimental group receives the treatment while the control group may not receive any treatment. The difference is noted and used.

(b) Ex Post Facto Research

Have you noticed a research study in which the researcher attempts to conduct experimental study in which he is not able to directly manipulate the independent variables? In fact, randomisation is not possible. The subjects may be grouped on the basis of some naturally

occurring characteristics. Such variables like sex, race, intelligence, aptitude, creativity, personality, socio-economic status, etc. cannot be directly manipulated. Sometimes, this type of research is referred to as causal comparative studies.

(c) Descriptive Research

This is concerned with either description and interpretation of existing relationships, attitudes, practices, processes, trends, etc. or the comparison of variables. It does not make attempts to manipulate variables. It may be divided into many categories. Prominent among them are:

(i) Surveys

In this type of research, a number of data-gathering psychometric tools and procedures are used. These include questionnaires, tests, checklists, rating scales, score cards, inventories, interviews, etc. The study can be used to ascertain the nature of a phenomenon from a relatively large number of cases. When you study the entire target population, the survey is called census. Most of the times, the entire population is too large to be handled. In this case, you have to use appropriate sampling technique to obtain a truly representative sample. You will learn about the sampling techniques later in this course. You have to note that representativeness of sample is critical to survey research, in order to make reliable inferences about the target population.

(ii) Documentary Analysis

In this type, documents and records are examined for relevant information. Official gazettes, minutes of meetings, reports of panels and blueprints can be examined. Content analysis of curriculum materials and classroom lessons can be included as documentary analysis.

(iii) Case Studies

You may decide to investigate a detailed account of individuals or aggregations of individual cases may be treated as units under this type of study. In other words, you may decide to study a phenomenon in one organisation, association, organisation, agency, one student, teacher, administrator, etc. in order to solve specific problems through in-depth study.

(d) Historical Research

This is a past oriented research; which involves the location, documentation, evaluation and interpretation of available evidence in order to understand past events. Understanding past events may lead you to greater understanding of present and future events. It may also prevent future pitfalls, or even suggest hypotheses which should be used for the solution of

existing problems. Its focus may be on social concerns, Business practices, Business institutions or the educators themselves. In historical research, evidence from relics, artefacts, documents, records, oral accounts etc. are usually relied on. If you are undertaking a historical research in Business, then your evidence may be sought from attendance registers, certificates, report cards, inventories, manuscripts, equipment, records of news talk, etc.

There are two main sources of research information in a historical study. These are primary source and secondary source. When evidence comes from direct source such as original documents, photographs, eye-witness accounts, it is called primary source. But when a non-observer mediates between the original evidence and the investigator as in books, research reviews, newspapers or stories by non-participants, it is called secondary source. As a researcher, you should always determine the authenticity of the evidence you use.

On the Basis of the Kind of Evidence and Analysis used Typology

Using this typology, research can be classified as quantitative, qualitative or multiple perspective.

(a) Quantitative Research

This type uses information or data expressed in numerical values. Most experimental studies fall under this type or category.

Data collection methods include tests of various types, experiments, questionnaire, rating scales etc. Quantitative data are analysed using either descriptive or inferential statistics.

(b) Qualitative Research

This type uses information which is verbal or non-numerical. It makes use of qualitative data yielded through interviews, observations, artifacts, and documentary sources, audio and visual materials among others.

Information could be analysed using transcription, coding, historical and philosophical analysis. This can introduce elements of subjectivity in explaining, describing, collecting and even analyzing information.

(c) Multiple Perspective Research

This type uses both quantitative and qualitative approach otherwise known as eclectic, is usually more comprehensive, yielding more generalisable and holistic findings which are more rigorous than any one approach.

2.4 Scientific Methods in Business Research: Limitations

You are aware that the underlying goal of the scientific method of thinking is rooted in the broad goal of science which is to understand natural phenomena through the following steps:

(i) accurate description;
(ii) explaining the specified conditions necessary to obtain the phenomenon in order to attain easy prediction of the phenomenon; and

(iii) organizing the available evidence supporting the phenomenon in order to attain an overall picture of the relationships surrounding all the components or variables relating to the phenomenon under consideration.

Research practices shape their values after scientific assumptions. The concern of research is to attempt to provide acceptable and verifiable explanations to problems or questions raised in order to explore the realities of the problems through the use of scientific method of inquiry. Business researches employ the use of scientific method of research.

Vast quantities of empirical studies that are reliable have been accumulated in Business, yet they have not attained the scientific status typical of the natural sciences. This is because they have not been able to establish generalizations equivalent to the theories of the natural sciences in scope of explanatory power or in the capacity to yield precise predictions. There are several limitations to this.
The following are the limitations:

(i)Complexity of Business Phenomenon

Business phenomena, most of the times, are complex and unpredictable, unlike those of the natural sciences. The natural scientist deals with physical laws like Charle's law, Boyle's law etc. which have relatively uncomplicated variables. But in Business, you deal with human behaviour and development, both as individuals and as members of a group. In this case, numerous variables affect such phenomena independently and in interaction and make them difficult to study with ease.

(ii) Measurement Problems

In the natural sciences, we use instruments like ruler, tape, thermometer, barometer, wind-vane, weighing balance, ammeter, galvanometer and so on which gives perfect and precise measurements. But in Business, you will not get any instrument which can yield as perfect and precise measurement.

(iii) Difficulties in Observation

Observation is a very important aspect of science, whether social sciences or natural/ physical sciences. But, it is more difficult and risky to have perfect observation in Business, because it is more subjective and frequently involves personal interpretations of such things as: motive, values, attitudes and so on. Which are not open to inspection?

(iv) Difficulties of Control

Possibilities for effective control of experimental conditions are much more limited in Business than in the natural sciences. This is because rigid control of the experimental conditions is possible in the laboratories in natural sciences. But in Business many variables including extraneous variables which are not known by the researcher, affect and influence the results.

(v) Difficulties of Replication

When two or more chemicals are put together in a test tube, the result of the reaction can be observed and reported objectively. This can be replicated or reproduced to get the same result anywhere in the world.

But it is very difficult to replicate an experiment, for instance, banking practices at ZANCO, in any other part of the world. In other words, replication is very difficult to arrange in Business.

(vi) Experimental Contamination

The presence of the researcher or investigator can change the behaviour or affect the responses of the human subjects in Business research. This can result in the faking of behaviours which will influence the result. This can be referred to as Hawthorne effect. It does not happen in the natural sciences. If an acid is mixed with an alkali, they will form a salt, whether the experimenter is there or not does not affect the result.

(vii)Problem of Randomisation

It is easier to randomise non-human subjects in the laboratory than the human subjects. Randomisation may not be perfect in Business due to administrative constraints and faking.

2.5 Revision questions

1. What are the types of research based on methods of investigation?
2. What are the types of research based on the types of evidence analysis used?
3. What are the steps in the research process?
4. What are the limitations involved in the application of scientific methods in Business research?

2.6 Summary

In this unit, you have learnt the steps in the Business research methods. These steps are:

(i) Identification of the problem;
(ii) Review of related literature;
(iii) Construction of hypotheses and/or questions;
(iv) Constructing the design;
(v) Data collection;
(vi) Data analysis and interpretation;
(vii) Discussion of research findings;
(viii) Conclusion and recommendations, and (ix)Writing the report.

You have also learnt that Business research can be classified in different types. These can be on the basis of goals; in which we have basic research, applied research. On the basis of method of investigation, we have: experimental, ex post facto, descriptive and historical. On the basis of kind of evidence and analysis, we have qualitative and quantitative researches.

You have learnt the limitations in applying scientific methods in Business research. These include:

(i) complexity of Business phenomenon;
(ii) problems of measurement;
(iii) difficulties in observation;
(iv) difficulties of control;
(v) difficulties of replication;
(vi) experimental contamination; and (vii)problem of randomisation.

2.7 Further Reading

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

UNIT 3

THE RESEARCH PROBLEM

3.0 Introduction

Welcome to unit 3. You will realise that the research problem is the focus to which all research efforts are geared towards. At the root of every research, there is a problem which must be established to justify the research. You will have to design investigations to find solutions to the problem. This is the goal you have to accomplish because it is the problem that requires attention. At this point, the question that should bother you should be hinged on what constitutes a researchable problem.

3.1 Objectives

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

- select a research problem in your area of interest
- outline the various sources of research problems
- enumerate the criteria for selecting a problem for research
- explain the background of the study
- describe the statement of the problem
- explain the purpose of the study
- discuss the significance of the study
- describe the scope of the study
- formulate different types of research hypothesis
- differentiate between research question and hypothesis.

3.2 Identification of Research Problems

As a beginner researcher, you may find it difficult to decide on what is a suitable research problem. You may spend considerable amount of time examining many research problems without being able to make up your mind on which to select. Your indecision may be due to a fear of selecting difficult problem which you cannot easily tackle. You have to note that common errors in selecting problems arise when conditions, objectives, questions, hypotheses, topics or uncomfortable feelings are mistaken for problems.

You have to distinguish between your problem area which is of interest to you and the research problem itself. Let it be clear to you that a problem area of interest is the broad

area or topic, events, phenomenon which you want to study, say in Business. This area of interest may be hazy, nebulous, ethnical or inconsequential at the onset. It may remain so long after you have given thoughtful and adequate consideration to it. In this case, you are advised to steer clear of the topicor phenomenon.

A problem arises when the interplay of two or more factors result in one of three possible problematic outcomes. These are a perplexing state, an undesirable consequence, or a conflict for which the appropriate course of action is controversial. In order to find the problem, solution, classification of the perplexing state, elimination or alleviation of the undesirable consequence, or resolution of the conflicts can then be made.

Before you arrive at a researchable topic, there are three systematic stages of reductive deductions which are very necessary for you to take from the general problem area. These include:

(a) locating a general problem area in your particular field of interest;
(b) pining this problem down to a manageable size, and
(c) state it concisely in a form that can be empirically investigated.

These steps are not as easy to take as they look. But you have to note that a good research work is a difficult thing to undertake. No easy research topic which can be effectively carried out without careful and logical planning. But if you allow your interest to be your guide and you choose a topic that personally appeals to you as a result of your previous activities and readings, you will be motivated to spend the long and difficult hours and the painstaking efforts that are necessary for the effective execution of the study.

It may interest you to note that not every investigation or study qualifies to be called a research study. You have read earlier, in this course, that Business research is aimed at solving problems in Business or providing answers to questions. Therefore, if no problem exists or cannot be identified then a study in that area should not be attempted. There must be a pressing problem or a need which requires attention. If you have a strong feeling about the need to solve this problem, it becomes easier for you to be successful in the study.

Note that a good research study should be able to make a definite contribution to knowledge. You have to know also that merely gathering the opinion of people is not necessarily research. Later in this unit, you will read about the criteria for selecting a researchable problem. Meanwhile, let us look at sources of problems

2.3 Sources of Research Problems

If you are asked how research problems are identified or located, the question may be theory for you. It becomes useful therefore, to suggest the various sources through which research problems may be generated. These are:

(i) Personal Experience

If you are an experienced teacher or have had a long experience in Business practices or observing existing practices in the Business system, you would have come across a number of problems, imperfections, inconsistencies, puzzles or some gaps which need to be dealt with. Through your interactions with people and facilities in your professional experience, you may have discovered areas where knowledge is lacking while answers have to be found.

(ii)Literature

When you have an extensive review of literature, it provides you with some researchable problems. Textbooks, theses and dissertations, research reports in journals and Business periodicals, conference papers among others could provide some tit-bits on researchable problems or topics.

Apart from suggestions for further research available in thesis and dissertations, you may encounter contradictions, inconsistencies and unsatisfactory findings in some areas of investigation. You can then carryout a study to fill in the gaps. In addition, your study could contribute to knowledge through improved methodology or modifications to existing theory.

(iii) Experts' Opinion

Consultations with professionals in a particular field, Business practitioners, research fellows, thesis advisers or supervisors, and so on could guide you in identifying your problem area. They will help you to clarify your thinking to achieve a sense of focus and to be articulate and concise in your research topic. This depends on your interest in having an originally thought out problems. It is not good to just collect previous research topic or to go and copy already written project reports from other institutions. Though this is what undergraduates do these days, it hampers and/or obstructs academic growth and upliftment.

(iv) Government Publications

Most of the times, some government policies, intentions or views on Business can be published through whitepapers, gazettes, newspapers, newsletters or through the radio and television or even through circulars.

Research topics could emanate in response to a governmental identified problem. Such studies may focus on evaluation of existing Business programmes like, the Universal Basic Business, literacy education, impact of covid-19 on small businesses among others.

(v) Internet Sources

These days, electronic learning is in vogue in which people study by entering into any library in any part of the world to get current and updated information on any field including Business.

Through the internet you can avail yourself the opportunity of getting current research findings or write-ups on any area of interest. You can see different methods of solving the same problem you have and you can apply such methods into your situation.

(vi)Innovative and Technological Changes

There are lots of innovations and changes especially in the use of information and communication technologies (ICT) in Business. Such concepts as e-learning, m-learning, e-business, e-government, ecommerce, computer-assisted instruction (CAI), computer-based training (CBT), and conferencing among others can be investigated to determine their effects, effectiveness, implementability in our situation.

An appraisal of such teaching strategies like group-self-evaluation, cooperative learning, team teaching, mixed ability grouping, vertical and/or horizontal teaching etc. could yield researchable topics to business trainee teachers.

(vii) General Business Problems

You have noticed that in Zambia and many other developing countries, there are so many general problems facing Business. These Business problems can be narrowed down to obtaining a specific Business problem which you can handle effectively.

(viii) Replication

Replication or repetition of an earlier study encountered in the literature review can help to increase the generalisability and validity of the findings. The replication can be done using different geographical contexts, different subjects, different levels, different time periods, different methodology or different instruments.

(ix) Theory

Theories are statements put forward to explain phenomena, events or situations. They propound general principles for which applicability or Business situations require research. According to Nkpa, theories are fertile sources of research problem. This is because from theories, relationships among variables can be predicted, tested and established.

3.4 Criteria for Problem Selection

Most of the times, several potentially researchable problems abound. Your problem becomes how to select the most appropriate one for investigation at any given point in time. Most beginner researchers have faced this difficult situation, such that some of the time; they start with one problem and abandon it for another. They may attempt or make trials on several other problems before choosing one. This results in unnecessary delays in conducting the research. To avoid such pitfalls, you should be able to evaluate the research problems in order to select the most expedient, using the following criteria;

(i) Significance

You have been told earlier in this course that the ultimate goal of research is to enrich knowledge. In selecting your problem, therefore, it behooves on you to select one whose solution would make the most valuable contribution to the body of organised knowledge.

This contribution could be in the area of methodology, theory, practice or replication of existing findings to yield more reliable knowledge or to improve the generalisability of earlier findings. The contribution can be used to modify, refine or replace existing theories and relationships, in order to influence Business practice.

(ii) Researchability

For a problem to be researchable, it has to involve variables which can be defined and measured. There are problems which cannot be subjected to systematized investigation. Many philosophical and ethical problems cannot be studied empirically; otherwise the findings can only yield useful information that can be used to find answers to those ethical and philosophical questions.

For instance, how can you study the influence of spiritual powers on the academic achievement of pastors? Note therefore that unresearchability is a result of unavailability of the required measuring instruments and the inability of the researcher to construct and validate novel instruments.

(iii) Suitability

The problem of investigation should be suitable to the peculiarities of the research. The problem is suitable if:

(a) It is relevant to your professional goal. It should make you more knowledgeable and more proficient in your career;

(b) It is meaningful and interesting. In which case you have to be enthusiastic enough to investigate the problem thoroughly and to persevere till the end of the research;

(c) The solution should be within your level of competence. You have to be knowledgeable in the use of the relevant instruments; otherwise you have to acquire the expertise within reasonable time.

In other words, you have to have the relevant skills, experience, expertise and competencies and be well-acquainted with the existing theories and concepts in the area;

(d) You should consider the availability of the required manpower, equipment, finance and other resources. Avoid problems with so many variables which only large scale studies by a team of researchers having large amounts of funding can tackle;

(e) You should consider that the time required to get appropriate solution to the problem is realistic for your programme. There is a time limit for research undertaken for degree purposes. You have to consider this time limit in choosing the problem;

(f) You should consider the accessibility of the respondents or subjects and the data. For instance, if you use governors, ministers or commissioners as your subjects, you have to consider how to reach them with ease.

(iv)Viability

A research problem should be viable. In this case, it can be expanded or followed up in further researches. It should not be a dead end. As you answer the research questions, further questions which require investigations should be generated.

Tuckman (1972), summarised these criteria in four points:

1. What is/are the relationship(s) between the two or more variables?
2. State the problem clearly and unambiguously.
3. Ensure that it is possible to collect data to solve the problem.
4. Avoid dealing with moral and ethical issues.

3.5 Background of the Study

This is the introduction to the study which usually contains a brief explanation of the concepts in the title as they relate to the study.
Concise information required to understand the problem is presented here. According to Ali (1996), it provides at a glance, a concise information of the major theoretical, empirical and experimental considerations or substance upon which the work is anchored.

The background information will put the research problem into perspective. It has to be sharp and precise without an outburst of personal bias. At this stage, you have to highlight all the variables of interest in the study as well as their interplay with the research problem. You can even cite few works already done in the area which prompted your investigation in that area.

3.6 Statement of the Problem

The statement of the problem is concise, clear and persuasive information on the subject matter of investigation as well as the variables planned for investigation. It needs to be very specific and direct.

It is presented in a logical sequence. It starts with such information required for the understanding of the problem, some justifications including citations and a declarative statement or an amplification in the form of question.

3.7 Purpose of the Study

In the last section, you were told that the statement of the problem is a statement which pinpoints what is wrong with or about the subject matter of interest. But the purpose of the study provides you with an overview of the intention of the study as contained in the research title and its breakdown in specific terms. What do you intend to do?

This is presented in a clearly and unambiguous statement which must be expressed in a language couched in proposed undertaken action that is tenable, sensible and practical.

3.8 The Research Objectives

These are targets you intend to achieve through the study. they show the picture after the study has been conducted.

In constructing research objectives, you have to note that simplicity and clarity of language are very important. Use short, crisp and precise statements that are measurable and achievable. Each objective should have one thought or idea. The objectives must be SMART (Specific, Measurable, Achievable, Realistic and Time bound/frame). An objective should start with an action verb.

Example;

Topic:Effects of the Recruitment and Selection Practices on the Employee Performance at ZESCO Company.

Objectives: the objectives are to;

1. Describe the recruitment and selection practices at ZESCO Company.
2. Establish the effects of the recruitment and selection practices on employee performance at ZESCO Company.
3. Determine the possible measures to improve the recruitment and selection practices at ZESCO Company so as to improve the employee performance.

Note: Do not overload yourself with work, so three objectives are enough workload for a typical Business research at undergraduate, four or five at masters and at least five at PhD.

3.9 The Research Questions

These are major questions which you seek to answer through the study. They provide a useful basis for providing descriptive data which may then be used to get richer picture of the problem investigated.

In constructing research questions, you have to note that simplicity and clarity of language are very important. Use short, crisp and precise questions. Again, the question should seek answer to one thought or idea. It should not be double barreled. Probing questions are generally preferred. The research question come from the research objectives. The objectives are translated into questions

Example

Topic:Effects of the Recruitment and Selection Practices on the Employee Performance at ZESCO Company.

Research questions: the research questions are to;

1. What are the recruitment and selection practices at ZESCO Company?
2. What are the effects of the recruitment and selection practices on the employee performance at ZESCO Company?
3. How can the recruitment and selection practices at ZESCO Company be improved so as to promote the employee performance?

Note: each question is coming (**always**) from the research objective and it is ending with a question mark. Do not overload yourself with work, so three questions and one or two hypotheses are enough workload for a typical Business research at undergraduate, four or

five at masters and at least five at PhD. Both research questions and hypotheses can be included in one study to serve different but complementary purposes.

3.10 Significance of the Study

This is the rationale for the study. It explains the use or the importance of the findings as well as who and how such information will be useful. It also explains how the findings would contribute in terms of extending the frontiers of knowledge, raising new questions or suggesting variations in the existing practice, or to reveal a gap which the study will close.

3.11 Scope of the Study

This gives you the extent of the content coverage which you could tackle with the available resources. It involves the delimitation of the study which specifies the boundaries to be covered in the study.

3.12 The Research Hypothesis

The word 'hypothesis' is a combination of two words – hypo and thesis. Hypo means "less than". Hypothesis means therefore "less than a thesis". While a thesis is a proposition to be proved or defended, a hypothesis can be referred to as a reasonable guess or thesis which although derived from some sort of evidence is yet to be tested or proved. It is a statement which gives an insight of what you expect to be the outcome of your study regarding the variables contained and investigated in the statement of the problem.

In other words, the hypothesis is in itself an explanation for certain observed or observable events, behaviours, phenomena or predictions with regards to how they occur, why they occur or when they occur. These expectations and explanations must be clear, succinct, testable and verifiable. The aim of a hypothesis is not to prove anything, but to test whether it should be accepted or rejected. This is done with data rigorously and painstakingly collected through empirical research.

According to Tuckman (1972), there are three characteristics of a good hypothesis. These are that it should:

(i) Conjecture upon a relationship between two or more variables
(ii) Be stated clearly and unambiguously in the form of a declarative sentence
(iii) Be testable.

Hypothesis can be classified as scientific or statistical. A scientific hypothesis is a suggested solution to a problem. It is an intelligent, informed and educated guess while

statistical hypothesis is a statement about an unknown parameter. For a hypothesis to be useful, it must be both scientific and statistical.

Hypothesis can also be classified as either inductive or deductive. Any hypothesis statement based on mere observation, and not based on any verifiable data or evidence, but used for predictions is an inductive hypothesis. But any hypothesis that is testable and based on collection and analysis of relevant data to support or reject, is deductive.

There are two types of deductive hypothesis used in empirical or scientific research. These are the alternative hypothesis H_a or H_1 and the null hypothesis H_0. The alternative hypothesis states that there is a statistically significant difference or relationship between two variables, two individuals or two events, (x =/ y). This can be directional or onetailed test, because it tells you the direction of the difference. For instance, x is better than y. Students who learn by practical application do better than those who learn by theoretical lessons. Trained teachers teach better than untrained ones. The alternative hypothesis can also be non-directional or two-tailed test of significance. This indicates that there is a statistically significant difference, but does not show the direction of the difference. For instance, A and B are not equal; there is a statistically significant difference in the performance of students in the science classes and those in the arts classes.

The null hypothesis, Ho is a no significant difference hypothesis. It states that there is no statistically significance between the two groups or variables under study. Thus x = y. For instance, there is no significant relationship between class size and students' performance in mathematics.

3.13 Activity

Select a research title in any area of your choice in Business and construct three potential research questions which could be used for the investigation.

3.14 Summary

In this unit, you have been presented with a practical approach towards discussing the issues about the research problem. You have seen that though it is difficult to select and define a research problem, yet if you locate a general problem area in your field of interest, you pin it down to a manageable size and state it concisely in a form that can be empirically investigated, you have solved a lot of the problems.

You have worked through the sources of research problems which include: personal experience, literature, experts' opinion, government publications, internet sources, innovative and technological changes, general Business problems, replications and theories. The criteria for problem selection include: significance, researchability, suitability and genesis of further research.

In this unit also, you learnt about the background of the study, statement of the problem, purpose, significance, scope of problem, including research hypotheses and questions and objectives. These form chapter one of the research proposal.

3.15 Revision questions

1. What are the various sources of research problems?
2. Explain the criteria for selecting a research problem.
3. Use two examples each to explain alternative hypothesis and null hypothesis.
4. Discuss the elements of the research proposal for chapter one.

13.16 Further Reading

Ali, A. (1996). *Fundamentals of Research in Business*. Awka, Zambia: Meks Publishers.

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Ikekhua, T.I. &Yesufu, J.T. (1995). *Exposing Research Methods in Business Study andReporting aid for Students and Beginning Researchers*. Warri: Ar B10 Publishing Limited.

UNIT 4

REVIEW OF LITERATURE

4.0 Introduction

In the last unit, you worked through identification of problem in Business research. You learnt that a researcher is interested in seeking for the relationships between two or more variables.

These selected relevant variables are fully examined through a thorough review of related literature. This forms the basis for the investigative process. This is because it provides you with the opportunity to look into the pool of knowledge available to you.It provides much of the theoretical reference point or basis for undertaking a proposed study.

In this unit, you will be looking at the concept of literature review, the purpose and value, sources, steps, skills, citations and ethical considerations in the review of literature.

4.1 Objectives

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

- explain the meaning of literature review
- outline and discuss the purposes of literature review
- enumerate the steps in reviewing related literature
- demonstrate some skills in citations and referencing
- list the ethical considerations in reviewing the literature.

4.2 The Concept of Literature Review

From the introduction, you have noted that no meaningful research can be conducted without a thorough literature review. It is very important therefore for you to understand what is meant by the review of literature. Literature review is the systematic study of all existing work that are relevant to the research work. It is concerned with locating, reading, evaluating and citing reports of related research.

It is a careful and systematic identification and or location, documentation, analysis and reporting of information which are relevant, related and useful to the present study. In other words, it means making an extensive searching, reading and assessment of all available materials written and related to the problem of investigation. It could also involve some consultations with colleagues, lecturers, supervisors, known experts in the area of study as

well as the library and internet sources so as to identify sources from which review information can be obtained.

Though this exercise can be tedious with some students, yet if you do it carefully and systematically, it can in fact be one of the most challenging and interesting aspects of any investigation.

4.3 Purpose and Value of Literature Review

You have already noticed that the review of related literature is very important. This is because so much has been discovered by scholars all over the world that almost every answer is available already in the literature. Therefore, all you need to do is to patiently consult the literature of past works which are related to your work in order to gain knowledge of how someone or some people had solved such type of problem you are saddled to study at the moment. Literature review serves the following purposes in research:

1. It can reveal to you sources of data that you may not have known about their existence;
2. It can describe methods of dealing with problem situations that may be similar to your own;
3. It can reveal to you how other researchers have handled methodological and design issues similar to yours;
4. It can introduce you to important research personalities whose works and findings you may not have come across;
5. It can help you to evaluate your own research efforts comparing your work with similar efforts of others;
6. It can provide you with new ideas and approaches that may not have occurred to you;
7. It can increase your confidence in selected topic if you find that others have interest in the topic or have found value in investing time, effort and resources into its study; and
8. It can help you determine the sampling strategies that should be used in order to avoid sampling problems encountered by other researchers.

Olaitan &Nwoke (1988) summarised these purposes as:

(i) uncover, discover and evaluate information;
(ii) establish new relationships by analyzing and synthesizing established evidence or discovering new ones;

(iii) replace an existing concept or completely create a new concept in an attempt to translate them into practical use; and
(iv) verify existing concepts by re-examining the premises on which the concepts were created.

Tuckman (1978) also summarised the purposes saying that Literature review uncovers:-

1. ideas about variables that have been proven important and unimportant in a given field of study;
2. information about work that had already been done and which can be meaningfully extended or applied;
3. the status of work in a field in terms of conclusion and application; and
4. meanings and relationships between variables that a researcher has chosen to study and wish to hypothesise about.

3.4 Steps in Reviewing Related Literature

Over the years, the library has been the stock house for encyclopaedia, dictionaries, textbooks, journals and periodicals, magazines and newspapers, projects, theses or dissertations. It has been a repository of writings, books and manuscripts. It has also been a kind of literary museum for books and manuscripts. If you have been to a big library like the National or State Libraries or even University Libraries and Company Libraries, the British Council Libraries, you would see that the ability to use the library is an indispensable asset to effective review of literature.

However, with the explosion of information and/or of knowledge, ideas in every human interest have been altered as a result of research findings and applications of information and communication technology (ICT).

Since libraries can no longer hold all the required information and again since the users of libraries have become more sophisticated in their wants and desires for knowledge and since ease and speed of access to information are very important priorities in library search, two types of libraries have evolved. These are the physical libraries and the e-libraries.

The e-libraries or virtual libraries provide new ways of storing and accessing vast amount of information from any part of the world. The use of computer, CD-ROMs, floppy disc, flash drive, etc. are fast replacing and supplementing the shelves of texts and periodicals.

In other words, with the computer, you can access any type of vast amounts of information, countless online data bases and manipulated factual information with increased accuracy, efficiency and little or no time.

A summary of the steps you can use in conducting your literature review are as follows:

(i) Identify, select and list the key words or concepts which are associated with the topic of investigation.

(ii) Use the selected key words or concepts to access relevant references from such preliminary sources of information as the catalogue, the index and dissertation abstracts or computerized referencing services.

(iii) When you have obtained the list of useful references you can now consult libraries and other information depositories in order to access references materials. You can also make use of the internet to access the materials.

(iv) Before you start reading, you should be able to get index cards on which to record the information, prepare a note card or index card for each reference material consulted, such that at the end you arrange them sequentially according to subheadings in the literature review.

(v) Read the reference materials and as you read make brief notes and pay attention to the problem, procedure, design, result or just the summary for theoretical opinions.

(vi) For quick identification, each entry on an index card should be clearly coded at the top using the key words for the broad topic. After this, the author's names and date of publication come next, followed by the title of the work and the full citation of the work and the ideas which you find useful.

(vii) In writing out the references in the index cards, you have to choose a referencing style and be consistent with it. You will learn more on this in the section on citation.

(viii) Ensure that you review or dwell more on the primary sources of information than the secondary sources. This will enhance the authenticity of your work, and provide you with comprehensive, unadulterated and un-mutilated first hand information.

(ix) Consult the most recent references first. This will help you to save time, get the most recent materials and avoid redundant and unnecessary materials.

(x) You will save a lot of time by first reading through the abstract and/or summary of any referenced material. This will enable you to quickly ascertain the relevance of the materials.

(xi) Lastly, organise and write-up all the insights you received while reading. This should be a critical appraisal of the state of the art in the area of investigation. You have to ensure that you understand all the related issues. The ideas must flow in accordance with the trend of thought.

4.5 Activity

Identify any topic of your choice in any area of your choice in Business. Do a literature review on the topic following the steps above.

4.6 Citations

Whenever you lift any idea or ideas from any referenced materials, you must duly acknowledge the source. This includes verbatim quotations, paraphrased statements,

diagrams, tables etc. You have to note that careless statements from newspapers and magazines are not appropriate in research. Sources can be cited in the text in various ways, while full bibliographical details of the reference materials are listed at the end of the write-up. You will see some examples later. Different formats for preparing references are available.

In Business research reports, the style used is in line with most psychological journals such as the journal of Business psychology, the journal of the APA – American Psychological Association, the British or Turabean style etc. But most universities in Zambia prefer and use the APA style.

Examples

Some of the examples are as follows:

1. For a paraphrase; the source can be cited in either of three ways. These are:

(a) in the middle of the sentence e.g. the Chalimbana University (CHAU), like most tertiary institutions in Zambia, according to Okonkwo and Osuji (2003), makes use of the two
modes of assessment for her students;

(b) at the end of the sentence e.g. our Business system needs a radical departure from the conventional face-to-face system to the unorthodox open and distance learning system (Osuji and Salawu, 2006); and

(c) at the beginning of the sentence e.g. Sikalumbi (2020). Confirms that derived scores have been shown to be more useful than raw scores in the identification of students' potentials.

2. For Quotations; if the quotation is verbatim, it is enclosed in a double inverted commas or quotation marks. You have to insert the source with the page number from where the statement is lifted e.g.

According to Osuji (2006:71), "The simplest but crude and unreliable method of estimating variability which is usually affected by the presence of two extreme scores is the range"

or

"Derived scores are more useful than raw scores for identifying the potentials of students" (Nkpa, 1992:54). or

Nwana (1979:23), said that "Measurement were not absolutely dependable, however, otherwise all ten results would have been exactly the same".

You have to bear in mind that quotations longer than three typewritten lines or more than 40 words should be indented. There will be no quotation marks, but the page is indicated after the year of publication.

You will have to note that verbatim quotations must contain the exact words, spellings, capitalization and interior punctuations of the original source. If you have to effect any change like underlining or italicizing of words for emphasis, you have to enclose the words "italics added" in brackets immediately after the underlined or italicized words.

Similarly, if you insert any remarks into quoted material, you should enclose it in square brackets. Again, if you have to omit any word or words from a quotation, you have to indicate the omission by using three dots (…). This can even be used more than once in a quoted material to indicate all missing parts.

If you want to make reference to more than one publication of an author for the same year, you have to use the letters (a, b, c, d etc) to distinguish between the different works e.g. Osuji, 2006a; Osuji, 2006b; Osuji, 2006c. If you are going to cite two or more publications in the same parenthesis, they should be arranged chronologically e.g. Jegede (2001, 2003, 2005, 2006) or Otto-Peters, 1980; Okeke, 1984, Jegede, 2001, Alaezi, 2005 and Koul, 2006.

When you want to cite joint authors, both names should be cited each time the publication is cited in the text, where you have only two authors e.g. Okonkwo and Osuji (2003). But where you have more than two, but less than six authors, all the authors are cited in the first time the publication appears in the text, subsequently, you can cite only the first author followed by "et. al" e.g. Osuji, Salawu, &Aiyedun (2006:15) … subsequently, it becomes Osuji et. al. (2006:15).

Where the authors are a corporate body, you have to give the name of the body in full in the first instance. Subsequently, citations of the publication will bear the abbreviated name e.g. National Open University of Zambia (2003), can be abbreviated to NOUN (2003).
National Business Research and Development Council (1989) can be
NERDC (1989). Abia State University (2000) can be ABSU (2000). Indira Gandhi National Open University (2005), can be IGNOU (2005).

On the reference page, all works cited in the texts or consulted should be shown arranged in alphabetical order. For unpublished theses/dissertations, e.g. Osuji, U.S.A. (2002). The Effect of Group-SelfEvaluation on Learning Outcomes. *Unpublished Masters Dissertation*. Uturu: Abia State University Library. You will have to read some research textbooks to get more examples.

4.7 Activity

Get some research or academic journals. Check the citations critically. List ten (10) different citations and examine their conformity to the A.P.A. model.

Some of the times, you have to use the internet to source for your materials. These days, every research problem or topic or words or variables can be located with ease and showing different types of findings and write ups on them. When you use any of such materials, you have to cite them.

4.8 Activity

Use your internet facilities and locate five articles in Business evaluation. Write down the URL address.

4.9 Ethical Considerations in Research

You are aware that Business research is a systematic study which makes use of scientific approaches and methods in problem solving situations. It implies that scientific attitudes should be brought to bear in carrying out such activities like the research process. Can you recollect some of the scientific attitudes you have learnt during your primary science. These attitudes which should be applied in the research process include:

- **Openness:-** especially in the areas of data collection, treatment of findings and literature review.
- **Honesty:-** especially in the areas of data collection, treatment and interpretation.
- **Humility:-** especially in the areas of validation of instrument.
- **Objectivity:-** especially in drawing conclusions from the research findings.

You are cautioned, at this moment, that you have to adhere strictly to the rules of the game in order to minimize ethical issues which are often encountered in the conduct of the research studies. According to Anaekwe (2002), such ethical issues include:

1. Plagiarism

This refers to copying someone's work without acknowledging him as the source of such information. In the academic circle, it is a very serious offence which can lead to litigation, denial of the award of degree or certificate, termination of appointment among others. Therefore, in order to apply your attitude of openness and scientific honesty, you must acknowledge all authors consulted.

2. Arm-chair Researching

This refers to people staying on their tables and manipulating figures and building up a theoretical framework, and later publishing the concoction as an empirical study. These days, students are used to coping or photocopying previous research works from other institutions and submit same in their own name, in their own institution. This is against the ethics of the research enterprise.

According to Anaekwe (2002), it negates the purpose of research and kills initiatives and intellectual growth in research business. DO NOTINDULGE IN SUCH MAL-PRACTICES.

2. Faking

The ability to Fake things involves the documentation of false information or sources of information. As a researcher, you should endeavour to present authentic sources of information used in the study.
This will enhance the content validity of your work as well as the replication of the work and the retrieval of such source materials by subsequent researchers.

3. Over-citation of a particular Author

Some students often over-cite the works of their supervisors and/or lecturers. This is not very good as it limits the research to a microcosm of available information. Avoid it.

4.10 Summary

In this unit, you have worked through the concept of literature in which you learnt that literature review is the careful systematic identification and/or location, documentation, analysis and reporting of information, which are relevant, related and useful to the present study.

You have seen the purposes of literature review as summarised by different authors. The steps in reviewing literature have also been presented in the unit. Different ways of citations have been also been presented. Again, some ethical considerations have been discussed. Read more from your reference materials.

4.11 Revision Questions

1(a) What is literature review?

(b) List the purposes of literature review.

(c) Outline the scientific attitudes applicable to research and the ethical issues in research.

2. Take any textbook or journal of your choice and list ten (10) references cited.

4.12 Further Reading

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Nkpa, N. (1997). *Business Research for Modern Scholars.* Enugu: Fourth Dimension Publishers.

http://www.nounonline.com/noumgt

UNIT 5

POPULATION AND SAMPLES

5.0 Introduction

Welcome to unit 5. You have been told that one purpose of research is to discover new knowledge that can be generalised to a defined group.Acentral and sustainable premise upon which scientific research is based is the investigation of a problem using a small representational and proportionate group that is observed and from whom findings made are generalised to all others who were not investigated.

Generalisability of research findings is dependent, as much as possible, on the extent to which the population of the study is defined and on the adequacy of the sampling procedure used in the in the study. Since these concepts – population and sample are of fundamental importance to research, we shall discuss them in this unit in relation to Business so that you will understand what they mean and also appreciate their importance.

5.1 Objectives

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

- define population and sample
- explain the sample size
- differentiate between probability and non-probability sampling techniques
- discuss the sampling techniques.

5.2 Population

This concept population, most of the times, is used to describe the total number of people living in a defined geographical entity or area. This is as it relates to the common usage of the term population. But in research, population is not limited to human beings alone, it includes objects, events, people that have at least a common characteristic which is common to all of them.

Apopulation refers to all the elements in a well-defined collection or set of values. Kerlinger (1981) defined population as all members of any well-defined class of people, events or objects. It means therefore that any entity, group or set which constitutes a population must have at least one attribute or characteristic which is common to all of them.

The population of a study therefore represents the target of the study as defined by the aims and objectives of the study. When you conduct a research study, you have a particular population in mind. For instance, accountants/HR in the unity organisation, general workers in an organisation, marketing officers at Zambeef or Trade Kings, women farmers in Mkushi agricultural zone, Professors in Zambian Universities etc.

A research is expected to yield findings which can be applicable to the entire universe, a section of the universe, or certain elements in the universe.It means therefore that the population to which a researcher intends to generalise his or her findings is known as the target population.

5.3 When to Study the entire Population

You would have noticed that whenever the term population is mentioned in common usage, it often implies a huge number of people. But in research, the term represents numbers which may range from very few to very many people, things, objects, events etc. depending on the nature of investigation to be carried out. You have also noticed that in most studies, samples are drawn and studied with a view to generalizing the findings to the entire population. However, some of the times, it is necessary to study the entire population. This is possible under the following conditions:

(i) When the research involves a population of very few subjects. If the study involves a population of relatively few people, institutions, objects, events or things. It is better to study the entire population. Again, if members of the population are few and hold views or characteristics that should not be neglected, or when sampling cannot be representative of the population, then the entire population is studied.

(ii) When enough time and resources are available the entire population can be studied. When there is enough time and fund the entire population can be studied.

(iii) When the research specifically seeks to determine the population, in some situations there is a need to determine the precise number of subjects belonging to categorized set of characteristics.

(iv) When the topic demands the study of a specific group,- sometimes such group can be distinguished from any other group or persons e.g. the classification of prisoners at the Kamwala Prisons by gender and geopolitical zones.

5.4 Activity

1. Give ten examples of a target population that can be used for research purposes in Business.

2. Give five examples of situations where the entire population can be studied.

5.5 Sample

From the previous unit, you learnt that certain kinds of research can be carried out using the entire population. When you study an entire population, you are more able to generalise your findings to that population. Most of the times, the target population is too large for a researcher to study. The number of subjects may be too many for the researcher to handle with limited resources available. The geographical spread or area may be two wide to cover with the limited time for the research. As a result of cost, time and other constraints, it may be very difficult to study the entire population.

It becomes necessary, reasonable and only feasible to study a portion of the population which is described as sample. It means therefore that the portions of populations that are studied on the bases of which conclusions are made on the entire populations are called samples. These samples represent populations, so we can have samples of people, objects, institutions and things. For instance, a researcher who wants to study local government administration of primary Business in Zambia may decide to take 20 out of 118 local government areas in Zambia for the study. If your study is on banks, you can only sample a number of them. It is not possible for you to study all in Zambia. You can only take samples.

If the sample does not truly represent the population, inferences drawn or decisions taken about the population characteristics from such sample cannot be valid, no matter how powerful the statistical techniques used. Therefore, no new knowledge would be generated and efforts and resources would have been wasted.

5.6 Sample Size

Once you have identified your target population and its characteristics, two major issues may be required to be taken care of. These are how to compose the samples and the sample size. The composition of the samples will be treated in the next section.

On the issue of determining a sample size, which would adequately and appropriately represent the population it would be drawn from, you will note that a large sample size increases the likelihood of accurately estimating the population characteristics from the sample. You should, therefore, select a sample which is large enough to improve the possibility of getting results which may be similar to what you would have obtained if you had used the entire population. There is no single number which has been fixed as an ideal sample size.

The sample size is dependent on a number of factors. These factors include:

- expense in terms of time and money;
- subjects availability to participate in the study;
- size of the population of the study;
- management and control abilities of the researcher;
- complexity of the research conditions and that of the data to be collected and analysed;
- efficiency in drawing the sample itself;
- level of cooperation expected of and available from the proposed sample/

However, a large sample is much more likely to be representative of the population.

5.7 Activity

1. Differentiate between population and sample.
2. What are the factors which affect sample sizes?

5.8 Sampling Techniques

Sampling techniques are simply defined as methods of drawing samples from total populations. These methods are classified into probability sampling and non-probability sampling;

5.9 Probability Sampling

A probability sampling is one in which chance factors determine which elements from the population will be included in the sample. It is therefore theoretically possible to calculate the probability that any specific element in the population would be included in the sample. In practice, probability sampling techniques are known to generate valid samples that are truly representative of their large populations. This is because of the principle that gives all the individual subjects of the larger population equal opportunities of being selected and included as members of the drawn samples. The probability sampling techniques include: simple random sampling, systematic sampling, stratified sampling, cluster sampling, etc.

5.10 Non-Probability Sampling

These are samples for which the probability of a member of the population being selected cannot be calculated. Statistical inferences cannot be used to legitimately to generalise statistically from a non-probability sample to the target population. Generalisation from

non-probability sample can only be made by satisfactorily replicating the investigation in several contents. The nonprobability sampling techniques are known to generate biased samples which are not truly representative of the total population. The techniques include: purposive sampling, volunteer sampling, quota sampling, captive sampling, accidental sampling, availability sampling etc.

Probability Sampling Techniques

This section will describe the different types of probability sampling techniques.

Simple Random Sampling

A critical feature of this sampling technique is that each member or element of the defined or target population has an equal probability or chance or opportunity of being selected, and that the selection of each case, member or element from the population is independent of the selection of another. By independence, in this case, we mean that the selection of one member or element or case does not in any way affect the selection of any other member of the population.

The main purpose of using random sampling techniques is to select a sample which is representative of the population and which can yield data that can be used for generalisation to a larger population.
The simple random sampling requirements of independence and equal probability are met by the use of a variety of methods. These are;

(a) Balloting or Hat and Draw method

This is otherwise called the lottery method in which all the subjects in the population are listed or numbered in cards or papers. These papers are shuffled and re-shuffled. These cards are then drawn from the container one by one, with or without replacement. Any number picked up forms part of the sample.

(b) Table of Random Numbers

This is a more systematic, refined and scientifically generated random numbers. It is a continuous sequence of numbers which do not appear in any particular order and which is generated by computers.
To use the table of random numbers, you have to number the population serially from one to the last person, event, object, case of element. You can then, at random, select a number from any page or point, row or column and draw your sample using the first two, three or four digits or you can use the last two, three or four digits. During the process of drawing

your samples, if a number appears twice, or a number is larger than the population size, you have to ignore such numbers and continue until your sample size is composed.

The limitation in the use of simple random sampling is that, it can only be used with small population, since you have to enumerate or number all the subjects in the population.

Systematic Sampling

This involves, first listing in a serial order, all the events, persons, objects or things in the whole population. After this, the population (N) is divided by the sample size (n) to get the Kth interval. Once the Kth case is decided, all others are automatically selected. For instance, assuming you have a population of 1,000 people and your sample size is 100. Then Kth position will be given by N/n = 1000/100 = 10. It means that every 10^{th} position or interval is automatically selected as part of the sample.

Thus, numbers 10, 20, 30, 40, etc. are already selected. You can even select any number: 1, 2, 3, …. 10 as the Kth number. For example, if the Kth case is 5, then 5, 15, 25, 35, 35 etc. become members of the sample.

You would have noticed that independence is not ensured in systematic sampling. This is because, once the first member – Kth is selected, every other member of the sample is automatically determined. This is a limitation in the use of this method.

Cluster Sampling

When the population of the study is very large and widely dispersed or spreads out, it poses administrative problems to use simple random sampling. For instance, in a population comprising of all the students in the School of Leadership and Business Management, at CHAU you will note that it will not be easy to enumerate all the members of the population. Again, it will be impractical to sample from every cohort. You have noted that a researcher is always interested in composing a sample which must represent the characteristics of the target population. But the characteristics of any given population can be quite enormous. Therefore, in cluster sampling, the researcher identifies his research interest characteristics and where or in what areas these characteristics exist. If the population is large or the area is widespread, he may decide to zone the area reflecting these characteristics and then random samples from each of the identified zones.

The emphasis here is on the characteristics of the sub-group and not on individual. For example, in using the population of all the business students, one may decide to sample per programme. It means therefore that any programme selected forms a unit of the study. All the students in that programme will be used. Another example is that of a researcher who wants to use three Zambian languages – Bemba, Nyanja and Lozi for his research study.

This is because, if he wants to get his sample from Zambians, he may end up getting respondents who are not Bemba, Nyanja and Lozi.

Cluster sampling saves time and resources. It is mostly used in research where there is an urge or desire to study the characteristics of respondents in their natural settings or to ensure geographic representation of noted groups whose special characteristics are of interest to the researcher.

Stratified Sampling

In a given population, there exists abundance of population characteristics. A whole range of differences can exist even within a particular characteristic. For instance, in using weight of individuals, you have heavyweights, lighter weights, cruiser weights, feather weights etc. In many Business studies, you will notice that the population is by nature stratified. You have differences in gender, occupation, income, socio-economic status, geographical location, qualifications, age, height, colour, dialects,business type etc.

Stratified sampling is appropriate when the population consists of a number of sub-groups which are homogeneous or contain members that share common characteristics, which need to be represented in the sample. Randomisation is then used to select members from the subgroups in such a way that the proportion of each sub-group in the population is reflected in the sample.

Stratified sampling is appropriate when the study is required to compare sub-groups or when the sub-groups are likely to influence the level of the dependent variable.

5.11 Activity

1. What are the major features of probability sampling?
2. What are the probability sampling techniques?

5.12 Non-Probability Sampling

This can be called biased sampling or non-random sampling technique. This is because the chances of an element, person, object, event, thing etc. being included in the sample are not the same. Some may have more advantages than the others. It does not involve randomisation and therefore may have high sampling error and generalisation is limited. The non-probability sampling techniques are further subdivided into:

Purposive Sampling

This is necessitated when the researcher is interested in certain specified characteristics. It ensures that only those that meet such required purpose, attributes or characteristics are selected. For instance, a study of the Vice Chancellors of public Universities in Zambia, or a study comprising Local Government Chairmen/mayors in urban provinces of Zambia.

In these cases, you will notice that you can only use those who are Vice Chancellors in public Universities or the Local Government Chairmen/mayors in urban provinces of Zambia. They are few and are known.

Volunteer Sampling

This is used when every member of the population cannot comply with the demands of the investigation. Therefore, these individuals who are willing to comply with the demands of the investigations are used. These are the volunteers who are willing and ready to cooperate with the researcher.

But this is a biased sample because those volunteers differ from the entire population and from the non-volunteers in many of the characteristics.

Captive Audience

This is just like an intact class used by the teacher for a research purpose. The generalisation should not go beyond the class.

Quota Sampling

In this method, the researcher selects a certain number of respondents in proportion to their number in the population, but without randomisation. A good example is where all the provinces in Zambia are given quota admissions in public universities or unity organisations.

Accidental Sampling

This can be called availability sampling. This is because it makes use of the respondents available at the time. Participation is based on availability. This is very common with pressmen or journalists. They interview or use anybody available at the time.

5.13 Summary

In this unit, you learnt that total population is the universe of individuals, things, objects, events, units, elements etc. possessing the same stated characteristics. Sampling means drawing of samples from a population or populations in research.

A sample is a part of the population. It must be the true representative of the target population in all its parameters or characteristics. Findings made from the samples are generalisable or truly ascribable to the population, if the samples are randomly composed and are representative of the population.

You learnt that there are two major types of sampling techniques. These are:

(1) Probability sampling, which ensures that the sample selected is validly representative of the target population. This is done by employing the mathematical or statistical theory of probability or chance and randomisation in composing the samples. The methods of sampling here include: simple random sampling, systematic sampling, cluster sampling and stratified sampling.

(2) Non-probability sampling, which generate biased samples that are not truly representative of the target population from which they are drawn. The sampling error is large and findings cannot be used for generalisation beyond the samples. Under this, we have purposive sampling, volunteer sampling, captive audience, accidental sampling etc.

5.14 Revision Questions

1. Differentiate between population and sample with examples.
2. Differentiate between probability sampling and non-probability sampling with relevant examples.
3. List and discuss the probability sampling methods.
4. Enumerate the non-probability sampling methods.

5.15 Further reading

Ali, A. (1996). *Fundamentals of Research in Business*. Awka, Zambia: Meks Publishers.

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

UNIT 6

RESEARCH DESIGNS

6.0 Introduction

Most of the times, certain natural events occur. These events may occur in the air, land, sea, inside our brains or inside the body, in our organisations and organisation systems, anywhere and everywhere. These events can become of considerable interest to people who study the various entities and attributes.

Among these people are Business researchers, scientists and researchers from many other fields. You can see that most of the things we use today for our comfort and productivity are the products of one research or the other. We can then say that the products of research are invaluable in all spheres of our human developments.

Therefore, the framework of how we carry out these researches must be clearly defined and universally accepted. It means also that in every field or discipline, the development of the structure of that particular field or discipline and its function to the society, through research, must follow a clearly defined and acceptable framework. It is this framework that provides the modus operandi for research in that particular field or discipline.

In Business, this framework which is followed in conducting research is called research design, while the activities carried out within the design specifications constitute the research methodology. In other words, the research methodology is the knitty-gritty work aspect of the research.

In this unit, you will learn more about the research design and in subsequent units, you would learn the types of research designs.

6.1 Objectives

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

- explain the concept of research design
- discuss the components of a research design
- list the types of research designs.

6.2 The Concept of Research Design

In the introduction above, you read that the research design is regarded as a framework, a structure to be followed in conducting the research. You will also note that a research design is seen as a master-plan or a blueprint for the research activities which the researcher intends to use in order to carry out a full investigation of the problem of his interest. The research design tells you what to do and how to do it. According to Kerlinger (1973:300), it is "the plan, structure and strategy for investigation conceived so as to obtain answers to research questions and to control variable".

You can see from this description that the design is aimed at providing answers to research questions and the control of variable. These are the two basic purposes of a research design which you should take cognizance of right from the time you formulate your research hypotheses, assumption, questions, etc. to the final analysis of data.

The research design determines the nature and scope of the study which you propose to carry out. Take for instance that you plan to build a house. What are the necessary things you do? You will notice that you design the plan of the proposed house based on the size of your land and based on the funds available, you start to make available the materials to be used etc. The design of the building gives you ideas of the type of materials, the labour and the type of house you are building. In Business, a research design is very important because it provides you with the information leading to your knowledge of what kind of method you will use or plan to use.

When you are writing your research project report, your framework or structure should include a section on what type of design as well as why that particular design is used. A very important feature or attribute of a research design is that it must be adequate and appropriate for use in the investigation of the problem of the study. If this does not happen, you will run the risk of being stuck with a dead end or misleading procedures, data and conclusions. You see, this will be detrimental to your study. It means that different research designs are appropriate for particular types of studies and not for every type of study.
Consequently, it is necessary for you to select and equally important, to comply with the best design suitable for your study. You are warned to avoid short-gun approach to research. Let us go to the next section which talks about the components of a design.

6.3 The Components of a Research Design

A typical design in Business research is made up of five major components. These include: sampling, grouping, research conditions, data analysis and conclusion based on the testing hypotheses or answering research questions.

Before we continue, you have to note that it is possible for the type of study you plan to undertake not to include one or more of such components in the design of your study. For

instance, some survey researches would not require any research conditions other than administering questionnaires to the samples.

6.4 Sampling and Grouping

Research is carried out for the sole purpose of discovering or rediscovering phenomenon in the form of events, laws, principles, occurrences, etc. which have applications that are beneficial to mankind.

Majority of the research studies are not carried out on a whole population. This is because it would be too expensive, unwieldy, timeconsuming and perhaps impossible and undesirable. Due to the fact that attributes of any large population are quite numerous and liable to change continuously, it may be impractical and limiting to study them at one and the same time, if at all. The cost and other involvements arising from this would be unimaginably enormous.

Now, imagine you want to conduct a study on CHAU Students numbering about 7,000, throughout the Zambia. You will need a very bulky research documents, hundreds or thousands of research assistants, thousands of hours of computer and pre-computer analysis work, and so many sleepless nights. If this is so, think of what it will be like when you have populations running into millions.

You will recall that we have defined population as any groups or objects which a researcher wishes to study and which, of a necessity, have one or more common characteristics that are of interest to him/her.

Now that you have seen that it is not possible, practicable or even desirable to study all the attributes of a population, what do you do? You are advised to restrict your investigation to a small fraction of the population or universe of interest to you for your study. This small fraction or subset of the population selected for investigation in the place of the population is called sample. Every participant in a research study constitutes the sample or subjects. You have already noted that the method of composing the sample is called sampling.

You will notice that for research purposes, it is necessary to have two or more groups of subjects. In this case, grouping of the samples becomes necessary. But if only one group is needed, then no grouping is required.

6.5 Activity

Is it advisable to study all the attributes of a population? Give reasons to support your answer.

6.6 Research Conditions

When you conduct a research study, there are some activities or events which constitute the conditions under which your research is expected to proceed, be observed and to yield required data. These are regarded as the research conditions. They relate to answering of such questions about the research with regards to: who will do what, when will it be done, with what will it be done and how will it be done? Research conditions vary from one type of planned study to another.

In Business researches, some research conditions may involve the administration of questionnaires or the interviewing of the subjects. In some others, the research conditions may simply involve observing and recording certain behaviours exhibited by the subjects. In yet another research condition, it may involve examining, recording and analyzing historical or case study records or classifying events in different categories.

Research conditions may also involve carrying out experiment. In this case, the research conditions are more detailed and demanding. An experiment imposes rigorous research conditions to enable the researcher establish the presence or absence of a cause-effect relationship in the phenomenon studied.

There are two forms of research conditions in an experimental study. These are the treatment conditions and the control conditions. You will study them in details later in this module.

There are some important considerations which you need to take for your effective and efficient handling of the research conditions of your study; regardless of whether it is an experiment or not. You are required to carefully and methodically comply with the clearly pre-determined nature and scope of events which constitute the research conditions. For instance, if you have two or more groups of students and you want one group (A) to use a method of solving Mathematics problem and the rest (B or C) to use another method, you will make sure that no one from group B or C etc. contaminates group A by seeing or using their own method. So you have to make sure that events which constitute the treatment conditions are unique and different from the events that constitute the control conditions.

The next consideration is time. For how long would the events constituting the treatment and control last? How would each be phased, tested, data recorded etc? Who would be involved in doing the different aspects of the research conditions as far as the groups, researcher and the research assistants are involved?

6.7 Data Analysis

This means the treatment of data so that they become summarised or reduced to a point they can be meaningfully interpreted. Research data convey little or no meaning unless they are analysed and described. But before you analyse data, you have to know first the scale or the kind of data.

You will recall that data can be nominal i.e. descriptive classification; ordinal i.e. ordered arrangement; interval i.e. relatively constructs distance between judgments; and ratio which has absolute zero. Again, you have to note that the type of data for analysis would determine the type of statistics to be used for such analysis. If you use statistics which are not appropriate for your data analysis, you derive little or no accurate and verifiable meaning from such analysis. Therefore, you should know what kind of data you are collecting in your study and then the appropriate statistical test to be used for analyzing the particular data.

There are two main types of statistics used in data analysis in research. These are the descriptive statistics which are used for describing the data and for answering research questions. The other is the inferential or parametric statistics which are used to make inferences, judgment and/or decisions about a population parameters based on data obtained from the study of the research sample. You will learn more about statistics in Module 4.

6.8 Activity

1. What is data analysis?
2. What are the two types of statistics?

6.9 The Types of Research Designs

There are basically two types of research designs. All studies in Business are either descriptive research design or experimental design. Some of the times, we have a combination of both. Included in these two types of designs are historical research, developmental research, case study research, correlational research, survey research, experimental research, designs etc. You will learn more about these designs in subsequent units.

You need to note that in general, the type of design for a particular study could be correctly inferred or derived from the title or topic of study. It means that right from the time you choose your research topic, you are already battling with the choice of the design of the work. If you take a close look at the table below, you will notice that some operational words in your topic direct you to the design for that particular topic.

***Table 6.1*:** Research Designs and the Nature of Topics

S/N	NATURE OF RESEARCH TOPIC	TYPE OF DESIGN
1.	(a) Relationship between …… (b) A correlational study of……. (c) X and Y as a covariant of…..…. (d) A comparative study of…….	Correlational Research Design
2.	(a) Influence of …… (b) Incidence of …… (c) Perception of …….. (d) Impact of ……. (e) Evaluation of …….. (f) Attitude of ……..	Survey Research Design
3.	Effect of …….	Experimental Research Design

6.9.1 Developmental Research Design

This is a type of descriptive study which involves an investigation of patterns and sequences of growth or changes that take place with time. You can study the development of Business in a particular district, or the development of interest patterns in children. Developmental research seeks to ascertain how some dimensions, variables or characteristics of given population change with time. Its thrust generally lies in finding out how these characteristics of the target population change over time, at what rate, in which direction and the factors which possibly contribute to these changes. Developmental research can be longitudinal or cross-sectional.

6.9.2 Longitudinal Research

In this type, the same groups of subjects are studied for a period of time. Observations are carried out on these subjects from time to time within the period of research to note any changes in the particular characteristics under study. The data are collected and analysed to see if there are patterns and sequences which underlie the development or unfolding of these characteristics. It provides a more valid approach for studying developmental trends.

But it has its own limitations. You will recall that it involves observing the subjects over a period of time. Don't you think that some may drop out on account of transfer, ill-health, or death? What if something happens to the researcher to prevent him from continuing the study? It takes a long time to complete. That means that there must be enough funds to

sustain the study. If this is not the case, what happens? Again, by the very nature of longitudinal research, modifications are not possible once the study has started.

6.9.3 Cross-Sectional Research

This involves sampling a cross-section of the subjects of varying ages for the study. It means that instead of following the same group of subjects for a very long time, a cross-section is sampled to be observed at the same time. The characteristics of the subjects at different age levels are examined and analysed to reveal possible trends in development. This approach makes it possible for many subjects to be studied at the same time. It is cheaper and quicker.

But it is less accurate than longitudinal research. Because the subjects differ in other relevant respects apart from age, the differences in the developmental patterns and sequences observed at different age levels may not solely be attributable to age alone.

6.10 Survey and Case Study Researches

6.10.1 Meaning of Survey Research

Let us start this section by saying that a survey is "a descriptive study which seeks to document and describe what exists or the present status of existence or absence of what is being investigated".

A survey develops a profile on what is and not why it is so. Surveys do not relate one variable to another. Instead, information is sought and collected on the subject of investigation and described. They are used to ascertain the nature of a phenomenon from a relatively large number of cases. If the entire target population is studied, the survey is called census.

As generally conceived, a survey research deals with the study of a group of people or items by the collection of and analyzing of data from only a few people or items used as samples of the entire group. You have learnt about research designs in some details. A survey research makes use of research design like every other type of research. This design specifies how data will be collected and analysed.These include the relevance, reliability and validity of the information collected, accurate enumeration, appropriate and accurate measuring instruments for constructs or variables of interest and accurate data collection procedure.

6.10.1 Classification of Survey Research

Classification of survey research can be done on two schemes. The first classification scheme is on the basis of the procedure, technique or instrument for data collection (see Borg & Gall, 1979. & Kerlinger, 1979).

Using this scheme, we have:

(a) Questionnaire
(b) Interview (c)Observational, and (d)Panel surveys.

Questionnaire Survey

Every survey studies which employ the use of questionnaires as the major data collection technique or instrument are called questionnaire survey.

Interview Survey

Here interview constitutes the major technique for gathering relevant information. Interview involves getting out information through verbal interaction between the respondents and the researcher.

Observational Survey

This is the type of survey involving the use of observation to collect data. It involves gathering information through observation for the purpose of measuring variables.

Panel Survey

This employs a definite procedure or technique of data collection. Here, data are collected from a given sample at two or more different time periods. The data are then analysed to discover trends or changes in the opinions of the subjects over the period of time under study. It is suitable for studying trends or fluctuations or changes in the subjects, opinions, attitudes or behaviours. It can be useful in studying how stable a group of people's attitude towards an issue or object is over time or how an identifiable intervening variable can influence such attitudes.

Another way of classifying surveys is by the purpose to which the particular survey intends accomplishing. Here, we have: developmental, descriptive, correlational and public opinion surveys.

We are going to touch briefly on these types too. This is because they have found expression somewhere in this course. So you either have come across them or will come across them subsequently.

Developmental Survey

You have learnt that it seeks to ascertain how some variables or characteristics of a given population can change with time. It can be longitudinal or cross-sectional studies.

Descriptive Survey

All those studies which aim at collecting data, analyzing them and describing in a systematic manner the characteristics, features or facts about a given population is called descriptive survey. The studies are only interested in describing certain variables in relation to the target population. They are concerned with a description of events as they are. Look at this topic: "The performance of students in accounts/economics at CHAU.

You will notice that this study is only interested in describing the performance of the students in accounts/economics at CHAU only. It may not be interested in going into details about the causes of the performances. Can you think of any other topic like this? Now take a look at this: "A survey of the in-service training needs of HR in the Ministry of Education".

Correlational Survey

In this type of study, you will need to establish whether or not the type of relationship which exists between two or more variables.

Public Opinion Survey

This is usually designed to find out the opinion of people in a given area toward an issue or event that is of interest to the general public in the area. This area can be a large one such as a country like Zambia, a small town like Chongwe, a university campus or even your study centre. Usually, cross-section of the population is sampled and interviewed or given questionnaires to fill. Any results obtained from the sample may be generalized to the entire population. Most of the time, randomization is not used in the sampling method. This makes the generalization invalid. Non-probability sampling is used most of the time. Public opinion surveys are used for prediction of election results and what the people feel about any government programme.

6.10.2 Advantages and Disadvantages of Surveys

- Surveys are relatively cheap and easy means of collecting large amount of data concerning a given problem. It can be costlier than experimental studies, but if you consider the quantum of data collected, you will see that it is no doubt cheaper.

- Surveys permit the use of a great variety of procedures and instruments in data collection. It is possible to use questionnaire, interview, observation, test or a combination of these.

Under the limitations, we can say that surveys do not give in-depth data about the characteristics of the population under study. You see that most questions used in survey researchers make the respondents tend to be superficial and do not contain as much detailed information as possible. It limits the generalisability of the responses obtained.

Some responses are faked, but you have no means of detecting which responses are faked, you are compelled to believe in what has been given to you.

6.11 Case Study Research

This is an in-depth intensive study or investigation of one individual, a small unit or a phenomenon. When we say a small unit here, we are referring to a family, a organisation, a church, a classroom, an association, a teacher, an administrator or a group of these.

A phenomenon can be taken as a case or an issue. For instance, the impact of unemployment among university graduates in a local government area, the influence of examination malpractices on the standard of Business in Kitwe, the impact of cultism on the peaceful coexistence of students in the University, and the influence of religious intolerance on the life styles of the Tongas/Luvale. Case studies are used for solving specific problems through in-depth study for documenting social realities, life cycle, change or growth.

If you study the works of Sigmund Freud, Jean Piaget etc. you will notice they were case studies. The studies on human growth and development were all case studies. The underlying basis for the use of case study is the belief that probing and studying intensely one typical case can lead to insights into our understanding of individuals, events, social units etc. typical to the particular case study. For instance, if you study one case of a cigarette smoker, you have by implication studied other cases involving smokers. This poses a problem of other cases not studied. The implication is that it is risky to draw a general conclusion to other cases based on only one case studied. You have seen that case studies samples are not representative, so their findings are not generalized. But in-depth studies may reveal certain relationships that may merit investigation on a wider scale. It means that

when you want to use this type of study, you have to exercise extra care and thoughtfulness in selecting a case for investigation that would be fair and adequate representation of a whole range of similar cases.

Case study research may appear simple, but in reality, it is difficult and time-consuming. This is because of the volume of data collected through painstakingly methodical, skill-demanding counselling sessions, interview sessions, data sifting sessions, travels, etc. involved. All these require efforts, skills and patience. But the major limitation is the non-representativeness of the samples and subjectivity.

6.13 Summary

In this unit, you have learnt that a research design is a blueprint or plan of action as regards events which upon implementation would enable you to investigate the problem of your study. You have also learnt that there are five components of a typical research design. These are sampling, grouping, research conditions, data analysis and condition. You also looked at some of the major research designs in Business research and survey types. We shall look at these designs in details in the next units.

6.14 Revision Questions

1. What is a research design?
2. List the five components of a research design.
3. List three major types of research design.
4. Discuss the types of research surveys.
5. Differentiate longitudinal research from cross-sectional research design.
6. Explain the case study research design.

6.15 Further Reading

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Nkpa, N. (1997). *Business Research for Modern Scholars*. Enugu: Fourth Dimension Publishers.

UNIT 7

DATA COLLECTION INSTRUMENTS: OBSERVATION

7.0 Introduction

In the last module, you worked through the various designs that you can use in your Business research. In this module, we are going to look at the major ways of collecting data for your research. The first among these methods is observational technique.

Observation, as a method of data collection or obtaining information in research, involves measuring variables or gathering the data necessary for measuring the variables. A variable is measured so that it can be related to other variables. Before we continue, let us look at the objectives of this unit.

7.1 Objectives

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

- explain the observational technique of data collection
- describe observational variables
- explain the phases of observational method
- discuss the recording of observations
- describe the validity and reliability of observations
- highlight the problems of observation
- list the advantages and disadvantages of observation.

7.2 Observational Technique: An Introduction

Observation can be regarded as a process of looking out and recording the presence or absence of a particular trait or behaviour of a person or group of persons. According to Nworgu (1991), observation, as a method of data collection, involves watching people, events, situations or phenomena in order to obtain first-hand information about a particular aspect of such person, event, situation or a phenomenon. Some of the times, you may have certain information relating to some aspects of human behaviours which may not be easy to obtain except you are in that particular setting where such behaviours are exhibited. It may not surprise you that most of the times information provided by respondents in questionnaires and interviews can be inaccurate, prestigebased or faked. But observational

techniques make it possible for you to obtain first-hand information about the person, object, event, situation, and phenomenon or object-event interaction of interest.

In other words, instead of using the other methods which can easily accommodate response faking and personal bias, you can decide to obtain your information directly by means of naturalistic observations. For instance, if you are a technical instructor and you are required to fill in a questionnaire and list the methods you use for teaching prevention of accidents in the organisation workshop, what will you do? You will go and list the best and current methods available, whether you use them or not is another thing. But if you are watched at random while teaching your class, we may be able to obtain the actual methods used. Observation characterizes or is used in all types of research, be it experimental or non-experimental. Observation techniques are challenging. They need to be planned and carried out in a systematic way.

7.3 Observational Variables

Anytime you have decided to conduct a research that requires the use of observation, it is necessary that you identify and define the observational variables. You know that human behaviour is complex and as such important characteristics and/or traits are very difficult to observe directly. You must therefore, try to define them precisely in operational terms. For instance, if you have a problem about teachers' attitude to work, you will first understand that the problem is broad, can suggest the use of observations, but it requires the determination of the specific observations that should be made. You have to develop such expectations that you think signify attitudes to work. After this, you have to limit the focus of your observation considerably by defining the important variables to be observed and recorded based on your expectations.

For example, a typical expectation will be that teachers who have positive attitude to work are always punctual to their classes. At this juncture, you should define the behaviour units and time units by determining what constitutes positive attitudes of teachers to work. These may include prompt reaction to students' problems and queries, prompt marking of tests and assignments, marking of registers and attendance records, up-to-date lesson plans/notes, up-to-date in the knowledge of the subject matter, classroom management etc. You should avoid vague definition of behaviours because they could lead to guesswork.

7.4 Types of Observational Variables

There are three types of observational variables. These are:

(a) Descriptive or Low Inference Variables

These variables need little or no inference on the part of the observer. They generally yield reliable data. This is because if there are more than one observers, the level of their agreement in recording the same kind of behaviour is expected to be high e.g. the number of times a teacher comes late to class, the number of questions asked by the teacher in a lesson, the number of assignments given to the class in a week, etc.

(b) High Inference Variables

In this case, an observer needs to give an inference before scoring the variable. It is not easy to collect reliable data on such variables. The level of agreement between two observers recording the same behaviour will be low. For instance, if there is an oral interview for the employment of ZICA accountants/teachers, you will notice the type of self-confidence exhibited by the interviewees in answering questions from the interviewers. You will see some answering with a great deal of confidence, some may appear un-sure of themselves; some may appear confused, while others may be nervous. You will note that these are not behaviours, but variables that reflect the different levels of competence of these teachers in the areas of questioning. To this effect, inferences can be made from these behaviours.

(c) Evaluative Variables

Here, more than inference is required on the side of the observer. You need to make an evaluative judgment. For instance, if a teacher is making an explanation or description about a statistical concept, while you as an observer, need to rate or score the quality of that explanation. You will notice that quality ratings are not behaviours, but inferences made from behaviours. You will find it difficult to make reliable observations of evaluative variables. What you should do in this case is to collect examples of such behaviours and define points along a continuum from excellent-to-poor explanations and use it for such ratings.

7.5 Phases of Observational Method

The six phases of systematic observation are given below:

(a) Definition of Aims and Objectives

If you want to conduct a systematic observation, you should start by defining the focus of your observation. You cannot observe everything in every situation. You have to decide what to observe by defining the aims and objectives of the observation as derived from your hypotheses and/or research questions. For instance, if the research question is "What instructional aides are used in the introductory technology lesson?" Then you must ignore other aspects of the lesson and focus on the instructional materials. Here, your objective

may be to identify the different types used, to count the number of each type used, to record the number of times each type is used, etc. In this case, you will be collecting relevant data for the solution of research problem.

(b)Selection and Definition of Attributes

At this point, you will need to select and define the target objects and events. For instance, if your focus is on the instructional aides, you have to identify items which would be classified and accepted as instructional aides. Models, drawings, specimens, charts, projectors, machine tools, hand tools, pictures etc. You will also need to define the characteristics of each item to differentiate it from others. For example, what differentiates a machine tool from a hand tool? On the term "used", for instance, if a machine tool is mounted on the floor of the workshop when it is used, if it is referred to, if it is used to explain something? Or if it is manipulate?

It is necessary that these things are clarified to prevent confusion in categorization among different observers or by the same observer at different times, different places or different encounters; it improves the reliability of counting and recording procedure. Abstract qualities such as inquiry, honesty, stress etc. should be well-defined by their denotable characteristics.

(c)Selection of Observation Modes and Training of Observers

At this stage, you have to take a decision on the type or mode of observation to adopt. You can decide to use the natural senses or technological gadgets. You can decide to be a participant in the target situation or a non-participant. You have to know which mode is more appropriate for the particular situation before the actual observation.

Your choice of observation mode should be guided by the consideration of having minimum interference can be achieved by the use of one-way screens, remote sensors, light differential and elevated corridors. These will keep you out of the views of the subjects. You can use micro-recorders to make the subjects less conscious of being observed. If you choose to be a participant observer, do not play a leadership role.

(d)Administrative Arrangements

For you to carry out a systematic observation, you have to make adequate arrangements and proper planning. These will enable you obtain valid data. If it is in anorganisation situation, you have to seek for the cooperation of the organisation heads, the teachers, look for and mount appropriate technological gadgets and plan and adopt such strategies that will ensure minimum dislocation of the phenomena under observation.

(e) Observation

As much as possible, let your observation focuses on the low-inference and not denotable characteristics or high inference abstract qualities. For instance, if again you want to observe teachers' attitude to work, denotable indicators can be punctuality, regularity, extra hours of work, etc. Attitude is then inferred rather than observed. But there must be an integrated theoretical or empirical basis for the inference.

Consideration should be given to the number of visits or observations needed for reliable observations. You can use as many as thirty visits, though most studies cannot afford more than a dozen observations on a single teacher. In order to obtain a trustworthy mean score for one teacher, particularly for cognitive variables, you need as many observations as possible. You have to gird against observer effects. You have to provide a situation where you can observe without introducing some distortion to the events that would have occurred if observations were not taking place. To minimize distortion effects in observation, possible techniques are: habituation-staging with the participants long before the observations start. This will make the participants not to attach any importance to your presence. Others are assessment of effects and remote presence. You should also guard against halo-effects and interpretation bias during observation.

(f) Quantification of Observation

Observations are quantified by coding. There are multiple coding systems in use today. The three major types are the sign system, the category system and the rating system.

(i) **The Sign System** otherwise called interval recording, records the event once within a specified time period. It does not matter how many times the event occurs during that period. A typical example is the Science Teaching Observation Schedule, STOS (Eggleston, et. al., 1975).

(ii) **The Category System**which records an event each time it occurs. A typical example is the Biology Teacher Behaviour Inventory, BTBI (Evans, 1869; Balzer, 1969).

(iii) **The Rating System** which estimates the frequency of events only once, usually at the end of the observation session. A typical example is the teaching practice rating.

Other methods like the use of anecdotal records do not usually require quantification. In some arithmetic processes are applied directly to quantitative counts obtained from sign and category system data to yield relevant interpretations. In the rating system, frequency estimate of the events is scaled ordinally. The ordinal scores of all events are totalled. The total scores indicate the level of excellence or otherwise of performance.

7.6 Activity

1. What are the three types of observational variables?
2. Explain the phases of observation method.

7.7 Recording Observations

You have gone through the variables and the phases of observation. Before we go on to the recording techniques, let us briefly touch on the types of observations.

Types of Observation

In general, there are two types of observation. These are: participant and non-participant observation.

(i) Participant Observation in which the observer is either a member of the setting or group being observed or has joined the setting or group just for the purpose of carrying out the observation. In this case, the observer is always with the observed e.g. your head of department, the principal and the teachers, the instructor and the apprentice etc.

(ii) Non-Participant Observation in which the observer is not a member of the setting or the group being observed. The observer visits the observed at different intervals e.g. Supervisors from the Ministry of Business to the organisations, or Inspectors from the Inspectorate, Teaching Practice etc.

7.8 Techniques for Recording Observations

The techniques as classified by Borg and Gall (1983) are:

(i)Duration Recording: This involves measuring the length of time in which target behaviour occurs. You may use some form of timing device like the stopwatch. You may record the time for a single behaviour. For example, the length of time a student stays without making noise, the length of time the teacher talks before moving around etc.

(ii)Frequency Count Recording: This involves recording the number of times the target behaviour is exhibited by the subject. You may use a tally sheet or a counting device to record each time the behaviour occurs. It is most useful in recording behaviours of short duration, e.g., how many times a student

raises his hands to answer a question, how many times a teacher use praise to reinforce a good behaviour etc.

(iii) **Interval Recording:** In this case, the target behaviour is observed at intervals of say 30 seconds or one minute. The length of time varies with the nature of behaviours being observed. For instance, which of the listed mannerisms does a teacher exhibit within the time interval.

(iv) **Continuous Observation:** In this case, all the behaviour of the target subject are recorded in a chronological order during the observation session. For example, recording everything which the subject does in a given setting – playground, classroom, in a meeting etc.

(v) **Time Sampling:** In this case, you will select time intervals out of the total time available for observation. You can only observe during the selected periods. The periods can be selected at random and can be used in conjunction with the other methods. For instance, you can select organisation days at random in order to observe a given teacher or teachers.

7.9 Validity and Reliability of Observation

This will be discussed under the following sub-topics.

7.9.1 Validity

In order to have a higher degree of validity in your observation, you will need to:

(i) Identify those critical incidents of behaviour which are truly significant. In this case, you may wish to supplement your knowledge and skills with the judgement of experts in the field under study. This will help you to select a limited number of observable incidents which are actually related to the behaviours under study.

(ii) Conceal the observer and his intensions. This is because if the observed are aware of the presence of the observer, their behaviour may be influenced. This is a threat to the validity.
While some scholars believe that if an observer stays for a long period of time, his presence will be taken for granted and seen as part of the setting with little effect on the behaviours observed. But others feel that if the observer is introduced as active participant in the activities of the group being observed, it will minimize the effects of intrusion.

(iii) Prevent observation bias. This becomes a threat to validity when you are the sole observer and unconsciously see only what you expect to see and to overlook those

incidents which do not fit your theory. Your own feelings, values, attitudes and past experiences may distort your observation. You can use trained observers and restrict your role to the interpretation.

(iv) Randomly select time sample for observing frequently occurring incidents. This may help to yield more representative samples of behaviour and improve the validity of observation.

7.9.2 Reliability

To determine the reliability of observation, you have to compute the correlation coefficient for the sets of scores from two different observers for a given target groups or subjects at the same time. The reliability of the observation should be determined during the try out or pilot phase of the observation.

7.10 Training Observers

According to Nwana (1981), observational studies are time consuming and require long periods of patiently watching events. Of course, you know that the pace of observational settings is never controlled by the observer. Therefore, you need to employ the services of assistant observers to carry out the observation. But you have to note the advice of Mouly (1978), that observation is not better than the people doing it. Again, the fact that human behaviours are complex, the observer is always faced with determining which factors are significant from a multiplicity of events occurring simultaneously. It becomes particularly important to train the observers.

7.11 Activity

1. What are the two types of observation?
2. Explain the observation recording techniques.
3. What are the things you should do to have higher degrees of validity in your observation?

7.12 Problems of Observation

Observation, as a method of data collection, has some problems. These are:

(i) Observer Effects: These are virtually inevitable, but can be minimized by unobtrusive methods as have been listed under section 3.3 (phases of observation in the unit). Read it again.

(ii) **Observation Requires Enterprise:** In order to have proper observation, you need to be trained if you are not an expert. Assistant observers also need to be trained. This will help to save time or maintain objectivity.

(iii) **The Number of Observations:** The number of observations needed to obtain a representative sample of events is most of the times prohibitive. This is why many researchers resort to studying the target phenomena shoddily.

(iv) **Interpretation Bias:** If a researcher decides to report a coloured version rather than the objective findings, it can distort the observed event. This can be minimized by the use of blind observation whereby trained observers are used without them knowing the objectives of the observation; the use of trained recorders for objective recording of events; the use of multiple independent observers or the use of taped recorders which can allow analysis and re-analysis.

(v) **Halo-Effects:** You have read about this in the last unit. In this case, it means later records of observations being affected by
earlier impressions. This can reduce the reliability of information collected through observation.

(vi) **Rating Errors:** This can occur when the rating system is used. It can be as a result of ambiguities in the meaning of the scale points. Again, rating systems such as the tendency to rate subjects towards the middle, rather than at either of the two extremes.

7.13 Advantages and Disadvantages

The advantages and disadvantages are listed separately below.

Advantages

(i) It provides unique insights not attained by other methods.

(ii) It yields direct first-hand information which is more valid than reported information.

(iii) It is peculiarly suitable for the study of young children, handicapped persons and illiterates.

Disadvantages

(i) It requires enormous amounts of time, energy and resources to be properly executed.

(ii) Samples are usually small and this tends to reduce the internal validity as well as the external validity or generalisability of the findings. This is due to lack of representation of the samples.

(iii) Some behaviour is not explicit and observation may not apply in such situations.

(iv) The faking of some participants when they know that they are being observed.

7.14 Guide to Good Observation

The guide to good observation is listed below:

(i) Obtain prior knowledge of the conditions or background of what to observe;

(ii) Examine the general and specific objectives of the observation; (iii)Determine the method of observation – direct, using assistants, participants or non-participant;

(iv) Define and establish the variables of observation;

(v) Device an appropriate method of recording results;

(vi) Observe carefully, critically and objectively;

(vii) Rate specific phenomena independently, in the case of rating;

(viii) Do not interfere with the setting in which the observation is taking place.

7.15 Summary

In this unit, you have learnt observation is a process of looking out for and recording the presence or absence of a particular trait or behaviour of a person or group of persons. You also looked at the observational variables where you learnt that the three of them are descriptive or low inference variables, high inference variables and evaluative variables. In the phases of observation method, you learnt that they are:

(i) Definition of aims and objectives;
(ii) Selection and definition of attributes;
(iii) Selection of observational modes and training observers;
(iv) Administrative arrangements;
(v) Observation, and

(vi) Quantification of observation.

You also learnt that the two types of observations are participant and non-participant observation. The techniques for recording are:

(i) Duration recording;
(ii) Frequency count recording;
(iii) Interval recording, and
(iv) (iv) Time sampling.

You read about the validity and reliability of observation and how to train observers. The problems of observation are:

(i) Observers effects;
(ii) Expertise in observation;
(iii) Number of observations required;
(iv) Interpretation bias; (v)Halo-effects, and (vi)Rating errors.

You also saw the advantages and disadvantages.

7.16 Revision Questions

1. What is observation?
2. What are the phases of observation?
3. Explain the two types of observation.
4. What are the techniques for recording observation?
5. What problems do you have in using observation?

7.17 Further reading

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Olatian, S.O. &Nwoke, G.I. (1988). *Practical Research Methods in Business*. Onitsha: Summer Business Publishers.

UNIT 8

DATA COLLECTION INSTRUMENTS: QUESTIONNAIRES

8.0 The Concept of Questionnaire

In a research situation, a questionnaire can be said to be a carefully designed instrument for collecting information or data in relation to the specifications of the research questions and hypotheses. This instrument is used to elicit written responses from the subjects of the research through a series of questions or statements put together with some specific objectives in mind. It can be used to ascertain facts, opinions, beliefs, attitudes, practices, etc.

Obodo (1997) defines it as a series of questions or statements presented in a written form to a subject or group of subjects and to which they are expected to answer in writing. You can see that it is the most common, used like a test and constructed for specific purposes. It is also used for the assessment of students' personal-social adjustment and interest with regards to different issues. You need to think of a specific study and design before you determine whether it will be appropriate for you to use a questionnaire. For instance, when you require to obtain data on the distribution of a group of subjects in relation to such factors as gender, state of origin, state of residence, qualification, experience on a job, age, socio-economic status or to provide information for assessing certain situations such as the availability of workshop equipment, laboratory facilities, facilities in a state, organisation, or the extent of implementation of a certain organisation programme etc. It can be used to obtain information on the feelings and perceptions of a group of people towards certain issues such as the ODL system of Business, or the perception of the problems or their attitude towards the problems associated with the use of information and communication technologies in our Business system.

8.1 The Components of Questionnaire

A questionnaire is made up of such components as the title, the introduction, the response instructions, biographical information, the questions/statements, return instructions and gratitude. For you, as a student/learner, a letter of reference from an appropriate authority may accompany your questionnaire to elicit the cooperation of your respondents. Now, let us briefly touch on these components.

1. The Title

This gives an appropriate caption for the substantive content of the questionnaire. It is not the topic of the research project, e.g. Public perception of On Line learning, Questionnaire, Students' attitude to economics/accounts/Business Mathematics Questionnaire etc.

2. The Introduction

This gives the main objectives of the research and/or the questionnaire. It also gives a guarantee of anonymity of the respondents and confidential treatment of the information supplied. It establishes a rapport with the respondents by assuring that no information in the research report can be traced to particular individuals. This will likely bring out accurate, frank, objective and comprehensive information from the respondents.

3. The Response Instruction

This specifies the mode or modes of completing the questionnaire. You have to instruct the respondents to fill in the blanks, underline, put a cross, circle or tick the appropriate place. It is a good practice to use one or two questions and answers to illustrate what they should do.

4. Biographical Information

This gives the personal data of the respondents. It is required for analysis and interpretation of the data. It includes such things as type of organisation, class, occupation, sex, income, age, qualification, experience, social class, marital status, etc. You should include only the variables that are needed for analysis and interpretations. Again, you have to be cautious on the type of information being elicited or required. For instance, divorced, separated, or widowed, instead of asking for exact age, give age range, when information is sought what social class, income occupation, qualification, etc. respondents may be prestigebiased and therefore predisposed to over claim, thus introducing response error.

5. The Questions/Statements

This gives the actual substantive content of the research. They can require factual answers, opinions or evaluations. Every question/statement has to address a specific issue in the research. Therefore, the questions/statements must not be written aimlessly, haphazardly or shoddily.

All the statements or questions must be relevant to the hypotheses and/or research questions. Do not add unnecessary questions to make the questionnaire lengthy. Select words which will give you the required information with a minimum of distortions. The language should be simple, clear and precise. You must try to avoid ambiguous, suggestive, leading, antagonistic and embarrassing questions that invade privacy. Do not use double-barreled questions.

6. Return Instructions

These direct the respondents on what to do with the completed instrument. Specify the collection point, a mailing address or to hand them back to you or your assistants.

7. The Gratitude

This is the end of the instrument. You should recognize that the respondents are under no obligation to complete the instrument. In fact, they are doing you a favour. Therefore, you need to appreciate the respondents by thanking them.

8.2 Types of Questionnaire

Based on the format for the statements/questions and the responses, questionnaires can be classified into two major types. These are structured/closed or fixed response type and the unstructured/open end type. Let us look at them.

8.2.1 The Structure or Fixed Response Questionnaire

Here, the respondents are restricted to some response options. A question is asked or a statement is made and a respondent has to choose from the available alternatives. You can see that the respondents do not have the freedom and opportunity to express their views. Look at some sample items of the fixed response type below:

(a) How old are you?

20 – 30 years ( )
31 – 40 years ( )
41 – 50 years ( )
51 – 60 years ( )
61 and above ( )

(b) For how long have you been teaching?

Below 5 years ( )
6 – 10 years ( )
11 – 15 years ( )
16 – 20 years ( )
21 and above ( )

(c) What is your highest qualification?

G12 ( )
Certifcate ( )
Diploma. ( )
Bachelor ( )
Master etc ( )

This type of questionnaire is usually preferred because it facilitates data analysis and the estimation of validity and reliability indices for the instrument. Again, it is easier and demands less time to complete. But on the other hand, a respondent may have different suggestions for your imagination. He may not have the opportunity to give those suggestions.

8.2.2 Unstructured or Open-Ended Questionnaire

Here, response options are not provided for the respondents. All you need do is to provide questions pertinent to the problem and the respondents are free to supply their responses in their own words and in any manner they deem fit. When you are not sure or cannot predict what the subjects' responses are likely to be, this type of questionnaire is the most appropriate. See sample items below:

(a)Do you have open and distance Business in your state or country? ……
……..…….…….
(b)How is it operated?……...……..……...
(c) Would you say it has advantages over the conventional system of Business? ……..……..…..
(d) Why do you say so? …….…….. …….

The open-end questionnaire can provide unanticipated and insightful information that could lead to a better understanding of the problem. But they are difficult to complete and time-consuming. There may be misinterpretation arising from the fact that some people may not be able to express themselves very well; while others may use styles which are at variance with that of the researcher. These may bring about communication problems. Again, classification and quantification of the responses are very difficult leading to serious difficulties in the data analysis.

8.3 Activity

1. What is a questionnaire?
2. Explain the components of a questionnaire.
3. Discuss the two types of questionnaire.

8.4 Construction of Questionnaire Items

For you to construct a questionnaire, you need to clearly identify the objectives for which the questionnaire is expected to accomplish. This will make the questionnaire to yield information pertinent to the problem of study. After identifying the objectives, you then start to construct the items. To be able to write good questionnaire items, you have to consider such factors like: the sample characteristics, type of questionnaire format to adopt and the length of the questionnaire.

(a) **The Sample Characteristics:** Here, you may need to know the Business level, their socio-economic class, age etc. Why do you have to know this information about your samples? This will enable you keep the language and illustrations at such a level that will be appropriate to the samples.

(b) **Type of Questionnaire Format to Adopt:** You have to decide whether to use the restricted response format or the open-end format. This will depend on the type of data you need to generate and the type of analysis you require to do.

(c) **The Length of the Questionnaire:** You have to put into consideration that the longer the instrument, the higher the reliability. But it can be boring to complete a lengthy instrument. Therefore, you will have to construct an instrument which is neither too short nor too long.

When you are constructing a questionnaire, you have to note:

(i) It is not good to include items which have no relationship with the research objectives. This is time and effort wasting and tends to unduly increase the length of the instrument without any added advantages.

(ii) Avoid unnecessary presumptions. Take for instance, a study on parents' supervision of their children's home-study, a question was asked thus: "How often do you supervise your child's homestudy?" You can see that this question is presumptuous, in that it presumes that the respondent has a child and again that he supervises his child's home-study.

Instead, you can start by asking:

(1) Do you have a child?
(2) If your answer is yes, do you supervise his home studies?
(3) If so, how often do you do this? etc.

(iii) Avoid leading questions. For instance, look at this item. For the fact that open and distance learning is flexible and affordable, don't you think it can be encouraged in this country? Instead say: What do you think about open and distance learning?

(iv) Always note the distinction between "what ought to be" and "what is". For instance, if you ask a teacher – "Do you supervise your students when doing practical work in the workshop?" This question relates to what is, because it is your duty to supervise and that's exactly what you do. But if the question is "Should you supervise your students during their practical work in the workshop?" This is what ought to be.

8.5 Validation and Pilot Testing of the Questionnaire

Validation of an instrument is done in order to ensure that the instrument has validity. It is a serious limitation which is inexcusable in scientific research if a questionnaire is used without proper validation exercises. The simplest method of validating an instrument is to subject it to expert validation.

In this method, you will make copies of the instrument and give them to a panel of experts in the area. You will also write a covering letter to these experts stating what you need them to do. This letter should contain a clear, guideline of what they are expected to do, the purpose of ht research, the research questions and/or hypotheses. You should also instruct the experts to review the items in terms of their clarity, appropriateness of the language and expressions to the respondents and the instructions too. You will also provide space for the experts to make any other comments regarding the overall adequacy of the instrument. When the instrument is returned, you will carry out the modifications along the lines suggested by the comments of these experts. This validation exercise will ensure both the face and content validity of the instrument.

The next stage is to subject the instrument to trial or pilot testing. This involves administering the instrument on a very small sample of those whom it would be used in the final study, under similar conditions. This will enable you to see how the subjects will react to the instrument, whether the questions are clear and easy to understand, whether more items are needed in certain areas and whether there are items which the respondents cannot react to. It will also help you to determine whether the methods of data analysis proposed for the final study are appropriate.

8.6 Administration of Questionnaire

Administration of the questionnaire to the respondents can be done in any of these three ways:

(1) By Mail: It can also increase the chances of obtaining valid but socially unacceptable responses. Again time and travelling expenses are conserved. The advantages are:

(i) Very poor response or low percentage returns which tend to reduce the sample size and leads to sampling bias;

(ii) Not suitable for persons of low intelligence or low Business background, since you are not there to explain any misinterpretation;

(iii) The instrument may be given to a more competent person to fill i. this may result in the distortion of the sample and results;

(iv) You cannot follow any chronogram, since you do not have control of the time to receive the responses and therefore plan to start the analysis;

(v) You cannot guarantee the return of the instrument by post, especially in Zambia where the postal services are very poor.

(2) Personal Administration with on-the-spot collection: In this case, you and your research assistants can deliver the questionnaires to the respondents in person, wait for them to complete and collect them back. This method can give you a 100% delivery and return. It will also provide the opportunity to clarify misinterpretations, while ambiguities are kept to a minimum. You are also in control of the time for completing the project. But if the respondents do have the answers on-the-spot, he may need to access the information before completing the questionnaire.

Again, your presence may influence the respondents to fake responses or put them under psychological tension. The personality of the researcher may positively or negatively affect the diligent completion of the instrument.

(3) Personal delivery with collection after a time interval: In this case, you need to deliver the questionnaires in person, but return after some time to collect them. This mode affords the respondents time to look up information. They are more relaxed while completing the instrument. Therefore, it is preferred when documents and other sources need to be consulted. But you may not be sure of 100% return. Again, time and money may be wasted in repeated trips to check on the respondents. There may be mass consultation of respondents in close proximity in your absence. This may give rise to uniform responses which will reduce the validity of the data. Note that **t**hese modes may be used in combinations. It depends on your choice.

8.7 Activity

1. What are the three things you must bear in mind when constructing a questionnaire?
2. Explain the three types of questionnaire administration.

8.8 Characteristics of a Good Questionnaire

You have seen that the questionnaire is a very popular method of data collection in Business and behavioural sciences. The reason can be attributed to the relative ease and cost-effectiveness with which it is constructed and administered to large samples when compared to other methods. To serve its purposes very effectively, the questionnaire you construct must be characterized by the following features:

(i) **Relevance**: The instrument should be relevant to the purpose of the research. It should elicit all the information necessary for answering the research questions and testing the hypotheses. It should also consider the background and experience of the respondents.

(ii) **Consistency**: The instrument should be able to yield responses that are consistent. The responses of a group of people to the instrument on two different occasions should be as close as possible on these occasions.

(iii) **Usability**: The instrument should as much as possible be usable. It should not be too long or so bulky. The conditions for the administration and the method for interpreting the data elicited should be fairly simple and easy.

(iv) **Clarity**: Both the instructions and the items should be clear enough to avoid possible misinterpretations. You should note once again that a good questionnaire should not contain ambiguous items or instructions.

(v) **Quantifiability**: The responses from a good questionnaire must be easily quantifiable. It should be easy to assign numerical values or figures to such responses in a manner that is systematic.

(vi) **Legibility**: All the items should be legible without tiny characters. The words should be properly spaced with appropriate side margins. Always use the computer to type your questionnaire so as to produce very neat and legible instrument.

8.9 Advantages and Disadvantages of questionnaires

You have noticed that in every section of this unit, one or more advantages or disadvantages may have been mentioned. Let us now summarise them briefly.

Advantages

i. It is economical in terms of time and cost;

ii. It can be administered to variety of people;

iii. It is easy to administer and even to distant respondents;

iv. It can be used to get information on non-cognitive constructs such as kindness, stress, anxiety etc;

v. Great percentage of students or respondents can be reached at a time.

Disadvantages

i. There may be low percentage return which may lead to the distortion of the findings;

ii. There may be misunderstanding or wrong responses if the item s are not clear or the instructions are misleading;

iii. Wrong or negative or faked answers may be given if the instrument is too lengthy or if it is intruding o the respondents' private life;

iv. It is not suitable for the illiterates, semi-illiterates, and children.

8.10 Summary

In this unit, you learnt that a questionnaire is a series of questions/statements presented in a written form to a subject or group of subjects and to which they are expected to answer in writing. You studied the components which include: title, introduction, instructions, biographical information, the items, return instructions and the gratitude. There are two main types of questionnaire. These are the structured or fixed response and the unstructured or open-end questionnaire. You have worked through construction of questionnaires and the consideration to be made in order to construct the questionnaire. Validation of an instrument is done to ensure the validity of the instrument. The simplest method is the expert validity, consistency, usability, clarity, quantifiability and legibility. Questionnaires can be administered by mail, personal administration with on-the-spot collection and personal delivery with collection after a time interval.

8.11 Revision Questions

1. What are the components you will have in a questionnaire?
2. With examples, explain the two types of questionnaire.
3. What are the characteristics of a good questionnaire?

UNIT 9

DATA COLLECTION INSTRUMENTS: INTERVIEWS

9.0 Interview as a Technique of Data Collection

The interview as a method for data collection involves eliciting information through some verbal interaction between the respondents and the researcher. In other words, an interview can be regarded as a face-to-face interaction in which oral questions are posed by an interviewer to draw out responses from the interviewee. When we talk about the interaction, we mean that the interviewer, the interviewee and the interview situation or schedule have roles to play. Sometimes interviews can be through telephones.

So if you want to achieve maximum success in your use of interview, the interview situation should be kept as comfortable and permissive as possible. A lot of communication skill is needed in order to frame the questions in such a way that the respondents can understand what information they are required to give. Therefore, you must ask questions which are relevant and related to the type of information you desire to obtain.

9.1 Phases of Interview

There are four major phases of interview. These phases overlap and interact. They are preparation, establishment of rapport, the questionanswer and the recording phases.

9.1.1 Preparation Phase

The degree of success in an interview is dependent on how well you have prepared for it. The preparation stage is when you take decisions on the mode of recording the responses. You need to check the recording instruments for validity and reliability. You need to trial-test the instruments to ensure that they are in good working conditions.

For instance, if you are going to use a tape recorder, you have to see that the batteries are good and tested. If you need to use gifts to express gratitude or to establish rapport, you need to make the correct selection.

9.1.2 Rapport Phase

For you to collect valid data, you need to establish a cordial atmosphere for the interview. There is no rule for doing this, but as a mature investigator, you have to survey the situation and evolve appropriate strategies. You may follow any of these suggestions:

(i) Courteously seek permission from the appropriate authority. In doing this, you should provide information about the objectives of the study and the nature of the interview.

(ii) Give notice to the interviewee and book appointment for date, time and venue. The venue should be comfortable in terms of sitting, ventilation, lighting and decoration. The venue should be noise-proof.

(iii) Take note of your appearance. It should be appropriate, neat, and inoffensive. Consider your dental and body deodorization and any other aspect likely to irritate your subject.

(iv) Your first contact with the interviewee must be friendly, pleasant and courteous. Use appropriate salutation and address him with the correct title. Pay some compliments, but not flatter. This will make him more relaxed.

(v) You need to be relaxed too. Introduce yourself briefly and modestly and also introduce the problems which are the focus of the interview. You may need to start by asking the first few minutes for a short conversation to enable you and your subject to relax. You also need to assure him that his responses will be treated confidentially and only for the research purposes.
Otherwise, he might be suspicious and unwilling to respond to the questions freely.

9.1.3 Question-Answer Phase

This is where you have to make use of your skills and expertise to make the session more permissive, flexible and interactive. You have to keep the interviewee, interested and responsive till the end of the interview.

In doing this, you have to devise appropriate strategies, but you have to be pointed and business-like and not to wonder aimlessly. When you ask a starter question, follow it up with prodding and probing questions to get comprehensive information. Where you need to use pictures or related objects, drafts, drawings etc. use them for probing to elicit further explanations and reasons for earlier statements. But you should try to avoid interviewer bias by being as non-directive as possible. In all, you have to be relaxed, not tensed up or nervous throughout the duration of the interview.

9.1.4 Recording Phase

Recording is a very important aspect of interview. You must try to comprehensively record information from an interview as unobtrusively as possible. Recording may be done in any of the three methods.

(a) Mental Note

If you want to commit the responses into memory, you can be sure; it removes apprehension on the part of the respondent and therefore increases the rapport. But you have to appropriately assess yourself in terms of memory retention before using mental notes. This is because any information forgotten is as good as missing and may not be easily reconstructed.

(b) Written Note

It is advisable to use written records when there are too many questions and responses. But extensive writing is likely to excite or offend respondents. If this happens the rapport and validity of the responses will be reduced. If you are versed in shorthand, it can be an advantage in written notes. You can also use structure interview schedule where alternative responses are provided. Here, there is minimum writing, but you have to make allowance for unanticipated responses.

(c) Taped Records

In order to solve all the problems of memory loss and that of extensive writing, tape recording of interview is the answer. It removes strain from the interviewer. It can be replayed and transcribed at leisure. But you have to bear at the back of your mind that audio and video recording instruments can go faulty in the process. You must take care of this at the planning stage. Other problems like instrument reactivity should also be taken care of. Recording can also frighten or excite the subject. This may channel away his attention and bring about distortion in his behaviour. As far as possible, conceal your recorders. You can use micro recorders, remote censors or pick up buttons when available.

9.2 Types of Interview

There are basically two types of interview. These are the face-to-face interview and the telephone interview. You have to note that whether it is face-to-face of telephone interview you are using, they have the same characteristics. Interaction between the interviewer and the interviewee is purely verbal. The responses are recorded by the researcher himself. In this case, you can be sure of the accuracy of the information recorded and the difficulty of decoding some recorded information is removed. Again, there is a great deal of flexibility in the interview technique. The only difference between face-to-face and telephone interview is that in telephone interview no one sees the other. The advantages of the telephone interview are that it is cheaper, especially if the respondents are very far away, and the interviewee is shielded from the influence of the interviewer. Interviews can also be structured or unstructured.

9.3 Advantages and Disadvantages of interviews

From the foregoing discussions, you can see that the interview provides a very useful and powerful means of collecting data on significant Business problems. Of course, you know that there are instances where only the interview can be used in data collection. Let us summarise the advantages and disadvantages below.

Advantages

(i) It provides opportunity for face-to-face interaction.
(ii) The subjects can respond to questions the way they like.
(iii) Indepth information which the respondents may not wish to write down can be obtained.
(iv) Information recorded is reliable because it is recorded by the researcher himself.
(v) It is very useful for collecting data from children and illiterates or those who cannot fill the questionnaire.

Disadvantages

(i) It can be very expensive to conduct.

(ii) It consumes a lot of time.

(iii) Subjective information derived from unstructured interview may prove difficult to analyse.

(iv) The validity of verbal responses collected may be questionable.

(v) Conducting interviews demands a lot of skills.

(vi) Intra and inter-interviewer variabilities can affect the results. For instance, the mood of the interviewer-fatigue, hunger or other types of pressure on the interviewer (intra-interviewer) or two different interviewers getting different results in a single study (inter-interviewer).

9.4 Major Considerations in Interview Method

There are three main factors, according to Black and Champion (1976), which must be put into consideration in the execution of interviews. Although, we have touched on them while progressing in this unit, we want to emphasise on them in this section. These three factors are interviewer characteristics, Interviewee characteristics and the nature of the problem under investigation.

9.5 Interviewer Characteristics

As an interviewer, your characteristics can have profound influence on the success of the interview. For instance, if you are inquisitive, articulate or you have the ability to identify new areas worthy of exploration, these are very important for a successful interview. Also important are the age, gender, and cultural affiliation, mode of dressing, status and manner of speech.

These factors, including the interviewers' willingness to be interviewed may help to determine what roles you can play during the interview.
You can therefore see that consideration has to be given to the interviewer characteristics and their possible effects on the quality and quantity of information to be obtained.

9.6 Summary

In this unit, we have discussed phases of interviews, advantages and disadvantages of interviews and the characteristics of an interviewer. Hope you have enjoyed the unit and you will now be able to conduct interviews with fewer difficulties. In the next unit, we will discuss other types of data collection techniques.

9.7 Revision questions

1. Explain the phases of research interview.
2. What are the three main types of recording interview?

UNIT 10

OTHER METHODS OF COLLECTING DATA

10.0 Introduction

Welcome to unit 10. In this unit, we will discuss other methods of collecting data. These include; the rating scale, attitude scale, likert scale among others.

10.1 Rating Scales

You have learnt about measuring what students/learners know, how they perform, their achievement, how they think, feel etc. in the various courses you are doing. You can see that all of these and more are important goals of Business. But now, we are talking about the students'/ learners' class behaviour. Look at these questions. Do you think that classroom behaviours and personal attributes are relevant and important Business goals? Should you, as teachers, be concerned about them? You answers must surely be yes.

A part of Business is developing the kind of personal attributes that enable an individual to behave in a constructive manner, not in an automatic robot-like way, but in a way that reflects concern and consideration for others, self-discipline, morality, drive, and other qualities generally considered desirable.

Now, based on your experience, do you think teachers evaluate students/learners behaviours and personal attributes? Well if we are interested in developing the desired behaviours in our students/learners, it makes sense to determine whether and to what extent these behaviours are being formed. Human behaviour cannot be observed precisely. This is why researchers develop rating scales for use in discriminating human behaviour into categories or levels to give an appropriate indication of where the observed behaviour falls. For instance, a researcher may develop a scale of 3-points, 4-points, 5-points etc.

Example 1:

Academic ability (high average low). It can be any number of points depending on what you are looking for. E.g. honesty, very honest 1……. 2……..... 3…….. 4……..
5……very dishonest.

Now look at these examples from Tuckman (1975).

PUBLIC ORGANISATIONS MATURITY INDEX
NAME …….
ADDRESS ……..
DATE OF BIRTH ……. DATE …….

Teacher's Signature	Reliability	Work Habit	Self-Control	Initiative	Sensitivity	Punctuality
Pupils' Estimate						

Score: 4 = Exceptional 3 = Above average 2 = Average 1 = Below average

Example 2: Classroom Behaviour Rating Scale:

Name of Child ……..
Name of Teacher ……...

1. To what extent can be the child's behaviour is described as curious?

Note at all Curious 1 2 3 4 5 6 7 8 9 Extremely Curious

2. To what extent can the child's behaviour be described as interesting?

Note at all Interesting 1 2 3 4 5 6 7 8 9 Extremely Interesting

3. To what extent can the child's behaviour be described as Hostile?

Note at all Hostile 1 2 3 4 5 6 7 8 9 Extremely Hostile

4. To what extent can the child's behaviour be described as Happy?

Note at all Happy 1 2 3 4 5 6 7 8 9 Extremely Happy

Example 3: Students Self-Discipline Scale
Degree of Occurrence
Behaviour Students absent present
Worked on a task without the teachers presence 1 2 3 4 5 6 7 8 9

Moved to new task without the teachers intervention 1 2 3 4 5 6 7 8 9
Made adequate evaluation of the quality of work 1 2 3 4 5 6 7 8 9
Made adequate evaluation of the completeness of work 1 2 3 4 5 6 7 8 9
Organized his work schedule as required 1 2 3 4 5 6 7 8 9
Did not treat others violently 1 2 3 4 5 6 7 8 9
Did not attempt to interfere with others work 1 2 3 4 5 6 7 8 9
Maintained work areas 1 2 3 4 5 6 7 8 9

10.2 Attitude Scales

Let us start this section by saying that attitude is a response pattern or a tendency to think or act in a particular way under a given set of circumstances. It is closely related to feelings and emotions which constitute an important aspect of an individual's personality. We can use an attitude scale to measure attitudes towards the introduction of new changes in organisation, society, system etc. For instance, we can construct attitude scales to measure the attitude of teachers or students/learners towards new Business programme, new punishment mode, new organisation uniforms etc.

Before we go to some examples of the scale, let us define scale as "a continuum marked off into numerical units that can be applied to some objects or state in order to measure a particular properly of it. Attitudes and beliefs are typically measured by the use of scales. You see, these are intangible things, unlike weight, height, length etc. where you can objectively use the spring balance, the scale rule etc. The scale used in measuring values, attitudes etc. are subjective and lack precision. The results cannot be exact. They are used extensively in Business and social sciences. The three major types are the Likert-type, the Thurnstone scale and the Guttmann scale. Let us look at them.

10.3 The Likert-type Rating Scale or Summated Scale

This scale was named after the person who devised it – Rensis Likert. It involves a list of questions or statements about the phenomenon to be measured, with a set of graduated response options. An individual is expected to indicate his degree of agreement or disagreement with the statements or questions. Likert scale is a five point scale. But today there are scales that have less than five points. These are Likert-like scales

The responses to the statements are then summed up and a total score or the average score is obtained. This will help to determine the people's position on the phenomenon which is measured. For example, "I like Geography".

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strong Disagree

4 3 2 1

A positive statement attracts higher value while negative statement attracts lower value, e.g. “I do not like Geography”.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Agree Strong Disagree
1 2 3 4

Sometimes, other terms may be used in the place of agree and disagree, as the case demands. Such examples can be:

Very satisfied, Satisfied, Moderately Satisfied, Dissatisfied Very important, Important, Somehow important, Not important Outstanding, Very good, Good, Satisfactory, Poor.

10.4 The Thurston Scale or Equal Appearing Interval Scale

This differs from the Likert scale because it has a laid down principle. To use the scale, you will first of all construct a set of more than 100 items which will measure the attribute you want. These items will then be presented to a panel of about 25 judges. These judges will be required to rate each item on the set, according to the degree of intensity, on a seven-point scale or more.

Using the averages of the ratings given to the items by the judges, a numerical value is computed for each item. The items are selected in such a way that they cover the entire scale with equal intervals between any two consecutive items. You see why it is not very popular in Business researches.

10.5 The Guttmann Scale or Cumulative Scale

Unlike the Likert and Thurnstone scales, the Guttmann scale determines the undimensionality of the items making up a given scale. You may be wondering what undimensionality means here. For the purpose of this discourse, it refers to whether all the items measure all aspect of the particular variable in question; or just one aspect of it. Let us use computer literacy for example. If you are conducting a study on the attitude towards computer literacy, you will note that there are different dimensions of computer literacy. These may include attitude towards excel, words, PowerPoint, internet, search engines, computer science, software etc. A subject may have positive attitude towards internet browsing but not MS words. Another may like PowerPoint but not excel. Therefore, any two individuals that have the same score using this scale must have expressed similar pattern of interest towards the items in question. In other words, they may have had interest in the same dimension of the variable. When the items on a scale are onedimensional, we

say they form a perfect scale. When the items of a perfect scale vary in intensity, the scale is said to be perfectly reproducible. But, when there are errors or inconsistencies in the responses or when we have errors in the scale, the scale is said not to be reproducible. You must have to note that it is difficult to come across a perfect reproducible scale. Guttmann produced a formula which can be used to estimate the extent of reproducibility of a scale. It is called coefficient of reproducibility and it is given by the equation:

$$\text{Coefficient of reproducibility} = 1 - \frac{\text{Number of errors}}{\text{Number of responses}}$$

If the coefficient of reproducibility resulting from the use of this formula is 0.90 and above, we say the scale is reproducible. If otherwise, the scale is not reproducible.

10.6 Activity

Identify a research problem where an attitude scale or a rating scale could be used for data collection. Construct a 5-item instrument for the purpose of data collection.

10.7 Interest Inventories

Interests are the likes and dislikes of a person. Then, an interest inventory is an instrument used for measuring the person's likes and dislikes and aversions. A person's interest in an activity, event, object, programme, course etc. is measured with an interest inventory. This consists of series of questions relating to an area of interest. These questions are designed in such a way as to bring out the individual's interest area. The responses to the questions are scored to determine whether or not the individual is interested in the area. A high score shows interest while a low score indicates lack of interest in that particular area.

Let us take for instance that you want to know the occupational interests or aspirations of your students. You may design an interest inventory such as this:

(i) Teaching People …… L I D L = Like
(ii) Defending people in the court …..L I D I = Indifferent
(iii) Treating sick people ……..L I D D = Dislike
(iv) Defending the country ……..L I D
(v) Repairing automobiles ……..L I D
(vi) Maintaining law and order …… L I D
(vii) Drawing houses ……..L I D

The individual circles round the option he likes. Interest inventories can be constructed in several ways. You can also adapt any of the standardized interest inventories such as Strong Vocational Interest Blank (SVIB), Kuder Preference Records etc. You can modify them for

your local use. You will have to note that interests are not abilities. Interests change, especially for young people below the age of 18 years. Therefore, any information on interest should be seen as provisional or valid only for the time it is collected. So any predictions made on the basis of interest should be done with caution.

10.8 Sociometric Technique

This is a technique used for measuring the social structure of a group. It is used for the assessment of the social status of each individual with regards to other members in a group. It can be used to show the pattern of social relationships in a group of people. According to Onuche and Akeju (1988), it is an instrument that is aimed at evaluating the pattern or finding out the extent to which a pupil is accepted by his peers in a given situation. This is why sociometric technique is called peer-atappraisal method. It can be used to determine the most popular members of the group. You can decide to ask your students to write in a piece of paper. Who they like best or who they would want to work within their group. The result will tell you how popular each member of the group

10.9 Tests

In such courses as Measurement and Evaluation and continuous assessment, test as a subject has been fully discussed. If you have not done them, you will do those courses very soon. In this section, we shall only touch briefly on tests as an important tool for data collection in research.

Tests are specialised instruments for the measurement of mental/cognitive abilities, physical/psychomotor abilities and emotional/affective tracts. Tests are regarded as the most objective measure of sample behaviour in research. There are different types of tests. These are divided into two broad categories of norm-referenced and criterion-referenced tests.

Norm-Referenced Tests

These refer to tests given to individuals in order to compare their scores to those of other individuals or groups called a norm group. Most of the tests here are standardized and are used at the state and national levels. The Common Entrance Examination for selection of students into postprimaryorganisations are typical examples.

You see that NECO conducts its own entrance examination for the Unity Organisations in the country, while all the states have their own entrance examinations. The type of tests used is the norm-referenced tests. You can give other examples like UME, etc.

Criterion-Referenced Tests

These are tests designed to measure some specified behaviour on a criterion that has comparison with any normative or referenced group. You want to see how much of the specified subject matter your students have mastered. You want to see how much of the objectives your students have achieved. In this case, you are free to construct your own test or use a standardized test. If you make your own test, you have to conduct a trial test of the instrument on subjects similar but not those to be used in the research to avoid test-wiseness. The trial-testing or pilottesting of the instrument will help yo0u to ensure the validity and reliability of the items before they are finally used in research.

The various types of tests that could be used for data collection in research include: intelligence tests, aptitude tests, achievement tests, sociometric tests which measure interpersonal relationship skills in a group.

10.10 Revision Questions

1. Differentiate between interest inventory and sociometric techniques.
2. Explain the two broad types of tests.

10.11 Conclusion

In this unit, you have gone through some other methods and instruments for data collection in research. Whichever method you choose to use, you need to trial-test the measuring instrument using a few subjects whose characteristics are similar to those in the sample. The multifaceted purpose of trial-testing is to ensure a satisfactory level of functionality, to estimate reliability, to obtain new insights, and to eliminate ambiguities. You have to avoid instrumental problems which may be mistaken for genuine difficulties in the research. This may lead to unnecessary expensive repetitions or abandoning of the research erroneously. Trial-testing of the instrument makes you see the feasibility or otherwise of the research study.

10.12 Summary

In this unit, you were able to study five other methods of data collection. Rating scales are developed to discriminate human behaviour into categories or levels. Attitude scales are developed to measure feelings, emotions and personality of the individuals. The Likert scale, Thurnstone scale and Guttmann scale belong to this category. Interest inventories are used for measuring person's likes and dislikes.

Sociometric technique is used for measuring mental/cognitive, psychomotor, emotional etc. abilities/tracts. It could be classified into norm-referenced and criterion-referenced tests.

10.13 Revision Questions

1. Construct a 10-item behaviour rating scale for the measurement of your employee's/students' behaviour in your classes/organisation.
2. Construct a 10-item attitude questionnaire for the measurement of your employee's/students' attitude towards work/management.

10.14 Further reading

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Denga, I.D. & Ali, A. (1983). *An Introduction to Research Methods and Statistics in Businessand Social Sciences*. Jos: Savannah Publishers Limited.

UNIT 11

VALIDITY AND RELIABILITY OF AN INSTRUMENT

10.0 Introduction

In the previous units, we have discussed various methods of collecting data using different instruments. However, the instruments have to be validated so as to come up with more reliable results. This unit therefore, discusses the reliability and validity of research instruments.

11.1 Measurement Error

Errors in measurement could arise from faulty instruments incorrect interpretations of the values obtained or instability in the behaviour of the respondents or testees. These errors could be systematic or random.

A systematic error can occur when the errors are very frequent and are made in one direction away from the true score. Take for instance, your table clock in your office which is always adding time or always faster than the true time or an achievement test which keeps reporting very high scores for every testees.

Random errors can occur when measurement values deviate from the true score and as frequently in one direction as another. If you take the clock as an example, you will see that sometimes the clock will gain time and lose time on the other times. Random error can be attributed to chance factors. It should as much as possible be estimated and adjusted for or its sources eliminated.

In the case of the clock in your office, how do you think you can eliminate the error? Your answering has been to improve the working condition or to replace it. An instrument should as much as possible be designed to measure the true score. The degree to which an instrument measures the true score is an indication of two very important factors. These are reliability and validity. We are going to look at these in the next two sections. Meanwhile, note that the degree of random error is inversely related to the degree of reliability while the degree of nonrandom error is inversely related to the same variable or when you use a large sample in your study, random errors tend to average out over repeated measurements.

Therefore, to improve reliability of an instrument, the best strategy is to use multiple measures, multiple measurements and multiple investigators. This is what the triangulation theory of Denzin (1978) specified.

11.2 Validity

You have been reading about validity and reliability. What is validity? It refers to the extent to which an instrument measures exactly what it purports to measure and nothing else. As a researcher, you are faced with several Business variables for measurement. These include: intelligence, attitude, achievement, aptitude, creativity among others.

Validity is always specific to some particular use. An instrument may be valid for one purpose, but not for another. You should therefore ask yourself whether the instrument is valid for the purpose to which you intend to put it. For instance, an instrument that has a high validity in reasoning ability may have very low validity for measuring arithmetic ability. An instrument may be valid for one culture or geographical setting, but not valid for another.

Validity can be classified into three major types. These are content, construct and criterion-related validities.

11.2.1 Content Validity

This refers to the degree with which the items of an instrument are representative of the content and behaviours specified by the theoretical concept being measured. It is estimated using the sample of items and comparing them with the content and behaviours which they should represent. A high degree of content validity is achieved if the sample of items covers all aspects of the content and behaviours.

A way of estimating the content validity of a test is by constructing a test-blue point otherwise called table of specification. This systematically specifies the content, objectives and evaluation techniques in the process of generating valid test instruments.

Face-to-face validity – This is a type of content validity. Most people, some of the times, erroneously equate it with content validity. But it refers to the subjective judgement of assessors about what an instrument appears to be measuring, that is, on the face value. There is no systematic procedure adopted for this purpose.

11.2.2 Construct Validity

This refers to the extent to which a particular instrument reflects hypothetical constructs presumed to underlie the performance and also the extent to which the instrument reflects the theories underlying the constructs. Some psychological concepts such as: intelligence, creativity, anxiety, attitude, reasoning etc. which cannot be seen with the eyes but their existence can only be inferred from manifested characteristics or behaviour are called constructs. For you to design a test, you have to ask: To what extent do certain explanatory concepts or qualities account for students' performance on a test?

The process of construct validity is easy to determine only when the construct is specified. Therefore, the construct should be precisely defined before you undertake to develop the instrument. Let us take students' interest in your subject, for instance. In the definition of interest, you specify such behaviour as prompt attendance, alertness, carrying out assignments, smiles on their faces when they understand, curiosity to learn, asking relevant questions etc. So when you administer a testing the subject and notice that students who exhibit the abovementioned behaviours perform better, you can say that the test has good construct validity.

11.2.3 Criterion Related Validity

This refers to the extent to which an instrument yields the same results as a more widely accepted measure. If you want to verify the degree of criterion-related validity of your test, you can compare the result of your test and that from a known test like the Standford – Binet Intelligence Test, using correlation coefficients. If your test correlates highly with the known test, you say it possesses a high degree of criterion-related validity. This is possible if the two tests are on a related area. For instance, Eyesenk Personality Inventory can be used as a criterion for a new personality measures. Criterion-related validity is of two types. They are concurrent and predictive validities.

(a) Concurrent Validity

This is applicable when a new instrument is administered at the same point in time as well as a known instrument. It can be very useful if the equivalent form of an instrument is required concurrent validity is attained when the correlation between the results of the newly developed instrument and those of suitable equipment is sufficiently high.

(b) Predictive Validity

This is concerned with the prediction of future performance. It is the degree to which predictions made by an instrument are confirmed by the later behaviour of respondents. For instance, you can use the results from an intelligence test or aptitude tests to predict success at organisation. You can also use the results from JAMB or UME to predict the performance of students in undergraduate courses. A second instrument can be administered after the behaviour which the first instrument attempts to predict has occurred. The results yielded by the two instruments are correlated. A sufficiently high correlation index shows predictive validity.

Activity

1. What is validity?
2. Describe the two types of criterion-related validity.
3. What are the two types of measurement errors?

11.3 Reliability

This is a common word in everyday usage. But in Business research, it refers to the extent of consistency with which an instrument measures what it is measuring. An instrument is regarded as reliable if it yields the same results time after time, or if similar results come out consistently under the same or slightly different test conditions. It is very important that the test you are going to use for your research project is reliable, especially if your research study is going to involve pretest and posttest, experimental and control groups. If your instrument has low level of reliability, it may not be able to discriminate between pretest scores and posttest scores. It may not discriminate effectively between the performance of the experimental and control group. Correlation coefficient is an important statistical procedure for determining the degree of reliability. You will be learning more of it in the module containing statistics. The methods of estimating reliability include: testretest, alternative form, split-halves and internal consistency methods.

11.3.1 Test-Retest Method

This involves the repeated administrations of the instrument to the same people on two occasions. It is usually recommended that the time interval be between two weeks and one month. The scores resulting from the two administrations of the test are correlated to determine the coefficient of stability. You will have to note that if the time interval is too short, the memory of the responses to the first test will affect the second. A long time interval may create opportunity for candidates to learn more or to forget what they had known.

11.3.2 Alternate-Form Method or Equivalent Form Method

In this method, two parallel forms of an instrument are administered to the same respondents at a single sitting or with a short time interval between the two. The scores from the two tests are correlated to determine the coefficient of equivalence.
You have to note that parallel forms of an instrument are expected to have the same specification of content and objectives and measures the same behaviours.

11.3.3 Split-Halves Method

This is a measure of internal consistency. It requires the administration of a single test instrument to the students once then the items of the instrument are split into two parts.

In other words, the total set of items is divided into halves. The scores on the halves are correlated to obtain the estimate of reliability. You can split the items using odd and even numbers, or randomly dividing the items into two groups etc. You can see that the result you get from it for a half test. Therefore, it is corrected using the Spearman-Brown formula:

$$r = \frac{2r_{½}}{1 + r^{½}} \quad \text{or} \quad r_c = \frac{nr_s}{1+(n-1)r_s}$$

where r = reliability of the whole test $r^{½}$ or r_s = reliability of the half test.

11.3.4 Internal Consistency Method

The estimate here is obtained through an analysis of the individual items following a single administration of the measuring instrument.

(a) The Rational Equivalence Method

This uses the formation of equivalent halves by considering all possible splits and computing the reliability coefficient by employing either Kuder Richardson formula (for dichotomous items) or Cronbach's alpha (for Likert scales). Kuder and Richardson (1937) developed coefficients for estimating the reliability of instruments composed of dichotomouslyscored items. You may note that dichotomous items are scored one or zero for presence or absence and for positive or negative responses to characteristics under investigation.

The most widely used formulae are numbers 20 and 21 otherwise called KR20 and KR21. KR21 is simpler and can be used for instruments developed by individual researchers, while KR20 which is more technical is used for determining the degree of reliability of standardized tests.

KR20 is given by; $KR20 = \left(\frac{N}{N-1}\right)\left(\frac{1 - \sum P_i q_i}{Qt^2}\right)$

where N = the number of dichotomous items
Pi = the proportion of positive responses to the ith item
q_i = $1 - P_i$
$\sum$ = summation
Q^2t = the variance of the total composite

KR21 is given by; $KR21 = \left(\frac{N}{N-1}\right)\left(\frac{Q_t - \sum Pq}{Qt^2}\right)$

where N = the total number of items

P = the proportion of positive responses to the each item

q = the proportion of negative responses to each item

$\sum$ = summation

Q^2t = variance of the total composite

Cronbach's alpha is a unique estimate of the expected correlation of one instrument with an alternative form that can be used for polychotomous items while Cronbach alpha is a generalization of it.

Cronbach's alpha is given by $\infty = \left(\frac{N}{N-1}\right)\left(\frac{1 - \sum Q^2(Pq_i)}{Qt^2}\right)$

where N = the number of items

$\sum Q^2(Y_i)$ = the sum of item variances

Qt^2 = the variance of the total composite

(b)Standard Error of Measurement

This is an estimate of test reliability obtained from the reliability coefficient and the standard deviation of test scores. It is inversely related to the reliability coefficient.

(c) Factor Analysis

This is used to obtain estimates of reliability which approximate the true reliability better than all other coefficients. It is represented by coefficient theta (Ø) which is derived from principal components factor analysis. It can be used to estimate reliability.

Another coefficient called omega (Ω) also derived from factor analysis can also be used to estimate reliability.
Do not be scared by these estimates of reliability. You may not need to use them at this stage. They are mentioned for you to know that there are more methods.

11.4 Revision questions

1. What is reliability of an instrument?
2. What are the methods of estimating reliability?

UNIT 12

INTRODUCTION TO STATISTICS

12.0 Introduction

In the previous modules/units, you worked through the different methods of collecting data in research. The question is: what do you do with this seemingly unmanageable bulk of data?

This question will take us to 'Data Analysis', which we shall describe "as the process of organizing and summarizing data in order to provide answers to the research questions or test hypotheses stated in the study". This process, most of the times, involves the use of statistical procedures to summarise and describe the characteristics of samples and populations of the study.
In this unit, we shall first look at the meaning of statistics, the types of statistics and organisation of data.

12.1 Objectives

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

- define the concept statistics
- explain the types of statistics
- organize a set of scores under (a) sequencing, (b) frequency distribution table, (c) bar chart.

12.2 Meaning of Statistics

Statistics, as a word, has different shades of meaning. These meanings can be in the plural form or singular form.

(i) **It is regarded as a state arithmetic**: In this case, it involves observing, recording and computing the amount of resources, financial, human and material, available to a government for the purpose of governance or war. Every government needs accurate statistics to make governance easier.

(ii) **Statistics can be regarded as pieces of information**: Statistics imply data or pieces of information e.g. the age of Banda, the height of Sakuwaha, the weight of Mulenga, the number of students in Mr. Sikalumbi's class, the number of classes in

the school of business. Others are: number of accidents on road A for a year, number of candidates employed by company B in 2019, the number of workers retrenched during the reform programme.

(iii) **Statistics as summaries of information**: In this case, it can be used as summaries of information about a small group of individuals selected from large group for the purpose of investigating the large group. This is called sample statistics. This can be in the form of sample size, mean, median, variance, standard deviation, mode, etc. Each of these is regarded as a statistic.

(iv) **Statistics as Mathematical function or models**: In this case, it is used for comparison of two or more samples. In other words, it can be used for pair wise differences, ratios of 2-test, 2-score, tscore, t-test, f-test etc are examples.

(v) **Statistics as academic discipline**: In this case, it is regarded as a subject or field of study, in which case, it is an aspect of applied mathematics.

According to Spiegel (1972), statistics is concerned with scientific methods for collecting, organizing, summarizing, presenting and analysing data as well as drawing valid conclusions and making reasonable decisions on the basis of such analysis.

You can get so many definitions of statistics from so many textbooks. Since this course is not purely on statistics, we shall look at statistics as the science of decision making in the face of uncertainties. Look at Hays (1973). He says that statistics serves in two capacities by:

(1) giving methods for organizing, summarizing and communicating data, and
(2) providing methods for making inference beyond the observations.

In summary, statistics involves observation, collection of data, organisation of data, presentation of data, analysis of data, interpretation of data and decision making. You may wish to note that statistics, when used as a subject, is not the plural of statistic. A statistic is a measure which we obtain by observing the characteristics of the sample. You have learnt that we study a sample in order to make inferences about the population.

Therefore, the characteristic of the population which we estimate from a sample characteristic or statistic is called a parameter. The mean of a sample is 50. The mode of the distribution is 45. It means that 50 is a statistic, 45 is also a statistic. You can give other examples.

12.3 Types of Statistics

You may have heard about different types of statistics, such as correlational, probability, parametric, non-parametric, etc. statistics. All these have been grouped into two major

types. These are descriptive and inferential statistics. In this section, you will read a brief presentation of these major types.

12.3.1 Descriptive Statistics

This can be described as a type of statistical application which is concerned with the organisation and presentation of data in a convenient, usable and communicable form. Spiegel (1972) described it "as the set of methods serving the functions of organizing, summarizing and communicating data.
You can use descriptive statistical methods when you are interested in merely describing the characteristics of the group or the sample of study. It means that the descriptive analysis which you make will not generalize beyond the particular group or sample observed. In the same way, conclusions drawn from the study are limited and apply only to that group of study.

12.3.2 Inferential Statistics

These are statistical methods used for arriving at conclusions extending beyond immediate data. They are the phases of statistics which can be used to deal with conditions under which conclusions are drawn about a larger group based on data collected from some smaller group or groups chosen from and related to the larger group.

Inferential statistics can be described as a statistical procedure which makes use of sample statistics to make inferences about the population parameters. It involves the process of sampling that is representative of the population. It makes use of the aspect of inferential statistics called parametric statistics which are powerful tests that make use of the normal probability model, or making comparison involving the setting up of confidence limit, setting up of the degree of freedom etc. We shall discuss this later.

12.4 Benefits of the Study of Statistics

When you study statistics, you stand to derive some general benefits. These benefits focus on the useful knowledge, skills, capabilities or dispositions which you will acquire from the study of, or training in statistics. They vary, according to the extent and level of study, or training in the subject. Some of these benefits include that the study of statistics will enable you to:

1. Acquire knowledge and skills in observation, collection, organisation, communication, analysis of data, drawing inferences from the analysis of data and making sound decisions;

2. Make meaningful contributions to local, national or international debates on topical issues;

3. Read, understand and interpret communicated data, follow inferences drawn therefrom and appreciate decisions made consequent upon the inferences drawn;

4. Successfully execute empirical research. No reasonable or worthwhile empirical research can be carried out or reported without statistics for answering research questions, testing hypotheses or taking decisions and making predictions;

5. Read, interpret and make use of research reports or articles;

6. Follow and critique contributions to debates presented with facts and figures;

7. Acquire the skills and techniques for estimating, predicting and projecting into the future based on the previous and present data;

8. Draw sound conclusions based on some pieces of information that are probable or not quite certain.

12.5 Organisation of Data

Data collected in Business can be from various sources and can be in various forms, such as: opinions, scores/marks, frequencies, verbal etc.

The data can be organized or arranged to make them meaningful. In this section, we shall look at sequencing, tables, frequency distribution tables, bar charts, etc.

Sequencing

This involves arranging the data in order of magnitude – ascending or descending order. See example below:

Example 1:

Given that the test scores of 10 students in statistics are:

8, 9, 2, 5, 7, 6, 4, 9, 8, 3.

This could be arranged in ascending order thus:

2, 3, 4, 5, 6, 7, 8, 8, 9, 9 or in descending order thus: 9, 9, 8, 8, 7, 6, 5, 4, 3, 2.

If the data consists of names, they can be arranged in alphabetical order. If they consists of objects, events, animals, etc. they can be arranged according to kinds, species, groups etc.

Tables

A table can be regarded as a two-dimensional representative of statistical information or data. Tables can be simple or complex as shown in the examples below.

Example 1.

***Table 16.1*:** Students' Enrolment in public university, 2010 – 20017.

S/N	Year	Boys	Girls	Total
1.	2010	200	170	370
2.	2011	210	165	375
3.	2012	230	170	400
4.	2013	220	175	395
5.	2014	240	180	420
6.	2015	225	170	395
7.	2016	242	182	424
8.	2017	250	200	450

Example 2.

***Table 16.2*:** Distribution of Business teachersin provinces (assumed)

S/N	Local Government	No. of Teachers
1.	Copperbelt	525
2.	Central	425
3.	Lusaka	600
4.	Southern	400
5.	N/ Western	325
6.	Luapula	425
	Total	**2,700**

Frequency Distribution Table

A frequency distribution table shows the number of times each score, value or item occurs in a distribution. It consists of two columns – one for the scores/items and the other for the frequency.

Example 3:

The scores of some students in a Mathematics test are given below. Present the scores in a frequency table.

10, 15, 18, 12, 14, 15, 20, 15, 16, 11, 12, 14, 19, 20, 17, 18, 15, 13, 11, 12, 19, 13, 10, 14, 17, 19, 16, 15, 15, 15.

***Table 16.3*:** Frequency Distribution Table

S/N	**Score**	**Tally**	**Frequency**
1.	10	\\	2
2.	11	\\	2
3.	12	\\\	3
4.	13	\\	2
5.	14	\\\	3
6.	15	\\\\ ~~\\~~	7
7.	16	\\	2
8.	17	\\	2
9.	18	\\	2
10.	19	\\\	3
11.	20	\\	2
			30

Note that when you tally, each number tallied is neatly cancelled to avoid confusion.

12.6 Revision questions

1. What is statistics?
2. What are the two types of statistics?

UNIT 13

WRITING RESEARCH PROPOSALS AND REPORTS

13.0 Introduction

The final stage of any research process is the writing of the research report. Research is very important, because the findings generated can be used for rational decision-making and, according to Nkpa (1979), as a springboard for further research.

The main aim of writing research report is to communicate or disseminate the research findings to the literate audience. In writing the research report, the impersonal mode is preferred. That is to say, instead of say "I did this", you should say "the study was carried out to do this".

You will have to note that in presenting a research report, you have to use the required format. Most institutions have their own format. These formats or house-styles do not vary significantly from the general format.

CHAU and School of Leadership and Business Management, has its own house-style. For the purpose of this unit, we shall discuss the general format.

13.1 Objectives

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

- itemise the chapter titles and sub-titles in a research project report
- prepare a research report based on the given format.

13.2 Sample Format of a Research Proposal

A research proposal provides a systematic plan of procedure for the researcher to follow. It is written in the future tense showing a detailed account of:
(i) the research topic one intends to pursue,
(ii) why it is of interest to pursue the topic, and
(iii) how one intends to gather and analyse data.
It has various functions, one of which is to enable people determine the quality of a study before it is actually carried out. Below are the guidelines.

PROPOSAL GUIDELINES

1. *The recommended length of pages per proposal would be between 8 - 20 pages depending on the level of academic study, exclusive of the Title page, budget, time line and references.*
2. *In terms of font type and size, Arial or Times New Roman font 12 is preferred while 1.5-line spacing is allowed.*
3. *The table of content must be included to guide the reader.*
4. *Title page*

   The title page should carry the following information suitably spaced and centered:

   (i) Full title of the study

   (ii) By

   (iii) Student's full name

   (iv) *The statement '**A proposal submitted to …….. (name of institution) in partial fulfillment for the requirements of the award of a Bachelor of Business …… (name of qualification) degree in.'***

   (v) Institution name, town; and

   (vi) Year

TITLE/TOPIC*: A research title is the first statement that helps the reader begin to understand the nature of the study. It should have the following information:*

- *Must convey to the reader the main focus of the research. (Describes what the study is about, giving a quick summary of the idea in a proposal or dissertation).*
- *Must link key variables*
- *It should be limited to a single statement and not more than twenty words.*
- *Be manageable (researchable) and material should be available.*
- *The topic should be related to education or program some is studying.*

CHAPTER 1 – INTRODUCTION

1.1 Background of the Study

- *This is a brief overview of the problem the researcher aspires to tackle.*
- *It provides a picture of the problem to be researched.*
- *Some literature review in which an explanation on what previous studies state about the topic is given.*
- *It must tackle the global aspect, continental if any, national and then narrow it to the area of concentration.*

1.2 Statement of the problem

- *It is a brief description of the issues that need to be addressed by the researcher.*
- *It clearly states the problem by indicating unanswered question(s), gap(s) or area(s) that have not been understood, determined or tested.*

- *The problem should be supported with literature.*
- *The statement of the problem should not be written in a poetic, comical or emotional language.*
- *It should be stated in a simple declarative statement such as 'We do not know……'*
- *It is a summary of what you want to prove or answer in the report.*

1.3 Purpose of the study

- *It is a general statement of what the researcher hopes to accomplish by the end of the study.*
- *It assists in the formulation of objectives as it pinpoints to the purpose of the study.*

1.4 Objectives of the study

- *In research, an objective is a specific statement relating to the defined aim of the study.*
- *These are intentions or purposes stated in specific measurable terms.*
- *They provide opportunities for evaluating the end results.*
- *When writing specific objectives, they should be:*
  (i) few (not more than four), depending on the level of academic study.
  (ii) specific, measurable, attainable, realistic and time bound (SMART).

1.5 Research questions

- *These are questions the researcher seeks to answer.*
- *Each question should be linked to a specific objective.*
- *They guide the research process by addressing the variables of the study.*
- *The number of research questions must be equal to the number of objectives.*

1.6 Delimitation of the study

- *This provides a description of site/area where the study will be conducted.*

1.7 Limitations of the study

- *The researcher indicates challenges estimated or to be faced such as time and financial constraints that influence the scope of the study, data accessibility, and unanticipated occurrences.*

1.8 Significance of the study

- *This part gives a rough idea or the importance of the study, beneficiaries, if any and how they shall benefit from such a study.*

1.9 Theoretical framework

- *This is a collection of interrelated ideas based on theories.*
- *It accounts for or explains phenomena.*
- *It tries to clarify why things are the way they are based on theories.*
- *The theory a researcher picks/selects must have related to the study.*
- *A researcher should clearly show how the theory selected will help him/her understand the research topic.*
- *Pick one or two related theories (also depending on the level of academic study).*

1.10 Definitions of operational terms

- *These are the key terms that you are going to use in the study.*

- *They are interpreted according to the way they will be used in your study.*

CHAPTER 2 – LITERATURE REVIEW

- *This is a summary of the writings of recognized authorities and of previous research providing evidence that the researcher is familiar with what is already known and what is still unknown and untested.*
- *Citing studies that show substantial agreement and those that seem to present conflicting conclusions helps to sharpen and define understanding of existing knowledge in the problem area, provides a background for the research project and makes the reader aware of the status of the issue.*
- *Attempt to answer all your research questions in your literature review.*
- *Provides a critique of the validity of the literature.*
- *Consider the global view, continental and then national view*
- *Restrict your literature review to the research questions and objectives. The center should be the problem statement. How is it addressed by other scholars/researchers?*
- *In-text sighting is encouraged.*
- *Paraphrasing is encouraged.*
- *Plagiarism is not tolerated.*
- *Reference every information that is not yours by quoting.*

CHAPTER 3 – METHODOLOGY

3.1 Research design

- *The research design is a scheme, outline or plan that is used to generate answers to the research problem.*
- *Will your research be qualitative or quantitative or mixed?*
- *Justification must always be shown for choosing a particular research design.*

3.2 Target population

- *The section shows the population (a group of individuals, objects or items) from which the researcher plans to select the sample.*
- *Variables that are frequently included, depending on the type of project proposed include: chronological age, grade level, socioeconomic status, sex, race, mental age, academic achievement level, and other pertinent attributes to the target population.*

3.3 Sample size

- *The number of subjects selected from the target population to participate in the study.*
- *From each group of the population, how many do your intent to consider in your research?*
- *It can be stated either in actual numbers or in percentage.*

3.4 Sampling techniques

- *This is a procedure the researcher uses to select subjects for the study.*
- *This involves explaining the type of sampling procedure to be used to select the sample.*
- *Is it randomly, stratified, purposeful or convenient sampling technique among others?*
- *Justification should be provided for selecting a particular sampling technique.*

3.5 Research instruments

- *Describes what data gathering devices will be used. These may include questionnaires, interview schedules, observations and focus group discussions (FGDs) among others.*

3.6 Data collection procedure

- *A research permit is required before embarking on the collection of data. The researcher should explain in the proposal how he/she will go about this.*
- *It describes in detail what will be done, how it will be done, what kind of data will be obtained, what data will be needed and how it will be treated and kept.*

3.7 Data analysis

- *This section indicates the tools and procedure to be used in analyzing data and their justification.*
- *The information given in the data-analysis section should be specific and detailed enough to demonstrate exactly what is planned.*

3.8 Ethical considerations

- *Ethics deal with morals and the principles of morality. Most educational research involves using human beings as subjects. It is the responsibility of the researcher to protect the people participating in the research. For example, names of participants should not be disclosed. Here the researcher explains how he/she will deal with ethical issues.*

REFERENCES

- *This is a list of all the literature sources that have been read and cited in the research report.*
- *Only the literature used in the text should be shown and the references must be written in alphabetical order.*
- *The American Psychological Association (APA) style of referencing must be used in education research.*

APPENDICES

- *The researcher gives information here which may be of interest but not critical to the study.*
- *The information usually includes research instruments, copies of letters (respondents and researcher's introductory letter), the budget and work plan.*

Work plan

- *This is the time frame for the study showing the times when particular aspects of the study will be undertaken.*
- *This is outlined in as much detail as possible.*
- *It helps to demonstrate the practicability of the study in a very visible way.*

Budget

- *This refers to the amount of money needed for the project.*
- *It is important to see how finances will be allocated for the study.*

13.3 Sample Format of a Research Report

As you have seen in the introduction, a research project report is a detailed account of what the researcher has done in the process of carrying out the research the findings of this study. The report is not presented in any form. It follows an agreed format as summarised below. This format is only a guideline. Though this is the conventional format, only relevant section should be used in line with your house style. The report starts from the chapter three of the research proposal. It only has chapter four (presentation of the findings) and chapter five (Discussion and interpretation of the findings). Chapter six will be conclusion and recommendations. References will follow and appendix where you include questionnaires, research maps, ethical documents, and any other additional data to your findings.

Additionally, the report will be written in past tense hence the grammar in the research proposal which is in future tense is changed to past tense.

1. Preliminary pages:

i. Title page
ii. Declaration page
iii. Approval / Acceptance page
iv. Certification page
v. Dedication
vi. Acknowledgement page
vii. Abstract
viii. Table of Contents
ix. List of tables
x. List of figures
xi. List of appendices

Steps in Research Report Format

You have already noted that a research report is a straight forward, clearly and precisely written document in which you attempt to explain how you have resolved the problem before you. The presentation, in this unit, is consistent with the most acceptable formats. So let us explain them.

Preliminary Pages

i. ***The title page***: This is the first page of this section. It contains the title of the study, the name of the author, the relationship of the research to a course or degree requirement, name of the institution where the report is to be submitted, and the date of presentation.

The title should be concise and state clearly the purpose of the study. The essential elements to be included in the title are the major variables and the target population. These should be phrased in such a way as to describe what the study is all about. You should not state your title so broadly that it may claim more than it can actually deliver. For instance, sex differences in the enrolment of SSCE candidates in Technical Drawing from 2004 to 2007, or The effect of group discussions on learning outcomes in the Open and Distance Business system. You can note the variables here. The title should be typed in capital letters, single-spaced, and centred between the right and left margins of the page.

ii. ***Approval/Acceptance page***: The specifications vary from institution to institution. It contains some of the following information: the names, signatures of the head of department, the dean, the supervisor(s) and dates, the names(s) of the student(s).

iii. ***Certification page***: This contains the attestation of originality of the research project. It may also include the name and signature of the external examiner.

iv. ***Dedication***: Here, emotionally-laden words may be permitted in order to pay tribute to persons who are dear to the author or those who contributed in one way or the other to the success of the project and those who would particularly be interested in the research findings.

v. ***Acknowledgement page***: This is used to express gratitude to those who helped in the process of conducting the research and preparing the report. It should be simple and restraining.

vi. ***Abstract***: This is a succinctly summarised form of the report containing the aim of the investigation, the sample, methods of investigation, the instruments used for data collection, the analysis and findings.

vii. ***Table of Contents***: This serves an important purpose of providing the outline of the contents of the report. It lays out in a tabular form, the chapters, headings and sub-headings of the report. It is sequentially arranged and numbered from the preliminary to the supplementary pages. Page references for each topic are so indicated.

viii. ***List of tables and figure and appendices***: If tables and/or figures are used in the report, a separate page is included for each list. It should indicate the page numbers in which the tables or figures presented in the report are located. The numbers and titles are serially listed. Also contained is the list of appendices that are embodied in or annexed to the report.

The pages of the preliminary section are numbered with lower-case Roman numerals (i, ii, iii, iv, v, etc).

NOTE: Chapter one to three is already in the approved proposal. It is only changed to reported speech. The only addition are chapter four (presentation of the findings) and five (discussion and interpretation of the findings) discussed below.

Results and Discussion (chapter four and five)

Presentation and Analysis of data: This is the heart of the research report. The results are clearly and concisely set out using the most illuminative modes of presentation. Tables, figures, graphs and textual descriptions are used to clarify significant relationships. They should be serially numbered and titled so as to be self explanatory. They should be simple and should be directly related to the hypotheses and/or the research questions.

Interpretation of the finding: The most important task which you have to undertake in writing the results of your study is to identify and interpret the major findings. You should be able to discuss possible reasons why the results occurred the way they did. You should try to fit them into the findings of previous research, suggest the applications to the field and make theoretical interpretations.

Summary and Conclusions

i. **The Summary**: In this section, you should clearly and concisely restate the problem, the hypotheses and/or research questions, the main features of the method omitting most of the details concerning the subjects and measures and list the main findings.

The summary must be very brief, but consistent with a clear presentation of all important information about the problem, method and findings. The findings should be listed by number. You should summarise each major finding in one or two statements.

ii. **The Conclusion**: This gives answers to the questions raised or the statements of acceptance or rejection of the hypotheses. It should be based solely on the findings generated by the research.

iii. **Implication of the study**: In this section, you may include ideas on the relevance of the findings to Business theory and practice. But these ideas should be directly be derived from the study.

iv. **Suggestions for further study**: It may be appropriate here to suggest areas of problems for further investigation. This is made as a result of matters arising from the research.

Supplementary Pages

i. **Reference**: In this section, you should include all references cited in the report and those not cited, but consulted to shed light on the problem. References are cited uniformly and according to a given style.

Most universities adopt the APA format. References are done serially and alphabetically. You can look for the APA format and go through it.

ii. **The Appendices**: This contains extra information which is part of the report the reader should know about, but not necessarily for inclusion in the main report. They include long tables, forms, instruction aids, data collecting instruments, items analysis data, scoring protocols and procedures, lengthy quotations etc.

Each separate entry heading is listed as APPENDIX A, APPENDIX B, etc.

13.4 Revision Questions

Go to any university library and select three different research projects. List the items on the table of content and compare them.

13.5 Summary

In this unit, we have discussed and presented a sample format of a research report. We have also discussed these steps in details stating from the preliminary stages to the supplementary stages. We have emphasised that your reports should not be presented with personal pronouns like I, my, we etc. Instead use impersonal pronouns and passive voice. You should make sure that the report is written in a clear, simple and straightforward style. Your motive should be effective communication. Therefore, use very simple language. You should always be brief so as not to bore your reader. Abbreviations should only be used after they have been written in full earlier. Avoid the use of generalizations or conclusions, which are not supported by the findings. We also said that every source cited in the work or used but noted cited in the work should be documented in the reference page. Improper citation or inability to give details of a source cited in the body of the work should be documented in the reference page. Improper citation or inability to give details of a source cited in the body of the work should be avoided. Remember that proofread the report thoroughly after typesetting. This will help you not submit avoidable errors.

13.6 Revision Questions

Pick up any four (4) research projects. Study the abstracts. What are the things that are common to all of them?

13.7 Further reading

Ali, A. (1996). *Fundamentals of Research in Business*. Awka, Zambia: Meks Publishers.

Anaekwe, M.C. (2002). *Basic Research Methods and Statistics in Business and Social Sciences*. Enugu: Podiks Printing and Publishing Company.

Denga, I.D. & Ali, A. (1983). *An Introduction to Research Methods and Statistics in Business and Social Sciences.* Jos: Savannah Publishers Limited.

Ikekhua, T.I. &Yesufu, J.T. (1995). *Exposing Research Methods in Business Study andReporting aid for Students and Beginning Researchers*. Warri: Ar B10 Publishing Limited.

Nkpa, N. (1997). *Business Research for Modern Scholars*. Enugu: Fourth Dimension Publishers.

14. CONCLUSION

At the end of your programme, you are expected to carry out a research. At the end of the research, you are also expected to submit a written report of the investigation. In this unit, you have gone through the involvement in the writing of the report. A very important demand here is that you must be as objective as possible in your report. At the initial stage, you cannot make any statement that would show you are in favour or against an idea. Your report should be devoid of emotional or subjective statements. You should arrange the different parts of the report so as to make it possible for a reader to easily locate any section of particular interest to him.