NATIONAL OPEN UNIVERSITY OF NIGERIA

COURSE CODE: FMS 304

COURSE TITLE:
RESEARCH METHODOLOGY

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UNIT 1: CONCEPTUAL FRAME WORK OF RESEARCH

CONTENT

1.0 INTRODUCTION:

As you may have noticed, the word research is used in every day speech to cover a broad spectrum of meaning.

This is why some of the times students get confused by the term. But you will learn and make use of it in its specialized denotation. This is because, in everything we do and everywhere we go we find out that our knowledge is incomplete and problems are waiting to be solved. We have to address the void in our knowledge and try to resolve those unresolved problems we encounter by asking relevant questions and seeking answers and solutions to them. Research therefore provides a technique for obtaining these answers and solutions. This is obtained through inquiringly studying evidences we obtain through scientific methods.

Your first unit in this course will take you through the concept of research, characteristics, types and purposes to enable you make up your mind on what research as a technical subject is all about.

2.0 OBJECTIVES:

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

Describe the meaning of research

Explain the characteristics of research

Discuss the types of research

Explain the purpose of research

3.0 MAIN CONTENT

3.1 THE CONCEPT OF RESEARCH

Let us start this section by saying that research is the way in which we acquire dependable and useful information about everyday life process. Research may be broadly described as any systematic endeavors or striving towards the understanding, on perceiving certain complex situational problem of more than immediate personal concern and stated in a problematic form. (Heros, 1960). Travers (1969) has described research as an activity directed towards the development of an organized body of scientific knowledge about the events with which human

beings are concerned. The goal is to discover general principles or interpretations of behaviour, to explain, predict and control events in everyday life situations.

Now tell me, when you spend the whole day or days in the library making notes from textbooks and other publications, when you visit many websites through your computer to collect information or when you rummage through available sources to retrieve some information, are you doing research? Some people may claim they are doing research. Let us see other definitions by other scholars. For instance leedy (1997) defines research as 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. Leedy (1997) has gone further to clarify for us what research is classified with and what research is **NOT. Let us start with what research is NOT.** According to him research is not:

Mere information gathering

Mere transformation of facts from one location to another

Merely rummaging information and

A catch word used to get information.

Leedy (1997) tells us that research is a process through which we attempt to achieve systematically, and with the support of data, the answer to a question, the resolution of a problem, or a greater understanding of a phenomenon. This process has eight distinct characteristics. These are:

Research originates with a question or problem: Everywhere around us is filled with many answered questions and unresolved problems. When we look around, we observe things that make us wonder and to ask questions. These questions may start to spark igniting chains of reactions which terminate in the research process. An inquisitive mind is the beginning of research.

Research requires a clear articulation of a goal: It is critical to have a clear and unambiguous statement of the problem. This statement gives you an exercise in

intellectual honesty. The ultimate goals of the research should be given in a grammatically complete sentence which is precise and clear.

Research requires a specific plan of procedure: You should not hope that the data necessary to solve the problem would somehow fortuitously come up. You have to have rather a planned attack, a search – and – discover mission explicitly planned or designed in advance.

Research usually divides the principal problem into more manageable sub-problems: A whole is made up of parts. This is a natural law universally accepted. So when you think about your principal goal in research, try to observe this goal precept.

Research is guided by specific research questions, problems or hypothesis: These guide you and direct you on what to do and how to do it in order to arrive at the solution to the problem.

Research accepts certain critical assumptions: These must be self-evident truths. These assumptions must be valid in order to make the research to proceed. You must let others know what you assume with respect to your study.

Research requires the collection and interpretation of data: You need to collect appropriate data, organize them in a meaningful way so that they can be analyzed and interpreted.

Research is cyclical or helical: The process of research follows a cycle. It begins simply and follows logical developmental steps. Before we leave this section, let us touch briefly on another definition of research by Best and kalin (1995). This definition is a more comprehensive and operational definition. ***It sees research as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles or theories, resulting in prediction and possibly ultimate control of events.*** Now let us look at the characteristics of research to classify this definition.

Research emphasizes the development of generalizations, principles or theories that will be helpful in predicting future occurrences.

Ii Research is based upon observable experience or empirical evidence.

Iii Research demands accurate observation and description.

IV Research involves gathering new data from primary or firsthand sources or using existing data for a new purpose.

Research is often characterized by carefully designed procedures that apply rigorous analysis.

VI Research requires expertise.

Vii Research strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected and the conclusions reached.

Viii Research involves the quest for answers to unresolved problems.

Ix Research is characterized by patient and unhurried activity.

X Research is carefully recorded and reported.

Xi Research requires courage sometimes.

Looking at the definitions and characteristics of research in this section, you must note that for you to be a research worker, you should be a scholarly imaginative person of the highest integrity, who is willing or spend long hours painstakingly seeking for the truth.

3.2 CHARACTERISTICS OF RESEARCH.

The major characteristics of any research are; Objectivity, precision, design and verifiability.

3.2.1 Objectivity.

In an ideal situation, a research is beyond the subjective bias of the researcher. As a researcher, you have to make deliberate efforts to eliminate all personal preferences. You should resist the temptation to seek only such data which support your hypotheses or your

line of taught. ***In a scientific research, emphasis is on testing the hypothesis not to prove it.*** You have to willingly suspend your personal judgment in order to allow the data and logic to lead independently to a sound conclusion. If you want to achieve objectivity in your investigation, you have to use standardized research instruments, choose appropriate research design and analytical tools and also ensure the dependability of data.

3.2.2 Precision

When you conduct a good research and write the report but your readers do not understand what you have done, you may have succeeded in wasting your time and efforts. Every research should use a technical language in order to convey the exact meaning to the readers. Such research languages include validity, reliability, random sampling variables etc. ***The most precise expression in quantitative research is the mathematical equation or statistical finding which explains or represents the truth. But in qualitative research, precision is achieved through words rather than numbers.*** So you have to use a very precise language to describe your study accurately. This is done so that the study can be replicated or the results correctly used.

3.2.3 Design

If you want to have a good research, you must have a very good and systematic design.

This implies that every scientific inquiry will generally undergo such steps as: -

Definition of the problem

Statement of the hypothesis

Collection and analysis of data

Testing and confirmation or rejection of hypothesis.

Reporting of the results.

Any research, which has no orderly design, cannot be replicated for verification.

3.2.4 Verifiability

When you conduct a research, you write your report. This presents the research design and the findings to the professional community. From this point other researchers and scholars will study

the report, analyze it in order to confirm or reject the outcomes. ***This tells you that research is a social enterprise.*** Its information is open for public scrutiny. Verification is related to objectivity and precision. It is only through further investigation or replication of the study can the results of any study be confirmed, revised or rejected. It is also through this process that a body of new knowledge is developed and new questions identified. ***Verifiability can be achieved through two different approaches.***

Analyzing the same data on the same sample through alternative analytical tools or statistical methods.

Replicating the study on a different sample.

SELF ASSESSMENT EXERCISE: 1

In your own words define the concept research.

Discuss the characteristics of research.

3.3. TYPES OF RESEARCH

Research in general can be classified in many different ways. If we want to classify research based on its ***goal or objective,*** then we think of two major types. These are fundamental or basic research and applied research.

3.3.1. Fundamental Research:

The main purpose of these types of research is to obtain empirical data which can be used to formulate, expand or evaluate a theory. It is not actually directed in design or purpose towards the solution of practical problems. The main aim is to expand the frontiers of knowledge without the intention of having practical applications. However, the results may be applied eventually to practical problems that have social values. Let us use hotel management as an example. You will see that all the advances made in this area are dependent upon basic researches in foods and nutrition, catering and hospitalities. In the same way, the progress made in business administration practices has been related to progress in the discovery of economics theories, administrative theories and management theories.

But you have to bear in mind that the primary concern of basic research is to create knowledge solely for the sake of knowledge. Its design is not in any way hampered by considerations of special usefulness of the findings.

3.3.2. Applied Research:

Unlike basic research, this type is directed towards the solution to an immediate, specific and practical problem. It is the type of research which you can conduct in relation to actual problems and under the conditions in which they are found in practice. You can use the applied research to solve problems at the appropriate level of complexity. Take for instance in the area of business management, or administration or even your own area of specialization, you can depend on basic research for discovering the more general laws of management or administration, but you have to employ applied research to determine how these laws operate in the real situation if scientific changes are to be affected in our lives, this approach will continue to be very essential.

At this juncture, you have to note that ***there is no sharp line of demarcation*** between basic and applied research. This is because applications of theory help in solving practical problems. You always apply the theories of administration or organization in your business management. On the other hand, basic research can also depend upon the findings of applied research to complete the theoretical formulations for example an organizational experiment could shed some light on a learning theory. At the same time, observations in a practical situation serve to test theories and may lead to the formulation of new theories.

When research is classified according to methodology, if can also be classified according to Creswell (1994) into two broad areas. These are quantitative and qualitative approaches.

3.3.3. Quantitative and Qualitative Research:

According to Leedy (1995) ***Quantitative research*** is an inquiry into a social or human problem, based on testing a theory composed of variables measured with numbers or figures and analyzed with statistical procedures in order to determine whether the predictive generalizations of the theory hold true. He also defines ***Qualitative research*** is an enquiry process of understanding a social or human problem, based on building a complex, holistic picture formed with words

reporting detailed views of information, and conducted in a natural setting. Whereas quantitative research, sometimes referred to as the traditional, the positivist, the experimental or the empiricist approach, is typically used to answer questions about the relationships among measured variables with the purpose of explaining, predicting and controlling phenomena; the qualitative research is used to an answer questions about the nature of phenomena with the purpose of describing and understanding the phenomena from the participant‟s points of view. The qualitative research is sometimes referred to as the interpretative, the naturalistic, the constructivist or the postpositive approach.

3.3.4. Other Categorizations:

These are other classifications of research based mainly on their specific method and goals.
The different types of research are:-

Action research: - A type of applied research that focuses on finding a solution to local problem in a local setting

Case and field study research: - A type of qualitative research in which data are gathered directly from individual or social or community groups in their natural environment for the purpose of studying interactions, attitudes or characteristics of individuals or groups.

Correlational research: - A statistical investigation of the relationship between one factor and one or more other factors. It looks at the surface relationship but does not necessarily probe for casual reasons underlying them

Descriptive or Normative Survey: - A survey method used to describe the incidence, frequency and distribution of certain characteristics of a population.

Ethnography: - A type of qualitative inquiry that involves an in-depth study of an intact cultural group in a natural setting.

Expost facto or Evaluation research: - A type of research which observes existing causal comparative searches back research and through the data for plausible causal factors.

Grounded theory research: - A type of qualitative research studies that aim at deriving theory through the use of multiple stages of data collection and interpretation.

Historical research: - A type of research that attempts to solve certain problems arising out of historical context through gathering and examining of relevant data.

Phenomenological research: - A type of qualitative research method that attempts to understand participants‟ perspectives and views of social realities.

Quasi-experimental research: - An experimental research that is not based on randomization and control.

True-experimental research: - An experimental study based a random assignment of subjects to groups and the administration of possibly different treatments followed by observations or measurements to assess the effect of the treatments. **(Leedy. 1995)**

3.4. PURPOSE OF RESEARCH

From what you have read so far in this unit you can simply say that the purpose of research is the development of theories by discovering broad generalizations or principles. It becomes evident therefore that a researcher deals with a wide range of associations, from concrete day to day activities and problems to a philosophical level of search for truth. We can then capture in a hierarchical or taxonomic fashion the main purpose of research as: - training, problem solving and search of truth or knowledge generation.

3.4.1 Training in Research.

By going through this course, you are subjecting yourself to be trained on how to conduct researches. Training takes different shapes. It depends on whether the project you are undertaking is for the award of degree of Bachelors, Masters or Doctoral in research methodology. Many of you who are taking this course or taking any Bachelors degree programme are not trained on how to conduct research. You may have been working in educational institutions or even out side the educational system, you may be working as a business consultant, a producer, a marketer, an advertiser, a tourism guide or an hotelier, you need to lave this training. If you want to conduct a research project in a scientific

manner, you need training in research methods. This curse is meant to provide you with the theoretical background for year project.

It will help you to make the right choice of research designs, tools and techniques for your research. Therefore, training in research methodology is an integral purpose of research in this programme. But if you have had any training already in research, this course can still help to refine your skills.

3.4.2 Problem solving.

This involves diagnosing and solving the problems in the system. You know your own system, banking and finance, tourism, Business management, hotel management among others. While we talk of problem solving, it is necessary you develop a more comprehensive view of it. It means a realistic understanding of a situation on the basis of data and statistics. Let us take the case of risk management in financial accounting. You may undertake to study the difference in the application of different aspects of risk management in the accounting system of the banks. These days most countries of the world invest considerable amount of money on the provision of electronic transactions-e-banking, e-payment, e-commerce, e-everything. You can take studies on the various aspects of the electronic business and utilization and show the differential out these using electronics and these who do not. What we are saying is that a series of studies can go into the diagnosis in order to develop better understanding of the practices in a system. You may also set out studies to actually get into experimenting with an innovative solution. You can device various methods of receiving customers and making their comfortable. The important thing to note here is that research can contribute to solving day-to-day problems.

3.4.3 Search for Truth.

This is the biggest challenge in research. A research in search of truth is most of the times classified as pure research. It is the ability to generalize and create knowledge. Such generalizations are derived from occurrences in repeated instances. Generalizations are drawn primarily on two bases. These are repeated observations in various possible situations and applications of statistical designs where the variables are statistically controlled.

Generalizations are drawn through tests of significance, level of confidence and such others types of analyses. Have you heard about statements like significant at 0.05 or 0.01 levels? These are typical research statements, which basically promise that such and such instance, will happen in 95% or 99% of the cases, and to that extent the phenomenon is generalizable.

Your project research which is the prime focus of this course is unlikely to achieve the sophisticated level of search for truth. But it is quite possible for you to undertake a study that could come close to generalization through application of statistical models and methodologies; such research will be based on quantitative techniques. However, whether you are using qualitative or quantitative method, the most important emphasis is on the use of scientific approach to research. **This scientific approach has series of steps, which may vary from one author to another. These steps are:**

Certain phenomena are observed

A problem situation which develops therein, is noted and clarified

A more or less formal hypothesis is derived

A design developed to test the hypothesis

The hypothesis is verified or refuted and

The results are subjected to farther tests and refinements.

The conclusions of a research are integrated into the existing knowledge of the subject. This process involves such subsidiary steps as:

Review of research of experiences

Manipulation of factors

Measurement of the quantities

Defining of variable and

Analysis and interpretation of data

SELF ASSESSMENT EXERCISE 2

Differentiate between quantitative and qualitative research.

Explain the three purposes of research.

4.0. CONCLUSION.

Research project is a normal part of year course work in the university. This course gives an understanding of the primary functions and structural steps of the entire research process. This is because if the research project is carefully designed, genuinely conducted and co-ordinate, you derive a lot of value from the entire activity. This process is much of an intensive academic exercise, which gives you the process of scientific thinking and way of doing things. This scientific way thinking is a conventionally acceptable and recommended way of approaching problems in true life situation and the goal is to search for dependable and data supported solutions to some problems in real life situation. The goal of the research process therefore is to give you or equip you with the knowledge, philosophy, attitude and skill of approaching problem solving in the scientific way.

5.0. SUMMARY

In this unit, you have learnt that research is a formal, systematic, intensive process of carrying out the scientific method of analysis, involving a more systematic structure of investigation usually resulting in some sort of formal record of procedures and results or conclusion.

You also learnt that the characteristics of research are objectivity, precision, design and verifiability. The types of research were discussed. Also discussed in this unit is the purpose of research which includes training, problem solving and search for truth.

6.0 Tutor Marked Assignment.

How can you define research in you own words?

Explain the characteristics of research

Describe the purposes of research

7.0 References and Earthier Readings.

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ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

Research is a systematic process of collecting, analyzing and interpreting information in order to increase our understanding of the phenomenon with which we are interested.

The characteristic of research are:

(a) Objectivity (b) precision. (c) Design and (e) Verifiability.

EXERCISE 2.

Quantitative research inquirers into social or human problem based on testing of theory composed of variables measured with numbers or figures and analyzed with statistical procedures in order to determine if the predictive generalization of a theory holds true. But qualitative research deals with the understanding of a social or human problem based on building a complex, holistic picture formal with words reporting detailed views of informants and conducted in a natural setting.

ii. The purposes of research are:-

Training in research.

Problem solving and

Searching for truth.

UNIT 2.0: SKILLS OF SCIENTIFIC INVESTIGATION

CONTENT

1.0 INTRODUCTION.

In the last unit, you learnt that one of the purposes of a research is search for the truth. You also learnt that there are basic steps, which you can take in resolving problems. These steps include problem identification, hypothesis formulation, observation and collection of data, the quantitative and qualitative analysis of data and drawing conclusions. You have to note that scientific method of thinking or investigation is considered a useful approach in problem solving. It remains the informal application of these basic steps in this unit, you will learn more about scientific inquiry in the research process.

2.0 OBJECTIVES

At the end this unit, you should be able to

- Discus scientific investigation
- Explain facts and theories
- Differentiate between hypothesis and theory
- List the purpose of theory
- Describe the levels of theorizing

3.0 MAIN CONTENT

3.1. THE SCIENTIFIC METHOD AND ACTIVITIES

Let we start this section by saying that the underline goal of the scientific investigation or method of thinking is rooted in the broad goal of science. Those of you who have studied science in one course or the ether will know that ***the broad goal of science is to understand natural phenomena. To understand these natural phenomena, three basic steps are recognized. These basic steps are:-***

Accurate description

Explaining the specified conditions necessary to obtain the phenomenon in order to attain easy prediction of the phenomenon

Organizing the available evidence supporting the phenomenon in order to obtain an overall picture of the relationships surrounding all the components or variables relating to the phenomenon under consideration.

Now, in order to achieve the goal of understanding the phenomenon, the scientific method rests squarely on some basic assumptions.

Research practices shape their values based on assumptions. In the same way scientific inquiries have some assumptions which are represented by certain Key words. These are order, determinism, parsimony and empiricism.

The assumption of order: - This states that nature is ordered and not haphazard. All the events in nature follow each other in regular sequences. According to wood (1977) the assumption of order means that there is an overall pattern or scheme or order of events and it is discernible.

The assumption of determinism: - This states that events have courses, determinants or antecedents that can be detected. This means that events in nature are related and their patterns of relationships can be detected. That is to say that the relationship among events can be discovered.

The assumption of parsimony: - This state that the universe is organized and an explanation of natural phenomena should be simple and should be preferred to complex explanations. You can see that this is the foundation of the scientific research practice. It talks about general explanations to problem over explanations that are appropriate only to a limited range of phenomena. This assumption is a dictate of what science should be that is, in science you should generalize the results of an experimental investigation to cover what are real on other similar situations. You have to note that the extent to which the generalization of your research findings is possible depends in part on the area of research considered.

The assumption of Empiricism: - this states that science investigations must be systematic and controllable. They should be empirical in using observable events in testing theories. The assumption as you can see refers to a reliance on field demonstration, observation and experiment. It insists that scientific investigations or researchers must avoid the common errors of selecting evidence that is consistent with their position or points of view. This is because it has been noticed that some people select and use only the type of data that can support their views. This is not very good. Any scientific description must be such that will allow one to predict what happens in a

given circumstances and to be sure that if given particular circumstances again, the same thing will always happen. This is the hall mark of scientific investigation. It is called Replication.

3.1.1 Scientific Activities:-

In the foregoing section, we have been discussing the scientific method of research. Although, it looks a bit abstract but it is the truth for which we are doing the research. Now, let us go further to list the sources of knowledge as (1) custom and tradition, (2) authority, (3) personal experience, (4) syllogistic reasoning from self evident proposition and scientific inquiry. You can see that we have already made case for the scientific inquiry as a perfect method of searching for knowledge or what men call the truth. Man uses the scientific thinking as a source of evidence, in his current intellectual equipment for solving the mysteries of life and nature. In this context, and in your research efforts, your desire should be to search for the truth, to establish the truth and provide evidence for the truth. **This is what we call EMPIRICISM**

The other sources of knowledge have with the passage of time been discarded as reliable method of generating evidence for truth. This is because of the gross inaccuracies associated with their usage.

In other to make research work more scientific, all sources of errors and inaccuracies must be avoided. Therefore the following steps of activities making up the process of scientific thinking employed in research work must followed logically.

These include:-

Location and definition of a problem cast in a topic statement and a question from.

Survey of past experiences with the problem, previous investigations and already recorded and available data on the topic to get ideas about past and possible future solution and method of investigation.

The formulation of hypotheses to represent tentative solution to the problem under investigation, and to be employed as a guide in the collection of additional data.

The mental elaboration of the hypotheses. That is checking for agreement with facts, verifiability and logical consistency.

The collection of additional data (if necessary) through a new appeal to experience by means of measurements, observation and experimentation methods.

The analysis, classification and summary of data collection for the formulation of new generalizations representing observed uniformity, explanatory principles or scientific laws.

3.2. FACTS AND THEORIES

Scientific enquiry starts with facts and then moves towards theorizing. To make the facts useful, they must be organized. So you now see that the primary purpose of the scientific method is to develop a mechanism for organizing the facts as they accumulate and become meaningful from the stand point of their objectives. Scientists gather facts through empirical investigations. The accumulation of these facts brings about the need for investigation, organization and classification in order to make the isolated findings meaningful.

When isolated facts are integrated into a conceptual scheme, they promote a better understanding of their nature and significance. Science must remain close to facts. These facts should be put in proper scientific perspective. Therefore, you must identify and explain significant relationships in the data. So theories must be formulated. ***You may be wondering what a theory is.***

It is a set of interrelated constructs or concepts, definitions and propositions that present a systematic view of a phenomenon by specifying the relationship among variables, with the purpose of predicting and explaining the phenomenon. (Kerlinger 1973). A theory knits together the results of observations in order to enable Scientifics make general statements about variables and relationship among variables.

Can you remember any laws in your sciences? For instance look at the Boyle‟s law which is a familiar generalization that summarizes the observed effects of changes in temperature on the volume of gases. This law summaries previous information and goes further to predict other phenomena by telling us what to expect about any gas under any changes in temperature. We can then say that just as facts underlie theory, theories underlie facts. Both facts and theories raise themselves like a spiral to an increasingly precise scientific formulation.

According to Van Dalen (1973), facts derive their significance from theoretical framework into which they bring facts into focus. You can see that this is a constant and intricate relationship between facts and theory. Fact without theory or theory without facts lack significance. So facts take their significance from the theories, which define, classify and predict them. Theories have significance when they are built upon, classified and tested by facts. The growth of science is dependent upon the accumulation of facts and the formulation of new or broader theories. This is very true about the early stages of scientific development. Research must confine its efforts to seek answers to highly specific and particularized problems.

3.3. HYPOTHESIS AND THEORY

A hypothesis can be used to explain a small number of facts and the relationship among them. Generalization is a hypothesis based on broader phenomena. Theory is used to explain even more facts and their relationships. Theories themselves range from the simple to the more sophisticated. Finally, we have laws which have the greatest scope and generality. At this juncture, you have to note that theory plays a very important role in research. A theory has to be amended or abandoned when the discovery of new facts can no longer accommodate it. Some theories, especially those generated through these means we have enumerated above, do not lead to „eternal truth".

They should be looked upon as useful conceptual frameworks which are adequate for present purpose or a given situation. Therefore, every theory is subject to modification as and when we have new facts and evidence that contradict the generalizations made earlier on.

SELF ASSESSMENT EXERCISE 1

What are the assumptions of scientific inquiry?

What is a theory?

3.4. PURPOSE OF THEORY:

A theory serves several purposes in the development of science. These purposes include:

-

It Summarized and puts the existing knowledge in a particular area in order. This permits a deeper understanding of data and translates empirical findings into a more easily retainable and adaptable form.

It provides a provisional explanation for observe events and relationships. Variables which are related are identified. The natures of their relationships are also identified. If you take one theory of learning as an example, you will notice that it could explain the relationship between learning speed and efficiency and such other variables as motivation, reward, practice etc.

It permits the prediction of the occurrence of phenomena and enables the investigator to postulate and eventually, to discover unknown phenomena. Theory stimulates the development of new knowledge by providing the lead for further inquiry.

3.5. DEVELOPING A THEORY

It is very important for you to know that good theories are not born out of imagination. They do not originate merely through arm chair reflection. A theory is built upon collected facts. You as an investigator do some searches, make intelligent guesses as to how the fact are ordered, you are missing ideas or link and put forward a hypothesis. You then deduce facts which are consistent or otherwise with the deductions.

You build a wider generalization or conceptual framework on more facts. Eventually, you outline a theory. Theories are solidily based on evidence. They are very important practical tools which enable us to advance our knowledge still faster.

You have to note that once a theoretical framework has been elaborated we know what fact to look for to confirm or to deny the theory. We also have a conceptual framework inside with which our evidence can be tested. Theories involve such terms, which refer to matter that cannot be directly observed. These terms of theory or theoretical statements are sometime referred to as constructs. For instance, gravity and gravitation are theoretical terms, which cannot be observed directly, but their effect can be observed. Another example is the motivational factor in behaviour which many learning theories refer to. You can see that motivation is not directly

observable. It is a theoretical term which we may refers to as a construct. This term implies that it is a construction of the scientist‟s imagination.

3.6. LEVELS OF THEORIZING

In the behavioral sciences, a product of all researchers is a set of conclusion which involves theoretical terms. Some of these conclusions may be at a sophisticated level of theorizing while others may be at a low level of theorizing. ***Psychologists agree that it is better to keep theorizing down to the levels that involve a minimal use of abstract terms. You have to remember this when you do some theorizing.*** There are six levels of theorizing.

Level 1: **Hypothesis formation: -** if you are going to use any hypothesis as a basis for your research, such hypothesis must go beyond the fact on which it is based. You need to establish the existing state of affair. Most of the surveys are conducted for this purpose. You may conduct a survey of what customers of a hotel think of a particular aspect of the services provided for them, how much time is spent by your customers in watching television etc

Level 2. **Elementism: -**

Primitive forms of classification in terms of some significant set of ideas are example of theories at this level.

In the case of hotel management, such classification of supervisory abilities of hotel stuff or accounting abilities derived from factor analysis or the classification of hotel acts that may be the result of extensive observation in hotel management would come under the level of elementism.

Level 3. **Descriptive theories and taxonomies: -** when you formulate descriptive theories and taxonomies, you are operating at a more complex level than mere classifications. A hierarchal categorization of different cases varying from the most

simple to the most complex, example is the Bloom‟s taxonomy of cognitive behaviour. These are under this level.

Level 4. Classification: If you want to develop any kind of useful classification system, there must be a set of theoretical ideas to underline the classification. For instance, the classification of animals became significant only after it was realized that the species could be fitted into a system in which the evolutionary relationships among animals became the basis for classification.

LEVEL 5 & 6. Postulates and Theories:

The higher levels: - here we have the highest levels of theorizing. They can only be observed in the physical sciences. Here, a theory consists of a set of basic statements called ***axioms of theory,*** which tell us what the theory is all about. This axiomatic statements or postulates include primitive terms which are initiatively understood and cannot be otherwise completely defined.

If we want to distinguish between levels 5 and 6, we will say that level 5 is reserved for incomplete theories, while levels 6 theories represent the ultimate in scientific formulation. However, both of them represent the closest approximations to what we may call the accurate description of universal laws.

SELF ASSESSMENT EXERCISE 2:-

Describe briefly the different levels of development of a theory?

4.0 CONCLUSION

A typical research process actually entails the efforts of searching for data – supported (verifiable) solutions to some defined problem or question. The concern of research is to attempt to provide acceptable and verifiable explanations to the problems or questions raised in order to explore the reality of the problems through the use of the scientific method of inquiry. In this

unit, you have worked through scientific investigations, which are the hall work of research activities. You should always employ them in all your research works.

5.0 SUMMARY

In this unit you have learnt the underlying goal of scientific investigation is rooted in the broad goal of science. Scientific inquiry has some assumptions. These include the assumption of order, determinism, parsimony and empirism. You also learnt the steps of activities in the process of scientific thinking, facts and theories hypothesis and theory and developing a theory. There are six levels of theorizing. These include hypothesis formation, Elementism, descriptive theories and taxonomies, classification postulates and theories; the higher levels. In the next units, we shall now look at how to gather information in research.

6.0 TUTOR MARKED ASSIGNMENT

What are the assumptions of scientific inquiry?

Explain the levels of theorizing in research.

7.0 REFERENCE / FURTHER READING

IGNOU (2001) Introduction to Research in Distance Education. New – Delhi – STRIDE – IGNOU.

Ikekhua, T. I. And Yesufu, J. T. (1995) exposing Research Methods in Education Study and reporting aid for students and Beginning Researchers. Warri, Agbon Kerlinges, F.N (1979) Behavioural research: - A conceptual Approach. New York Half, Rinehart and Wiston.

ANSWERS TO SELF ASSESSMENT

EXERCISES EXERCISE 1

The assumptions of scientific inquiry are:-order, determinism, parsimony and empiricism.

A theory is set of interrelated constructs or concepts, definitions and propositions that present a systematic view of a phenomenon by specifying the relationship among variables, with the purpose of predatory and explaining the phenomenon

EXERCISE 2:-

The six levels of theorizing are: -

Level 1. Hypothesis formation level 2: - Elementism

Level 3. Descriptive theories and taxonomies.

Level 4. Classification.

Level 5 and 6: postulates and theories: the higher Level

UNIT 3.0 METHODS OF DATA COLLECTION IN RESEARCH - 1

CONTENT

1.0 Introduction

1.0. INTRODUCTION

In the last unit, you studied terms like facts, theories, hypothesis, Law etc. You have seen that you use data to test hypotheses. In a typical research situation, you are expected to collect data from the field. This implies that you collect information from people who are called subjects or respondents. You can use the information to test your hypotheses as tentative answers to the problems or questions of your study.

In this unit, we shall look at data collection in research, from where we move on to the various techniques for data collection.

2.0. OBJECTIVES

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

Explain the term data in research

Explain the types of data

Describe the questionnaire

List the characteristics of a questionnaire

Construct a typical research questionnaire

3.0. MAIN CONTENT

3.1. DATA COLLECTION IN RESEARCH

Data can be regarded as information. It can be given out or taken for the purpose of making interferences in research. In this case, it may include numerical or statistical results or figures such as percentages. It may also include verbal materials like newspaper accounts, scholastic essay etc. we can therefore say that any collection of verbal or numerical information from which inferences or conclusions can be drawn or analyzed is regarded as data. It means that data can be quantitative or qualitative.

Any information which comes in numbers, figures, measures or quantities is said to be quantitative. Where as any information which comes as a verbal description of attribute or characteristics is regarded as qualitative. So when you have evidences obtained from other research studies, observations made from the field and laboratory settings, information extracted from records and documents, score collected from tests of various types etc; you say you have data.

Remember that you go to the field to collect data for the purpose of using the data carefully collected from your subject, to test your hypotheses in order to draw your inferences and conclusions. These inferences and conclusions are about rejecting the hypotheses or supporting them as away of providing answers to your problem of study. Therefore, the data you collect and the tools which you use for collecting them must be relevant to your hypotheses and research design. According to Tolbert (1967***)*** *all data gathering devices should be closely related to the design of the study.* ***You can conveniently describe data collection then, as a research activity involving the process of gathering relevant information with reference to the stated hypotheses, variables and design.***

3.2. TYPES OF DATA USED IN RESEARCH INVESTIGATIONS

There are basically two categories data collected and used in research. These, according to Gupte (1979) are: - Primary data and Secondary data. Let us touch on them briefly.

3.2.1 Primary data

These are information, facts or statistical materials which you as a researcher originate for the purpose of the inquiry on hand. This is sometimes popularly called the "First hand information" or "information from the horses mouth". They are referred to as eye witness account of an event or phenomenon. Such information is extracted from the actual participants themselves. It may be through oral interviews or discussions or through written diaries, minutes, proceedings, pictures, objects etc.

For instance, supposing you want to conduct an inquiry on the cost of living of people in two different societies. You will see that all the facts pertaining to this inquiry may be collected directly from the members of the societies themselves. Such information or data collected would be called Primary data.

3.2.2 Secondary data

These refer to information, facts or statistical materials which are not originated by you as the researcher or investigator. These are materials from someone else‟s records or other documents like books, journals, newspaper reports and other research works that may be got from the libraries. In the simplest form, secondary data are not first hand information. They are reported information if you refer to the inquiry and comparism of the cost of living in the two different societies above, you will notice that instead of going to the people themselves to obtain information as in primary data, you may depend on research reports from journals, newspapers and magazines: you may also resort to obtaining other records showing the peoples expenditure on living. These data are called Secondary data

SELF ASSESSMENT EXERCISE I

What are the two types of data in research?

Explain the two sources of data in research?

3.3. QUESTIONNAIRE METHOD OF COLLECTING DATA

Let us start this section by letting you know that any time you want to collect data. You will need to consider some factors before you choose the suitable method. These factors include:

Purpose, problem and hypothesis of the study

Time required for the study

The accuracy desired of the study

Funds available for the study

Other facilities available and

The nature of the person conducting the research in terms of the level of training.

Most researchers, who conduct survey researches, make use of the questionnaire as the instrument for data collection. ***The questionnaire is generally a form containing some questions which the respondents fill out without any help or comment from the researcher.*** It enables data to be collected from large samples. However, if you decide to use it, you must make sure it is very carefully constructed. This is because data collected from the questionnaire depend solely on the respondent perception of the questions and their goodwill to take time to complete it.

A questionnaire is used when factual information is desired (Best and Khan 1995). When opinions rather than facts are desired; an opinionates or attitude scale is used. According to Okpata, Onuoha and Oyedeji (1993) a questionnaire is a self reporting instrument that has received a good use in educational, researches, psychological and social science researches, programme evaluation etc. it is described as the most common type of research instrument. It is therefore very important that you as a researcher, master how to construct a questionnaire. This will enable you develop an appropriate instrument, especially when you cannot lay hand on

already existing instrument that are valid and reliable. Like the test, questionnaires are constructed for specific purposes. It is necessary for you to think of a specific study and design before determining whether it is appropriate for you to use a questionnaire.

In constructing a questionnaire, you should make every effort to ensure that the terms or questions are structured in good forms. In other words each question must be easily understood by the respondents and must elicit the specific information needed to test the hypotheses. It means that every item must be checked for clarity and relevance, as well as for effectiveness in eliciting the accurate or needed information from the subjects. This is because to ask a respondent a question which is not relevant to the research hypotheses and design amounts to a waste of time. It means that you have to pre-test the instrument. This is because nothing can be more frustrating than a situation of finding out that after all the data you have collected; you discover that you should have asked an additional or more specific question to generate the needed data.

3.4. CHARACTERISTICS OF A GOOD QUESTIONNAIRE

The characteristics of a good questionnaire are: -

A questionnaire deals with a significant topic. The topic or problem should be such that any respondent will recognize it as important enough to warrant spending his time on. Therefore, the significance should be clearly and carefully stated either on the questionnaire or in the accompanying letter.

It seeks only such information which cannot be obtained from other sources like financial reports, census data etc.

It is as short as possible, and only long enough to get the essential data. Do not make the instrument very long. This is because most people find it time wasting. Most of the times, long questionnaires find their ways into the waste basket. Therefore, make the questionnaire response clear and very easy to complete. Keep the writing required to a minimum.

IV. ***It is attractive in appearance.*** It is neatly arranged and clearly printed or produced.

Instructions are clear and complete. Important terms are defined. Each item deals with a single idea and is worded as simply and possible.

3.4. CONSTRUCTION OF A QUESTIONNAIRE

According to Okpala, et al (1995) a researcher is faced with respondents who have great amount of information that could go untapped unless the questionnaire items are valid and reliable enough to elicit the required information. Henderson et al (1978) ***suggested eight steps to which the process of developing and using a questionnaire can be divided. These are;***

Identifying the programmes objectives and specific information to be obtained.

Select a response format

Identifying the frame of reference of the respondents.

Writing the items/questions

Preparing a data summary sheet

Critiquing the questions, trying them out and revising them

Assembling the questionnaires

Administering the questionnaires

3.5. TYPES OF QUESTIONNAIRES

There are two main types of questionnaires based on two basic types of question formats. These are ***closed ended questions*** and ***open-ended questions.*** Closed ended questions and those that provide respondent with fixed set of alternatives from which they are to choose. For instance, the response format of multiple choice-items and scales are all closed-ended.

Where as open-ended questions are those questions to which the respondents write their own response, as it is in an essay examination questions. Now lets us look at the two main types of questionnaires.

3.6.1 The Closed – Ended Questionnaire

It can also be called restricted or closed form type. All questionnaire instruments that call for short, check-mark responses belong to this category. For example, you may be asked to mark **yes** or **no**, check an item from a list of suggested responses. Let us give some specific examples.

Yes or No type: - Accountancy is a difficult subject. Yes/No

Short response type: - The science subjects that deals with living things is…….

Marking from a list of suggested response.

All hotel management students should offer accountant courses. Strongly agree, Agree, Neutral, Disagree, Strong disagree.

The Federal Palace Hotel is a ……. Hotel. 5-star, 4-star, 3-star, 2-star, one-star

Ranking: - Kindly rank the options in your order of importance. Why did you choose to study Hotel management?

Advice from friends

Reputation of the programme

Expense factor

Professional choice

Availability of job opportunities

Others (specify)

3.6.2 The Open – Ended Questionnaire:

This can also be called unrestricted questionnaire or free response type. It demands that the subjects respond in their own words. Look at this question again. Why did you choose to study Hotel Management? You can see that no clue is given here. ***The advantage*** is that open form provides for greater depth of response. The respondents may reveal their frame of reference and sometimes the reasons for their responses. ***It has such disadvantages as***: very low returns due to greater efforts needed on the part of the respondents in filling the questionnaire. Again, the items can be difficult to interpret, tabulate or summarize in the research report. The questions can generally take this form

List the causes of ……

What are your opinions about …….?

How do you feel about ……..?

What do you think about …….?

3.7. HOW TO IMPROVE QUESTIONNAIRE ITEMS?

The questionnaire is the basic data gathering instrument. It is therefore very important that the items are worded carefully. You know that most questionnaires do not provide opportunities for the clarification of questions to the respondents. Again any ambiguity in the questions introduces sources of substantial errors. You should therefore follow these steps to improve on your questionnaires.

All Statements or question should be clear, simple and direct. Each item should express only one idea. No complex statements like; Open and Distance Learning mode of education is very good, everybody should therefore support it. You can see that this is not a good item. This is because it is possible some respondents would agree with the first part but disagree with the second part or vice-versa.

Every slang terminology or technical jargon should be avoided. Otherwise, it should be carefully defined or explained.

Define, qualify or explain all terms that could be misinterpreted

Beware, and if possible avoid double negative. Underline negative terms and phrases for clarity. e.g. Discounts and bonuses should <u>not be</u> given to customers who <u>do not</u> patronize the hotel on regular basis. Which of these is not a term in catering?

Always avoid inadequate alternatives. e.g. Married……. Yes/No. You can see that the options are inadequate. Widowed, Separated or Divorced are excluded.

If you wish to show special emphasis, underline such words or phrases e.g. all undergraduate programmes should include <u>study skills</u> in the ODL system.

Avoid unwanted assumptions

Include only these items which are appropriately phrased for all the respondents.

Construct items that will give a complete response.

Do not include items which are socially unacceptable in the setting in which you respondents are.

SELF ASSESSMENT EXERCISE: 2

I. Develop a questionnaire instrument with 5 open ended questions.
II. Develop a questionnaire instrument with 5 closed ended questions.

3.9. ADMINISTRATION OF THE QUESTIONNAIRE.

When you have concluded the process of developing the instruments, you need to administer them to the subjects. But before this is done, you will have to ensure that the instrument is usable, valid and reliable. You have to do these through the process of trial testing or pilot testing.

3.9.1. Pilot testing of the Questionnaire

Every instrument used for data collection in research should be trial tested or pilot tested. There are so many reasons for doing this. Among these reasons are:

To find out how long it takes the respondents to complete

To ensure that all questions and instructions are clear

To enable the researcher to remove any items which do not yield usable data

IV. To enable you include any item deemed necessary to yield some relevant data.

To use the results to find the reliability of the instrument.

VI. To use the results to do the item analysis of the instrument

VII. To ensure the usability of the instrument.

Do not fall to the temptation of going straight to the distribution stage. No matter how pressed for time you are, do your best to give the questionnaire a trial run. You should try out the instrument on group similar to the one that will form the samples of your study. When you do these, you come out with a good questionnaire. Your respondents will not experience difficulties in filling out the instrument. Again you can carry out a preliminary analysis at the data collected.

3.9.2. Administering the Questionnaire proper

There are different methods of administering the questionnaire. You shall therefore try to make early decision about how to distribute them to the respondents. You also need to decide what to do about no response. The different methods of administering the questionnaires are: -

Administering the questionnaires personally. This has some advantages. You can explain the purpose of the study of your respondents. The questionnaires can be completed and returned on the spot. In this case, you have high percentage of returns. Again you are likely to get better co-operation if you can establish personal contact with the respondents.

Using research assistants: - You can persuade your friends and colleagues to lend a helping hand in the distribution. You can also use research assistants. In this case, you have to make out time to train them on how to administer and collect the instruments.

Mailing the questionnaires. If your respondents are far away and you can not personally reach them, you can sand the instruments to them by past. You should note that postal services are expensive, waste time and response rate is generally low.

3.8.3 Covering letter

Remember to accompany your questionnaire with an introduction letter or a covering letter. This should inform the respondents about the objectives of the study and therefore the questionnaire. You need to let them know that will be done with the information collected. They need to know the deadline for the return of the questionnaire. It will also assure them about the anonymity and confidentiality of the information supplied.

4.0 CONCLUSION

You have seen that for you to start collecting data for your research studies you need to define clearly the purpose of your study in very clear terms. Again you need to write out the statement of the problem and the hypothesis of the study. These will help you determine the kind of data you need and the type of instrument for collecting the data. When you decide to use the

questionnaire, you have seen how to go about it in this unit, however, if you decide to go about that too in the next unit.

5.0 SUMMARY.

In this unit, you learnt that data can be regarded as information which can be given out or taken for the purpose of making inferences in research. Data can be qualitative or quantitative. The two sources of data are primary and secondary sources. Factors to consider in choosing a suitable method of data collection are: -

Purpose, problem and hypothesis of the study.

Time required for the study

The accuracy desired of the study.

Funds available for the study.

Other facilities available and

The nature of the person conducting the research in terms of the level of training. You have learnt that a questionnaire is a self reporting instrument.

It has been described as the most common type of research tool. You have learnt the characteristics of a good questionnaire, three methods of administration are: administering it personally, using research assistants and mailing the questionnaire.

You also studied the steps in constructing a questionnaire. There are two types of questionnaires. These are the closed ended or restricted and the open-ended or free response questionnaires. You have also studied how to improve the questionnaire items. All instruments for data collection must be trial tested before use. In the next unit we shall look at other methods of data collection.

6.0. Tutor Marked Assignment

Describe the two sources of data in research.

Explain the two types of questionnaire.

Briefly discuss the methods of administering a questionnaire

7.0 References/Further Readings.

Ikekuhua, T. I. and Yesufu, J. T. (1995) Exposing Research Methods in Education, study and reporting aid for students and beginning researches. Warn Agbon & Botah/okorare publishers‟ ltd.

N.O.U.N (2004) EDU 702: Educational Research Methods. N.O.U.N Lagos Okpala, P. N, Onocha, C. O and Oyedeji, O. A. (1993) Measurement and Education in Education. Jahu-Uzairue: Sterling –Horden Publishers (Nig) Ltd.

ANSWERS TO SELF ASSESSMENT EXERCISES:

Exercise 1.

The two types of data are quantitative and qualitative.

The two sources of data are primary and secondary sources. (Students are required to explain)

Exercise 2.

Students are required to develop the 5-1tem instrument.

Same as in

UNIT 4.0 INTERVIEWS AND OBSERVATIONS

CONTENT

1.0. INTRODUCTION

In the last unit, you were introduced to the construction and administration of the questionnaire as an instrument for collection of data for most of the survey researches. The questionnaire and interview have the same fundamental features. This is because the principles which make for a good questionnaire are also essential in the planning of a reliable and valid interview.

A distinctive similarity between the questionnaire and the interview as information as information gathering tools is that both them seek and elicit information by asking questions. However, while the questionnaire remains an impersonal paper and pencil instrument, the interview is a personal face to face situation.

On the other hand, Observation is no „natural gift". It is a highly skilled activity for which an extensive background knowledge and understanding is required. It provides the investigator a capacity for original thinking and the ability to spot significant events. You can now see that observation itself as a method of data collection is certainly not an easy option. In this unit, you will study both interviews and observations as ways of collecting data in research.

Objectives

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

Describe an interview as a data collection method.

II. Explain the types of interview?

III. List the steps in the arrangement of an interview?

IV. Conduct an interview and record the responses.

Explain observation as a research tool?

VI. List the uses of observation?

VII. Record observation using different tools.

3.0MAIN CONTENT

3.1 WHAT IS AN INTERVIEW

An interview is a face to face oral interaction between the investigator and the respondents. You as the investigator, otherwise called interviewer or your assistant as the case may be read the questions directly to the respondents. The responses are recorded for analysis. The interview gives you a degree of flexibility which is not available in the questionnaire. The research interview is not as widely used as the questionnaire. The reason is that it takes a great deal of time and fund to conduct. But you should realize that the interview is quite useful when greater depth of information is needed. It is highly required when there is a need to follow up leads that may arise. It is also used when an exploratory investigation of a problem is to be done.

The interview technique is used routinely in normative survey research. During the process, the respondents or interviewees respond to some sort of direct questions posted to them by the investigator.

The major purpose of interviewing is to find out what is in the mind of the interviewee. You can use open-ended questions or structured questions. You do not need to put things in the respondents‟ mind. But you need to elicit and assess relevant information from them. You have to be conscious of the fact that sometimes people provide information based upon what they think you want to hear. It is critical for you to make sure the interviewees understand that you as the investigator do not hold any preconception or notions regarding the outcome of the study.

You can use the interview to collect information an individual‟s experience, knowledge, opinions, beliefs, feelings and demographic data. You can also use interview to determine past or current information as well as prediction for the future.

3.2TYPES OF INTERVIEW.

The different types of interviews used in research are: -

3.2.1 Informal Conversation Interview.

This is characterized by the fact that the questions emerge from the immediate context or situation and are asked in the natural course of things. There are predetermined questions or topics or wordings. ***This has some advantages. They include: -***

It increases the silence and relevance of the questions

Interviews are built on and emerge from observations.

The interview can be matched to individuals and circumstances.

The disadvantages are: -

Different information‟s are collected from different questions.

It is less systematic and comprehensive

Data organization and analysis can be quite difficult.

3.2.2 Interviewer guided approach:

In this type, topics and issues to be covered are specified in advance, in an outline format. You as an interviewer will decide the sequence and wording of the questions in the course of the interview. ***The advantages include: -***

The outline increases the comprehensiveness of the data.

It makes data collection somewhat systematic.

Logical gaps in data can be anticipated and closed.

Interview is fairly conversational and situational

The disadvantages include: -

Important and silent topics may be inadvertently omitted.

Interviewer flexibility in sequencing and wording of questions can result in substantially different responses from different perspectives. This will reduce the comparability of the responses.

3.2.3 Standardized Open-ended interview:

In this case, the exact wording and sequencing of the questions are determined in advance by the researcher. All interviewees are asked the same basic question in the same order. Questions are worded in a completely open – ended format. ***The advantages include: -***

All respondents answer the same questions. This increases the comparability of the responses.

Information collected are complete for each respondents on the topics addressed in the interview.

It reduced interviewer effects and biases when several interviewers are used.

It permits the users of evaluations to see and review the instrument used for evaluation.

It facilitates organization and analysis of the data.

The disadvantages include: -

Little flexibility in relating the interview to particular individuals and circumstances.

Limited and constrained naturalness and relevance of questions and answers.

3.2.4 Closed or Fixed Response Interview

In this type which is the most popular in research studies, questions and response categories are determined in advance. Responses are fixed. The respondents choose from among the fixed responses provided. ***The advantages include: -***

Data analysis is simple

Responses can be directly compared and easily aggregated

Many questions can be asked and answered in a short time

The disadvantages may include:

Respondents must fit their experiences, knowledge and feeling into the researcher‟s response categories.

Sometimes it may be seen as impersonal, irrelevant and mechanistic

There can be a distortion of what respondents really mean or experienced by so completely limiting their response choices.

3.3STEPS IN THE ARRANGEMENT OF INTERVIEWS.

For the successful handling of the interviews as a data collection technique for your research studies, you will need to follow some simple but very important steps. ***These steps include: -***

You should set up the interview plan used in advance.

You will prepare and send the set of questions which you will ask to the interviewee in advance

Sort for permission to tape-recorded the interview

Confirm the date of interview in writing

Send a reminder, together with the same set of questions to the interviewee, about 10 days to the interview date.

On the interview day, be prompt, have another copy of the set of questions for your interviewee, should he/she has misplace his/her copy?

Follow the questions serially as it is in the set.

After the interview, prepare and submit a type script of the interview either in soft or hard copy to the interviewee tries to get a written acknowledgement of its accuracy or a corrected copy from the interviewee.

Ask for final approval and written permission to use the information in your research report.

After you have incorporated the information in your research report, send the relevant section of the report to the interviewee.

SELF ASSESSMENT EXERCISE I

What is an interview?

Explain the types of interview used in research studies?

3.4. HOW TO CONDUCT AN INTERVIEW?

An interview is a social interaction or relationship designed to exchange information between the interviewer and the interviewee. The goal is to collect data and not make friends. Therefore the

quantity of information exchanged or received depends on how astute and creative you are at understanding and managing the relationship. According to Schofield (1972) much of the success or failure of the interview depends on how you handle the opening few minutes. This signifies the need for good public relations and good approach in conducting the interview. This is to enable you and the respondents establish a report of a good two-wag communication.

If you can achieve this fit, you will be assured of a successful interview that will be a pleasant experience for you and your respondents. In appearance, you must be neat, clean and business-like but also friendly. Make sure that your first contact with the interviewee must be appealing. Note that such characteristics as socio-economic statues, age, race and ethnicity might influence the interview schedule the interview to begin with the simple non-threatening questions and then let the interview progress according to the schedule. Employ the use of probes, or follow-up questions that are intended to elicit clearer and most complete responses. Use probe as a pause in conversation to encourage your subject to elaborate or an explicit request to classify on elaborate or something. Note also that an open-ended questions in which your respondents are encouraged to answer in their own words at some length is likely to provide greater depth of response. Closed questions are easier to record but may yield more superficial information. ***In order to obtain valid interview results Schofield (1972) advised the researcher to:-***

Listen to the respondent in a friendly and patient but intelligent critical manner.

Refrain from showing an authoritarian attitude

Refrain from giving advice on moral instruction.

Avoid asking questions which compel the subject to give the reply which you want to have.

Avoid leading or prompting the subject towards certain answers.

Avoid entering into argument with your interviewee.

Avoid the use of double-barreled questions.

You can only use questions or statements in order to: -

Prompt the interviewee to talk freely and coherently.

Congratulate the subject on the quality of his response, the originality of his ideas and so on.

Clarify points on which there are uncertainties and to ascertain precisely what the subject means in places where the interviewer could interpret the candidate‟s remarks in a way detrimental to him.

3.4.1. Strengths of the interview

The interview is often regarded as being superior to other data-collecting devices. One of the reasons is that people prefer to talk than to write, especially when it comes to controversial issues. When the interview has gained support or when you have established a friendly relationship with your interviewee, certain confidential information may be obtained. Such information that an individual might be reluctant to put in writing could be elicited from subjects. You can explain more explicitly the purpose of the investigation and what type of information you want, especially***: - If the subjects misinterpret the questions, you may also follow with a clarifying question.*** It is possible to seek the same information in several ways during the interview. It is also possible to stimulate the interviewee and possibly explore significant areas not anticipated in the original plan of investigation. Again interview is particularly appropriate when dealing with children and illiterate respondents.

3.4.2. Recording the Responses

As an interviewer, your central task is to record the responses from the respondents. There are four most common ways of recording responses. These are: - Classifying responses into predetermined categories; summarizing the high points of what is said; taking verbatim notes or recording the interview with a tape recorder or video machine.

To record the responses you can be taking notes as the interviews are going o, or take the notes immediately after, when the information is still fresh in your mind. This is called mental note. Alternatively, you can record the interview with recording machines.

SELF ASSESSMENT EXERCISE: 2

Identify a problem situation in your area of study.

Develop 5 free response questions and 5 structured questions that can be used for collection of data on the problem you have identified.

3.5. OBSERVATION AS A DATA COLLECTION TECHNIQUE

Observation can be described as the act of looking out for and recording the presence or absence of both verbal and non-verbal behaviour of an individual or group of individuals. When you use a specially designed evaluation instrument to collect observational data, it is referred to as observational technique. If you look back from the earliest history of scientific activity, you would see that observation has been the prevailing method of inquiring. When the observation of natural phenomena is aided by systematic classification and measurement, it leads to the development of theories and laws. Every type of research, whether experimental, descriptive or qualitative, incorporates the use of observational techniques.

According to Monette, et al (1994) observational technique is the collection of data through direct visual or auditory behaviour or experience. It includes video or audio recording of behaviour. It means that you as a researcher looks or listens in order to see or hear the behaviours or words respectively. These provide the information needed for the research.

There are two main types of observation. The first is called **participant observation.** In this case the researcher become part and participates in the activities of the people, group or situation that is being studied. Participant observation is very good for a highly qualitative research. ***The second is the non-participant observation.*** In this case the researcher is not part of and does not in any way participate in the activities of the people, group or situation. He observes through recording instruments or from outside.

3.6. CHARACTERISTICS OF A GOOD OBSERVATION.

Observational process as data collection method in research demands a rigorous utilization of the spirit of scientific inquiry. According to Best and Khan (1995) the following standards should be the characteristics of observers and their observations. ***These characteristics are: -***

Observation is carefully planned. Observers who are systematic and perceptively know what to look for. They are not distracted by irrelevant situations.

Observers are aware of the wholeness of what is observed. They are alert to significant details. They know that the whole is often greater than the sum of its parts.

Observers are objective. They recognize likely bases and strive to eliminate their influence on what they see and report.

Observers separate the facts from the interpretation of facts. They observe the facts and make their interpretations later.

Observations are checked and verified by repetition or comparison with the other competent observers.

Observations are expertly recorded. They use appropriate instruments to systematize, quantify and preserve the results of their observations.

Observations are made in such a way as to make sure that the data collected are valid and reliable.

3.7. USES OF OBSERVATION.

Yoloye (1977) has given a summary of the situations in which observational data could be useful. These are: -

Measuring classroom process variables

Measuring attainment of programme objectives

Measuring the extent of programme implementation

Identifying difficulties in programme use.

Identifying changes introduced by hotel owners, teachers etc

Identifying typical pathways to customer services.

Supplementing data from other sources.

3.7.1. What to be Observed

There are some general categories of things you have to observe and record. These include

The Setting: - This could be a hotel, a bank, a company etc. The records should contain descriptions of the general physical and social setting being observed.

The People: - These include customers, staff, management etc. The records should include a physical and social description of the main characters who are the focus of your observation

Individual Behaviour: - The cares of observations in most studies are the behaviour of the individuals in the settings.

Group Behaviours: - Most of the times, the behaviour of a group of individuals like customers, staff etc. may provide an important bit of information for your studies.

SELF ASSESSMENT EXERCISE 3

What are the things you can observe to collect data?

3.8. RECORDING OBSERVATION

There are different kinds of devices used extensively to aid the recording of information gained through observation. These devices include checklist, rating scales, scorecards, scaled specimens etc. these provide systematic means for summarizing and/or quantifying data collected through observation or examination. For instance, you can prepare a type of form or sheet of paper to rate such things as type of food served, quality of served, neatness of the staff, neatness of the rooms, neatness of the bidding, services provided, entertainment provided etc. such assessment sheet from the observational scale which you can use for your studies.

5.0 CONCLUSION

In this unit, you have been exposed to two other techniques employed in data collection in research. It means that you can now use any of the methods, depending on the type of investigation you are making, and the type of subjects you are dealing with. You have to note

that the goal of data collection in research is the generation of error-free, objective, relevant and dependable data for testing your hypotheses. Invalid and irrelevant data implies invalid and undependable research analysis and findings.

6.0 SUMMARY

In this unit you have learnt that interview is a face to face oral interaction between the investigator and the respondents. Interview can be employed to collect data about people‟s knowledge, opinions, beliefs, feelings etc. the types of interview are

Informal conversational

Interviewer guided approach

Standardized open-ended interview and

Close or fixed responses interview.

You have seen the steps in the arrangement of interviews, how to conduct an interview, the strength of the interview. The four ways of interview responses are classifying responses into predetermined categories; summarizing the high points of what is said, taking verbatim notes or recording the interview with a tape recorder or video machine.

Observation is the act of looking out for and recording the presence or absence of both verbal and non-verbal behaviour of an individual or group of individual. The two main types of observation are participant and non-participant observations. You have studied the characteristics of good observation, uses of observation and recording of observation. You also studied that the things to be observed are the setting, the people, individual behaviour and group behaviour.

7.0 TUTOR MARKED ASSIGNMENT

Explain the types of interview you can use in research?

What is an interview?

What are the things to be observed?

IV. What are the two types of observation?

8.0 REFERENCE / FURTHER READING

Ikekhua, T. I. And Yesufu, J. T. (1995) exposing Research Methods in Education Study and reporting aid for students and Beginning Researchers. Warri, Agbon & Botawokerare Publishers.

N.O.U.N. (2004) EDU 702: Educational Research Methods. N.O.U.N. L

ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

An interview is a face to face oral interaction between the investigator and the respondents.

II.The types of interview are:-

Informal conversational interview

Interview guided approach

Standardized open-ended interview.

Close or fixed response interview.

EXERCISE 2:-

Students should identify the problem and develop the questions.

EXERCISE 3:-

What to be observed are

The setting

The people

Individual behaviour

Group behavior

UNIT 5.0 PROBLEM IDENTIFICATION IN RESEARCH

CONTENT

1.0. INTRODUCTION

In the last two units, you were exposed to the different techniques for collecting data in research. But before you think of data collection, you would have selected a research problem or topic in your area of specialization. In this unit, we are going to discuss how to select a research topic. This is because you have to select your own research topic and write the research project report as a requirement for the award of the degree to you. In very few cases, and that‟s if you are very

lucky, your supervisor may help you choose a topic but the final choice of topic is yours. This is why you have to carefully study this unit, so as to scale with ease, the first hurdle which will confront you in your research.

2.0 OBJECTIVES

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

Explain the concept of problem in research

Enumerate the characteristics of a research problem.

Identify the various sources of suitable research problems.

Select a research topic for investigation.

Shape and refine the problem.

3.0 MAIN CONTENT

3.1 THE CONCEPT OF PROBLEMS IN RESEARCH

In a research process, you have to select a topic of study from your area of study. After this you narrow down this topic for your study. The next concern is to define the problem which you are focusing on. Kerlinger (1979) defines a research problem in two ways. ***The first*** is in a general sense in which he regards a research problem as a question that states situation needing discussion, inquiring, decision or solution. ***The second*** one which is a more satisfactory definition, he regards a research problem as a question that asks for how two or more variables are related. ***It means therefore that a research problem must state and show how two or more variables are related.*** This may be stated in a question form. The most important fact here is that the relationship between two or more variables must be specified in the research problem. Look at these problems. Does the social class/status of parent play significant role in the academic achievement of secondary school students in Abia state of Nigeria? Does intelligence differ in the children from the middle and lower income class families? Does the size of a hotel play significant role in the type of services rendered to customers? Do customers" satisfactions depend on hotel management styles? Looking at these definitions and examples of problems in

research, you should be able to identify some key characteristics of problems in research. Now let us look at the characteristics of research problem.

3.2 CHARACTERISTICS OF RESEARCH PROBLEM

From the examples in section 3.1 above, you can see that a research problem is always stated in a sentence, in a question or interrogative form. You have also noticed that a research problem is a question which states the relationship among Phenomena or variables. According to Tuckman (1972) ***some characteristics of a problem in research are outlined as follows: -***

It should ask about a relationship between two or more variables

It should be stated clearly and unambiguously, usually in question form

It should be possible to collect data on it so as to answer the question(s) asked.

It should not represent a moral or ethnic position indicating bias or feeling of preference.

From these you must note that every research topic must have two more variables that can be measured or manipulated or controlled. The research ***problem must ask for the relationships*** between the variables contained in it. E.g. what is the relationship between the socio-economic status of parents and the intelligent quotient of their children? ***A problem must be researchable*** i.e. testable through empirical methods of field or laboratory observation and collection of data. You should try as much as you can to avoid value prepositions, ideals and moral judgments that are expressed by words like good, bad, best, desirable, reliable etc when writing research problems. It is very difficult to realistically collect data on human judgment and its moral imperatives which by all standards are highly subjective.

Remember that your research problem should be an empirically testable proposition stated in a question form containing two or more measurable or manipulative variables whose relationships are sort for in the problem statement itself. ***As a researcher, you are required to state your research problems in accordance with some principles. These principles listed by Egon Guba (1973) are as follows: -***

State the problem in terms intelligible to someone who is generally sophisticated but who is relatively uninformed in the are of the problem

Define and delimit the specific area of the research.

Fore-shadow the hypothesis to be tested or the questions to be raised in the problem statement.

You have to note that these principles are intended to make the problem statement in any research report to be clear and specific.

3.3 SOME SOURCES OF SUITABLE RESEARCH PROBLEMS

Most of the problems confronted in the school system, the community, banking industry, hotel and hospitality industries, etc, lend themselves to investigations. You can see that today we are having technological changes and developments. These are constantly bringing forth new problems and new opportunities for research.

The whole area of computer education and literacy provide avenue for a good number of research topics through the internet and websites. You can also get topics through international abstracts typed for computer processed.

Classroom lectures, class discussions, seminar reports and out of class exchanges of ideas with fellow students and lecturers can suggest many stimulating problems for solution. When you read assignments, journal articles, textbooks, research report, term paper, etc can also suggest additional area of needed research.

Some research topics can be selected on the basis of their use in verifying and testing a particular theory. You know that every research has some implications for existing theory. Therefore some research topics are selected specially for the purpose of testing some aspects of a given theory. In your exploration in an area, you may come across additional problems that need resolving. Most of these problems are often theoretically framed.

Another fruitful source of research problem is prior research. All research projects have limitations, new questions may be raised by the findings, research reports have discussions of weakness and limitations of the research, including suggestions for further research, so focusing on these unanswered questions or expending on previous research is a good way to find research problems. Again, if you have any reason to doubt or question the results of an original study or you wish to replicate another research study, it gives you the opportunity of having a research problem. This is possible because of numerous opportunities for errors or biases to influence research results.

Programme evaluation and practice effectiveness evaluation can form important activities for research purposes. Other sources of problem selection include political issues. Some of these may attract financial sponsorship from external interests like the government or its agencies, non-governmental organizations, private research organizations etc.

Consultation with your supervisor or advisor may be helpful in providing research problems for your study. ***A very important function of your supervisor is to help you clarify your thinking, achieve a sense of focus and develop a manageable problem from one that may be vague, complex or not researchable.***

SELF ASSESSMENT EXERCISE I

Enumerate 5 sources of research problems.

3.4. SELECTING A RESEARCH PROBLEM

Selecting a research problem is one of the most difficult tasks you have to face in the research process. This statement of fact is not in anyway intended to discourage you. However, we are going to discuss some appropriate guidance to make it easier for you. According to Best and Khan (1995) one of the most difficult phases of the graduate research project is the choice of a suitable problem. This is because most students often select problems that are too broad in scope. Of course, they do this because they lack the understanding of the nature of research and systematic problem-solving ability. Sometimes, they are so enthusiastic to solve an important

problem quickly. But you have to understand that research is often very tasking, slow and rarely spectacular.

Because it is the search for truth and solution to very important problems, it takes a great deal of time and energy. It takes intensive application of logical thinking. You should therefore follow some guiding principles to aid you in your problem identification and selection in research encounters. The most important and controlling point of view in selecting a research problem for your study should be that the problem should contribute to the overcoming of obstacles in your area of study. According to Good et al (1945) ***you should painstakingly select your problem of study upon these considerations: -***

Novelty (newness) of the problem.

Your interest in the problem

Practical value of the research on the problem to you and others in the society.

Your special qualification to handle the problem

Availability of data on the problem

The cost of doing the investigation on the problem.

The time required and available for the completion of the study.

In his own contribution, Okpala (1995) insists that in selecting a topic, all effort should be made to ensure that it:

Falls within the discipline (i.e. in time and space)

Is not a duplication of an existing work?

Conveys some reasonable information on the nature of the research problem, the variables and how they are matched.

It is not too lengthy

It is not vague

3.6. SHAPING AND REFINING THE PROBLEM

You have been informed earlier in this unit that it could be frustrating if you become ensnared in choosing a topic which is too broad and encompassing but by itself offers little guidance in terms on how to move on or proceeds. Look at this topic for instance; ***Equity in hotel management and tourism in Nigeria***. You can see that this is too broad and lacks focus. So when you choose a problem area, the next step is translating the general topic of interest into a precise researchable problem.

You will now narrow down the scope of the problem into a manageable proportion. The refining, shaping, narrowing and focusing of a research problem do not occur at once. It is a continuous process involving a number of procedures such as conceptual development, review of literature, etc. The successful selection of a research problem means it has to be definitely formulated, structural and well stated.

Problems in research can be stated in these various forms:

As a question or questions namely: -

A single question

Several questions

A single question followed by several sub questions.

As a declarative statement taking the form of being

A single statement

A single statement containing several phrases

A series of complete statemenst

A general statement followed by subordinate statements

As a statement followed by a re-statement in the form of a question.

As a statement followed by a series of propositions.

You are advised to use each of these forms one at a time to state a single problem. The types of statement you may employ in stating a formulated problem depend on ***your preference*** and ***the nature of the problem structured for study*** in your research encounter.

What are we saying is that after the formulation of your research problem, you still need to define and delimit it? You are at liberty to use any or many of the procedures available in defining and delimiting your study in order to make for clarification.

However you are expected to specify the problems in details and with precision. You need to specify each question and sub-ordinate question to be answered. The assumptions made and the limits of the investigations should also be determined and specified. Now let us look at the principles of Engelhard (1928) and Egon Guba (1973) as various ways of defining the problem in research.

Analysis of the major problem or problems in terms of sub-ordinate problems.

Statement of the limits or scope of study.

Orientation of the problem which include giving: -

A historical account, remote or recent

An analysis of previous studies or related subject.

A survey of previous studies or related studies

Preliminary survey of the problem context

Description of the general nature of the problem: - in terms of type, procedure and sources

Statement of limitations of technique employed in the investigation

Recognition of assumptions and implications of the problem

Identification of the importance, value or significance of the study

Definition of terms related to the problem that will provide further understanding.

SELF ASSESSMENT EXERCISE: 2

Identify a researchable problem in your area of specialization.

State this problem as research topic

4.0 CONCLUSION

You have gone through a very important aspect of your research process. Remember it is not very easy to select a topic that is researchable. But following the guidelines and principles specified in this unit, you should be able to select your research project topic without mush

difficulties. In this next unit we shall expose you to the research methods which you can use in conducting your investigation after you have selected the problem.

5.0 SUMMARY

In this unit you have learnt that a research problem must state and show how two or more variables are related. These variables should be measurable or manipulated. You have seen the characteristics of a research problem as outlined by Tuckman (1972) and that of Egon Guba (1973). You looked at some sources of the research problems. These include problems from the schools, community, banking, hotel industries, society etc. problems can come from the technological changes and developments, computer education and literacy, classroom lectures and discussions, seminar reports, exchange of ideas, lectures, assignments, journal articles, textbooks, research reports, term papers, verifying and testing a particular theory, prior research, programme evaluation, political issues, external interests and advice from your supervisor.

You have gone through how to select the problem; you have seen the guidelines provided by Good et al (19450 and these by Okpala (1995). You also read how to shape and refine the problem you have selected.

6.0 TUTOR MARKED ASSIGNMENT

Select a problem in your area of specialization. Shape the problem as a researchable topic.

Identify the research variables that should be measured or manipulated.

7.0 REFERENCE / FURTHER READING

Ikekhua, T. I. And Yesufu, J. T. (1995) exposing Research Methods in Education Study and reporting aid for students and Beginning Researchers. Warri, Agbon & Botawokerare Publishers.

N.O.U.N. (2004) EDU 702: Educational Research Methods. N.O.U.N. Lago

ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

Sources of research problems include: -

Problems from the schools, community, banking, hotel etc.

Technological changes and developments

Computer education or literacy

Classroom lectures and discussion

Seminar reports

Exchange of ideas

Lectures

Assignments

Journal articles

Textbooks

Research reports

Term paper

Verifying & testing

Prior research

Political issues

Programme evaluation

External interests

Supervisors.

EXERCISE 2:-

Students are required to identify a researchable problem and state it in clear and concise form.

UNIT 6.0 STEPS IN RESEARCH AGENDA

CONTENT

1.0. INTRODUCTION

In the last unit, you learnt how to select a research problem and the guiding principles which underly the selection. ***Every research problem should have some components. These components include objectives, research questions and hypotheses problem statement etc.***

After you have selected, shaped and refined your research problem, it becomes very important that you look at the feasibility of the study. In this unit, you are going to look at the steps in the research agenda, including some components of the research problem.

1.0 OBJECTIVES

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

List the steps in a research process.

Explain the components of setting the problem

Propose some hypotheses for your study

Discuss the types of variables

Explain the feasibility of a research problem.

3.0 MAIN CONTENT

3.1. COMPONENT OF SETTING THE PROBLEM

In every research process or encounter, there are components which help in shaping and refining the problem in order to provide a focus and manageable scope for the research. These components help you to quicken the pace of the study and that of the reader of the research report in understanding it. Before we look at these components, let us first list the steps which you will follow when conducting your research.

Step I. identifying the problem

You have already studied this step in details in the last unit. But let us say that it involves the discovery and definition of scientific research problem within a topic area which you have chosen to study. It may include questions which require answer in our area of study. For instance, what are the causes and effects of lecturers‟ strike on the standard of Education in Nigeria? Are men better managers than women?

Step II. Constructing Hypotheses

When you identify a researchable problem, it automatically leads to the proposition of a hypothesis as a tentative answer. Once you have identified a problem, you use the logical processes of deduction and induction to formulate an expectation of the outcome of the study. This expectation should be stated and tested. This implies that you are hypothesizing about the probable relationship existing between the concepts, variables identified in the problem. The hypotheses are the pointers to your solutions.

Step III. Identifying and labeling the variables

The next step is to identify and label all the variables in the problem and hypotheses stated. There are different types of variables in research. We shall look at them later.

Step IV. Proposing Operational definition of terms

All terms, concepts and variables should be converted from their abstract or conceptual forms to operational forms that can be quantified or measured using some forms of specified measurement instruments. ***In technical terms, when you aperationalise the variables in your research, it means that you are stating them in observable and measurable forms*** which make them available for clear understanding, definition, manipulation, control and examination.

Step V. Manipulating and controlling variables.

If you have to manipulate and control the variables in your study, you must understand the concepts of internal and external validity. This is because you need to control or manipulate and regulate these variables in order to study the relationship between variables in research. You will have them discussed later.

Step VI. Constructing the Research Design

You can describe a research design as a specification or plan of operation for the testing of a stated hypothesis under a given set of conditions. It comes in specific types such as one-variable design, factorial design, experimental and quasi-experimental design etc.

Step VII. Identifying and constructing data collection Devices

After defining your variables and choosing the design for the study you need to adopt, adapt or develop some instruments for measuring the selected variables. You can use standardized instruments or construct your own as you have learnt in this course.

Step VIII. Constructing Questionnaires and Interview Schedules:

Most research studies in the social sciences and business rely on questionnaires and interviews as their source of data. You should employ recommended guidelines to develop and use these measurement devices for your data collection to test your hypotheses.

Step IX. Sampling and Collection of Data:-

As soon as you have got your instrument for data collection, you are expected to choose your respondents or subjects. You to do this according to some specified statistical methods of sampling either in the random techniques or non-random way. After getting your respondents or samples from the population of your target, you now administer the instruments to them in order to extract the needed information from them.

Step X. Carrying out Statistical Analysis or Data Analysis

The data you have collected above must be reduced, arranged and presented in an arranged and presented in an organized form for easy analysis. The data as organized are subjected to specified or suitable statistical indices for testing the hypothesis in order to generate some results or findings. From these conclusions, generalizations are drawn. You can employ the use of computers for easy and accurate data analysis. This aspect is very sensitive and requires some professional expertise, care and endurance.

Step XI. Discussion of Research Findings

You have to discuss at this stage, your research findings or the results from the data analysis. This is to justify, interprete, explain and further develop a given theory for knowledge based on the findings generated. This is where you show your disposition and prowess. You have to note that the discussion flows normally in the context and direction of the information collected in the process of review of related literature. The implication is that you have to make thorough and adequate review of literature related to your topic or area of study. This is because sound literature review in research makes for very sound and balanced discussions of the findings or results.

Step XII. Drawing Conclusions, Generalizations and Recommendation

At this stage you are expected to draw your conclusions from your findings and to make generalizations of the findings generated from the samples to the larger population from which the sample was drawn. It is very important that your findings must be valid, your generalizations

must be correct and your recommendations from the research findings must be possible for application so as to bring progress in the development and practice of the area.

Step XIII. Writing the Research Report:

Writing the final research report is very important and constitutes the major secretariat or clerical activities of the research process. There are different styles and formats with their respective instructions and guidelines. You can therefore choose a desired format in order to produce your final research report. The American Psychological Association (APA) format is the most popular and most used in research. Your supervisor will make it available to you if you demand it.

3.1.1 Delimitations

Delimitations give you the boundaries of the study. The conclusions are not to be extended beyond these boundaries. It tells you about the target population, what the research intends to do and what he intends not to do. When stating the delimitations, you are required to rule out all variables and issues considered irrelevant to the research. It is not the same thing as limitations. ***For the purposes of clarification limitation are those conditions beyond the control of the researcher that may place restrictions on the conclusions of the study and their applications to other situations.*** These may include the use of unvalidated instrument, inability to randomly solid and assign subjects to experimental and control groups, some administrative policies etc.

3.1.2 Assumptions.

These are statement of what the researcher believes to be facts but cannot be verified. They are what the research takes for granted. You have to state your assumptions in a study because it is easier to evaluate your conclusions based on the assumptions. You should not leave anything on your problem must be clearly and unreservedly spelt out.

3.1.3 Significance of the study:

What is the use of the study? What are the practical values of the study? Who are the beneficiaries of the findings and how would they benefit and how the study will be useful to them?

3.1.4 Definition of terms:

You have to define all unusual terms that could be misinterpreted. These definitions will help you to establish the frame of reference with which you approach the problem. ***The definitions are in operational forms. Without explicitly knowing what a term means, you cannot evaluate the research or determine, if you have carried out what you set out as the main objectives of your study.*** The definitions must interpret the terms as they are used in relation to the study. This means that you determine what you wish the term to mean within the contact of the problem or its sub-problem.

SELF ASSESSMENT EXERCISE I

Enumerate the steps you take in your research process.

Distinguish between limitations and delimitations.

3.2. HYPOTHESIS.

Let us start this section by describing a hypothesis as tentative but intelligent guess posited to direct your thinking toward the solution of the problem. ***It is a tentative proposition set forth a possible explanation for an occurrence*** or a provisional conjecture to assist in guiding the investigation of a problem. Hypotheses and research questions are very helpful in research because you need some points around which to orient the research in searching for relevant data and in establishing tentative goals against which to project the data.

Hypotheses can be stated in two different forms. ***These are the null hypothesis, H_0 and the alternative hypothesis H_1.***

3.2.1 The Null Hypothesis H_0:

This type relates to a statistical method of interpreting conclusions about population characteristics that are inferred from the variable relationships observed in samples. ***It asserts that observed differences or relationship merely results from chance errors inherent in the sampling process.*** It is a non-directional hypothesis. e.g. there is no significant difference in the

academic performance of day students and boarders. There is no significant difference in the spending pattern of men and women in relation to fashion. There is no significant difference in the choice of accommodation between the young and elderly people.

3.2.2 Alternative Hypothesis H_1:

This is directional hypothesis. It gives the directory of the relationship between the variables. E.g. Women spend more money in fashion than men. Young people choose costlier accommodations than the elderly people etc.

3.3. VARIABLES

A variable is a property that takes on different values. According to Kerlinger (1977) a variable is a symbol to which we assign numerical values.

Some important variables in the humanities are sex, income, social class, aptitude, anxiety etc. A variable may have only two values e.g. male, female, dead or alive etc. Some variables used in behavioural researches are true dichotomies. This means that they are characterized by the presence or absence of a property e.g. good-bad, employed-unemployed etc. Some variables are polytomies e.g. the Nigerian citizens can be Igbo, Hausa, Yoruba, Efik, Nupe, Gwari, TIV, etc. Most variables are theoretically capable of taking on continuous values e.g. intelligence, achievement etc.

The different types of variables are:

3.3.1 Independent and Dependent Variables:

An independent variable is the presumed cause of the dependent variable which is the presumed effect. The independent variable is the antecedent while the dependent variable is the one that is consequent. In experiments, the independent variable is the one that is manipulated while the dependent variable is the effect of the manipulation. Let us look at this topic. Effect of increased funding on the quality of services depends on the increased funding. It means that increased funding is the independent variable and quality of services is the dependent variable. If you increase the funding, the quality of services will improve and vice-versa.

3.3.2 Discrete and continuous variables:

Discrete variables are those with finite number of distinct and separate values. They have only whole numbers and no fraction e.g. sex, race, number of days, family size etc. Continuous variables are those that least theoretically can take an infinite number of values. It can take both number and fractions e.g. age, test scores etc. there are other types of variables. These are to be treated in other units. These include extraneous, intervening, moderating etc variables.

3.4. Feasibility of a Research Problem

This implies that before you have a full scale investigation into the problem of your study, you would have considered in clear terms the practical issues involving feasibility. It involves consideration of practical issues of what can be reasonably accomplished given the time and resources available. This will help you to decide to reduce the scope or to increase it.

You have to carefully and honestly assess the time and fund required to accomplish the study.

The major aspects to be considered are

3.4.1. Time constraint:

You need to find out if the time available is sufficient and adequate to complete the study. Factor related to time are:

i. Population: - Time to cover the population in relation to the required characteristics.

ii. Proper development of measuring devices. You need to consider the time to develop and validate or trial test your data collection instruments

iii. Time required for data collection. This should be

iv. considered Time for analysis of data should be considered.

3.4.2 Financial Constraint:

All the financial expenses for the study should be assessed. The major areas of financial involvement include: Production of instrument, payment for research assistants, transportation cost, cost of analysis of data, office supply and equipment and miscellaneous.

3.4.3 Anticipating and Avoiding Problems:

Whether you are knowledgeable in research or not, you have to be able to identify potential trouble spots in your proposal. You can make some modifications to avoid them. You need to conduct a pilot study. This involves a preliminary run through on a small scale of all the procedures that will be employed in the study. If there are problems in the pilot study they can be estimated and taken care of. If the problem is that of time or money, you can scale the problem down by reducing the sample size, the number of hypothesis etc.

SELF ASSESSMENT EXERCISE: 2

In any topic of your choice, propose three hypotheses each of null hypothesis and alternative hypothesis

4.0. CONCLUSION

In this unit you have gone through the necessary steps in a research process. You have also studied the various components and aspects of setting up a problem. The onus lies on you to choose your topic by applying all that you have learnt here.

5.0. SUMMARY

In this unit you have studied the steps you will follow in conducting the research. These steps are:-

Identifying the problem
Constructing the hypotheses
Identifying and labeling the variables
Proposing operational definition of terms
Manipulating and controlling variables
Constructing the research design
Identifying and constructing data collection devices.

Constructing questionnaire and interview schedules

Sampling and collection of data

Carrying out statistical analysis or data analysis

Discussion of Results or Research findings

Drawing conclusion, Generalizations and Recommendation

Writing the Research report.

You have also learnt that delimitations are the boundaries of the study, while limitations are those conditions beyond the contract of the researcher which may place restrictions on the conclusions of the study and their applications to other situation.

Assumptions are statements which you believe to be facts but which cannot be verified. The significance of the study involves the use or practical values of the study. It involves the beneficiaries of the results and how they will benefit. You have to define all unusual terms that could be misinterpreted. Hypothesis is a tentative but intelligent guess posited to direct your thinking toward the solution of the problem. Hypothesis can be stated in two forms-the null hypothesis and the alternative hypothesis.

You were told that variables are symbols to which we assign numerical values. They can take on different values. They can be true dichotomies, polytomies etc. We have independent and dependent, discrete and continuous variables. You also learnt that you have to do feasibility of the research problem before the full scale investigation. This is to enable you consider practical issues of what can be accomplished given the time and resources available. In this case, you consider time constraint, financial constraint and how to avoid other problems. In the next unit we shall be looking at the types of research methods available for you.

6.0. TUTOR MARKED ASSIGNMENT

Select a research topic in your area of study.

Propose 4 alternative hypotheses and 4 null hypotheses.

7.0. REFERENCE / FURTHER READING

Ikekhua, T. I. And Yesufu, J. T. (1995) exposing Research Methods in Education Study and reporting aid for students and Beginning Researchers. Warri, Agbon & Botawokerare Publishers.

N.O.U.N. (2004) EDU 702: Educational Research Methods. N.O.U.N. Lagos.

ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

The steps are: -

Identification of the problem

Constructing the hypotheses

Identifying and labeling the variables

Proposing operational definition of terms

Manipulating and controlling variables

Constructing the research design

Identifying and constructing data collection devices.

Constructing questionnaire and interview schedules

Sampling and collection of data

Carrying out statistical analysis or data analysis

Discussion of Results or Research findings

Drawing conclusion, Generalizations and Recommendation

Writing the Research report.

Delimitations are the boundaries of the study while limitations are the conditions beyond your control and which may affect the result and conclusions of your study.

EXERCISE 2:-

Students are expected to propose the hypotheses.

UNIT 7.0 THE TYPOLOGIES OF THE RESEARCH METHODS I

CONTENT

1.0. INTRODUCTION

In the last unit, we discussed the steps and components of the research process. You have now known these steps, for you to continue in your research encounter, you must choose a research method or type. There are many of them some of them are quantitative, while others are qualitative. In this unit and other units that follow, you will enable you make up your mind on what method to use in your research study. Specifically in this unit you will look at empiricism, phenomenology and the critical research processes.

2.0 OBJECTIVES

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

Explain empiricism

Describe the empirical research process

Explain the meaning of phenomenology

Discuss the phenomenological approaches in social science research

Describe the elements of critical research

Describe the approaches in critical social research.

3.0 MAIN CONTENT

3.1 EMPIRICISM

Let us start this section by section by stating that an empiricist is one who practices empiricism. The question then is what is empiricism? Any system which does not agree with all past knowledge which rests solely on experience can be regarded as empiricism. In other words it lays emphasis on induction, the use of direct observation to confirm ideas and the linking together of observed facts to form theories or explanations of how natural phenomena and events work. You know that social life is visibly chaotic. Its concrete ingredients are people. The substance of our observation remains the events and phenomena. Each of these are unique, just as human beings are unique. Therefore to be an empiricist, you must be ready to confront the truth. You should be ready to work with apparent disorder, nonreplicable people and non-repetitive events and phenomena.

3.1.1 Empirical Enquiry

An empirical scientific research can be regarded as a way of looking at things. We can also think of it as a method of approaching to the empirical world. You already know that science consists of theory and facts. You also know that a fact is an empirically verifiable observation and a theory tries to find relationships among facts. The facts of science are the products of observations. The construction of a theory is the most important purpose of empirical scientific inquires. Theory gives orientation to empirical inquiries it guides the collection of relevant date and offers conceptual scheme that will bind them together in a more systematic manner, theories are said to represent improvement in knowledge. This is the main focus in research. While theories help us to predict facts, facts help to initiate theories and to test the validity of existing theories. Facts clarify and redefine theory. But theories and facts stimulate each other and contribute to the growth of empirical knowledge.

Empirical studies make use of all research tools. These include observations, both participant and non-participant; interviews which can be structured, semi-structured and in-depth; key informant testimonies, analysis of personal and institutional documents, mass media analysis, examination of official documents and statistics, archival searching, review of published literature. Empirical social research employs a wide range and variety of analytical techniques such as ethnographic

interpretations, historical reconstructions, action research, multivariate analysis structuralist deconstruction and semiological analysis.

3.1.2 Empirical Research Process

In empirical research method, you proceed in a systematic and orderly manner in order to pursue the truth as determined by facts and logical considerations. The main purpose is to find a systematic interrelation of facts by experimentation, observation and logical procedures. It means that it can only be conducted based on a rigorous impersonal procedure dictated by the demand of logic and objective procedures. The steps involved are

i. Data collection through careful and critical observation with patience, precision and impartiality

Measurement

Classification, Organization and Tabulation of data

Data analysis and Reduction

Formulation of hypotheses and

Formulation of theory and Law

The main features of empirical scientific research are:

Observation: In order to obtain knowledge, empirical research relies on observation. It is the cornerstone of any empirical inquiry. It supplies us with the thing that we try to understand and explain observation in an empirical research is not casual, but a conscious and deliberate activity designed to reduce error. It requires improved accuracy. It uses certain devices which add great precision to scientific observation. Meaningful observation results in the establishment of facts. These are used for verifying empirical theories, building them and modifying or improving them.

Concepts: These are the building blocks of scientific empirical research. Theories consist of several inter-related concepts.

Although concepts are said to be fundamental to all human communication and thought, yet the concept we use in our day to day affairs are not always clear and precise. They

have to be defined with precision to foster clear thinking; precise definitions convey exact meaning and explanation to both the empiricist and the readers.

Objectivity: This indicates that all the conclusions you reach in your empirical research are not affected by your personal views, values or biases. It permits repetition of observations under practically identical conditions, to get the same results. It facilitates the verification of facts and theories by many empiricists independently.

IV. **Verifiability:** The findings of your research are said to be empirical if only they can be verified. Any theory which contains facts that cannot be verified tends to be metaphysical rather than scientific. Therefore all empirical conclusions are liable for verification at any time. An empirical scientific theory of generalization stands to be rejected or modified at anytime.

Predictability: Accurate and precise predictions constitute one of the most impressive achievements of empirical researches. Predictability depends on the nature of the phenomena and our knowledge of the causes of the phenomena. If there is more number of cause‟s predictions become more and more difficult. Prediction also depends on our ability to have precise theories and accurate measurement.

VI. **Systematic Nature:** Empirical investigations are systematic, thorough and rigorous in making use of designs to guard against errors from data collection, interpretation and generalization from the data. Empirical investigations are systematic in the methods used for data collection, formulation of hypotheses, data analysis techniques and the logic use for making generalizations. It self – correcting because you have the opportunity to find any flows that may come in at any stage of investigation. It is the systematic nature of empirical inquiry that distinguishes it from other non-scientific investigations.

SELF ASSESSMENT EXERCISE I

What are the steps involved in empirical research?

Describe the main features of empirical research?

3.2 PHENOMENOLOGY

This is a philosophy of knowledge which emphasis directs observation of phenomena. It refers to a person‟s construction of the meaning of a phenomenon as opposed to the phenomenon as it exists external to the person. It is a research method that attempts to understand the participant‟s perspective and views of social realistic. The phenomenologists seek to perceive reality and to describe it in words rather than numbers. It is a qualitative research employing the use of words that reflect consciousness and perception. ***The phenomenologist concentrates on the phenomena and tries to produce convincing descriptions of what they experience rather than ordinary explanations and causes. The phenomenon experienced or studied may be an event, a relationship, an emotion or a programme.*** Phenomenologist try to understand that a particular experience is all about by describing it as it is found in concrete situations and as it appears to the people who are involved in it. The central qualities of phenomenological research are attention to experience and intention to describe the experience.

3.2.1 Phenomenological Approaches in Social Research

Hermeneutical Phenomenology: This is one of most influential phenomenological field work. It involves a dialogue between a text, such as myth, drama, fairy story, dream report, oral history, etc and the experiences evoked in people participating in the text. The meaning of the text can be developed within the consciousness of living people. There is a movement from the initial hearing of the text that may then lead to experiences that illuminate the meaning of the text.

People can later start reflecting conceptually on both the text and the memory of experiences related to the text.

Transpersonal Phenomenology: This involves the recognition of extraordinary experiences as legitimate and useful data. Such experiences that in some sense go beyond

the boundaries of ordinary ego-consciousness are called extraordinary. They include such phenomena as out-of–body experiences, visions, possession states, near-death experiences, meditative, ecstatic, unique and mystical experiences.

Social Phenomenology: This has become increasingly an influence on anthropological thinking of the social dimensions of experience. The object of scrutiny is your relationship to another person. It is not about the non-human objects of the world. What are the essential qualities of the social relationship?

Neuro-Phenomenology: This provides the most direct route to uncover the essential structures of consciousness. You can do this by stepping in the cross-cultural evidence that pertains to human experience and to explore the universal structures of experience. The neurosciences provide an independent source of looking directly at the architecture of the organ of experience – the human brain.

3.3 CRITICAL RESEARCH

This lays emphasis on the fact that knowledge is problematic and capable of systematic distortion. Its concern is to understand the theory as well as the practices.

It is extremely varied the critical methodology based on a number of building blocks. These blocks should not be considered as discrete units which can simply be placed next to one another. They are elements which are drawn together in various ways in the process of deconstruction and reconstruction.

3.3.1 Elements of Critical Social Research

The elements are abstraction, totality, essence, praxis, ideology, history and structure.

Abstraction

This is often misunderstood in term of a distillation of sensory perception of the world of objects into conceptual categories.

It starts from the literally objective world and selects out the recurrent or apparently the core or the defining features until an abstract concept is formed, at least in our minds if not in a directly communicable form. It works by moving from the abstract to the concrete. It starts with abstract generalizations and then to their investigations.

Totality

This refers to the view that social phenomena are interrelated and form a total whole. It means that a social phenomenon should be situated in a wider social context. Therefore social phenomena should not be analyzed in isolation. A totalistic view indicates that all the components are interrelated into a coherent structure which can only make meaning in terms of the structure, but then the structure relies on the component parts.

Essence

This refers to the fundamental elements of analytic process. Critical social researchers see essence as a fundamental concept that can be used as the key to unlock the process of deconstruction.

Praxis

This refers to the practical reflective activity. It involves what you do most of the time as a human being. It excludes such instinctive or mindless activities like sleeping, breathing etc or activities that involve repetitive work tasks. It is what changes the world. The critical social researcher believes that knowledge not just about finding out things about the world. It is about changing it. You need therefore to engage in praxis.

Ideology

This is a concept which has a long history. Its current usage is developed as an analytic and critical tool in the work of Marx. It has been an important feature of Marxism. There are two approaches to a critical analysis of ideology. These are the positive and the negative views of ideology.

Structure

In critical social research, structure is viewed holistically as complex set of interrelated elements which are interdependent and which can only be adequately conceived in terms of the complete structure.

History

This refers to both the reconstructed account of past events and the process by which this reconstruction is made. That is the process of doing history. It involves both a view about the nature of history and the assembling of historical materials.

3.3.2 Critical Research Process

The process here involves deconstruction and reconstruction. Note that this does no means taking a house apart brick by brick and may be building another house using that same bricks. Reconstruction is not only rebuilding, it involves reconceptualization. Critical research starts with observation, concern, frustration or doubt which provoked the enquiry.

You can start by asking series of questions like why are things appear like this? Why do they persist? Why has nothing been done about them? Does it mean they have not been noticed? Why it that people accept what is is not in their interest? These and more questions will lead you into getting a clearer picture of what you are looking for. These questions will lead you to three related lines of enquiry. What is essentially going on? Why has this historically been the case? Why structures reproduce this state of affairs?

Start to broaden the enquiry. Do not assume relationships as the enquiry develops but undertake further empirical enquiry. After the investigation is completed, you write the report as your chance to share the understanding wit others. Note the critical social research is primarily concerned with analysis and reporting of substantive issues rather than the artificial logic of the research process.

3.3.3 Approaches in Critical Social Research

There are four approaches in critical social research

Critical case study: Here you select for detailed empirical which provides a specific focus on analysis of a myth or contradiction. A variety of different data collection techniques can be used within a critical case study approach.

You will rely principally on structured interviews augmented by observation in ascertaining the interests, attitudes, social network and life-styles of the case-study groups.

Radical Historicism: This presupposes that constructing histories is an interpretative process rather than the recording of facts it attempts to dig beneath the surface of the historical development of structural forms. Radical historicism is concerned with the uncovering of historical evidence.

The meaning of the evidence depends on a conceptualization of dominant social structures. The reconstruction of history takes place alongside structural analysis. It informs and is also informed by it.

Critical Ethnography: This is widely used and it involves a close attention to details which characterize ethnography. It is very useful in rendering all the invisible to be visible and for revealing anomalies and common sense notions. It transforms all the anomalies and all details taken for granted into contradictions and myths by situating them in broader social and historical analysis. It focuses on the way contradictions are negotiated and myths re-presented.

Structuralist techniques: The two types of structuralist techniques used in critical social research are:

Semiological Analysis: This attempt to undercover the connoted level of denoted messages though widely used in the mass media. It is applicable to and derives from a general approach to the analysis of any system; it sees a sign as any cultural symbol which conveys a meaning. The sign is made up of two elements – signifier and signified.

Identification of binary oppositions and narrative sequences: which draws on linguistics and presupposes that the structure of language is inherently dichotomous and consequently, the symbolic meaning of an image is determined only by differences.

SELF ASSESSMENT EXERCISE 2

What are the phenomenological approaches in social research?

What are the four approaches in critical social research?

4.0 CONCLUSION

Researchers study the socio-cultural implications involved in their different areas of study. To this effect different scientific disciplines have influenced such areas in terms of theorization as well as methods adopted in the pursuit of knowledge.

Doing a research is not just about selecting and constructing data collection technique on the contrary; it involves conceptualization of the problem theoretical debate, specification of research practices, analytic frameworks and epistemological presuppositions. In this unit you have studied some research methods which you can use in your qualitative researches.

5.0 SUMMARY

In this unit you have learnt that empiricism is a system which does not agree with all past knowledge which rests solely on experience. Anybody who practices empiricism is called empiricist. An empirical research method proceeds in a systematic and orderly manner in order to pursue the truth as determined by facts and logical considerations. The steps involved are

Data collection
Measurement
Classification, organization and tabulation of data
Data analysis
Formulation of hypothesis and
Formulation of theory or law.

The main features of empirical research are:

Observation
Concepts
Objectivity
Verifiability
Predictability
Systematic nature.

You also learnt that phenomenology is philosophies of knowledge are

Hermeneutical Phenomenology

Transpersonal Phenomenology

Social Phenomenology

Neuro-Phenomenology.

Critical research lays emphasis on the fact that knowledge is problematic and capable of systematic distortion. The elements of critical social research include abstraction, totality, essence, praxis, ideology, history and structure.

The approaches in critical social research are

Critical case study

Radical historicism

Critical ethnography

Structuralist techniques.

6.0 TUTOR MARKED ASSIGNMENT

List the empirical research process

Explain the major features of empirical scientific research

Describe the phenomenological approaches

What are the elements of a critical social research?

7.0 REFERENCE / FURTHER READING

Bernard, H. R. (1988) Research Methods in Cultural Anthropology New Delhi, Sage publications.

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ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

The Steps are:

Data collection

Measurement

Classification, Organization and Tabulation of data

Data analysis and Reduction

Formulation of hypotheses

Formulation of theory and Law

The main features are:

Observation

Concepts iii.

Objectivity

Verifiability

Predictability

Systematic Nature

EXERCISE 2:-

The approaches are:

Hermeneutical Phenomenology

Transpersonal Phenomenology

Social Phenomenology

Neuro-Phenomenology

The approaches are

Critical case study

Radical Historicism

Critical Ethnography

Structuralist techniques

UNIT 8.0 PHILOSOPHICAL AND HISTORICAL RESEARCH

CONTENT

1.0. INTRODUCTION

Else where in this course, you have studied to the fact that the qualitative methods treat human mind, especially the mental insights and impressionistic view as the major means of generating knowledge. They are employed for inquires in different fields such as Philosophy, History,

Social Anthropology, Field Psychology , cortex specific problems, prognosis and diagnosis of problem cases etc. you have seen that, the last unit dealt with some qualitative research methods. In this unit, you will continue with other qualitative research methods like Philosophical and Historical research methods, and may continue in the next unit.

2.0 OBJECTIVES

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

Explain Philosophical research

List the main steps in Philosophical inquiry

Explain Historical research

Discuss the main features of Historical research

List the main steps in Historical research.

3.0 MAIN CONTENT

3.1 PHILOSOPHICAL RESEARCH

Philosophical studies aim at the assessment of the status of knowledge through analysis of meaning and relationships of different concepts and exposition of underlying assumptions. They also aim at a fruitful synthesis of ideas from different fields concerning the theories and practices. It means that if you are a researcher in this area, you will be aiming at the analyses of meaning and nature of different concepts and the reluctance of different kinds of practices. You will have to identify appropriate norms and standard for practices through cross examination of ideas reflected by the different thinkers in your field of specialization. The main thrust of philosophical research can be summarized as follows:

Study of the contributions made by a philosophers or groups of philosophers: These are philosophers or groups of philosophers who follow similar lines of thought expressing their ideas about the aspects of occasions in different forms – speeches, discourses, writing and institutional practices.

Study of the philosophical ideas propounded by a particular school of thought: You already know that philosophy is classified under different schools of thought, such as Idealism, naturalism, realism, existentialism, pragmatism, socialism or communism i.e. dialectical materialism.

Study of the philosophical bases of the curriculum: So many questions are raised in the context of curriculum development. These include the desirability of the state of mind to learn, the criteria for identifying the desirability of the state of the mind. These are some of the issues related to theoretical and practical aspects which are the concerns of the philosopher.

Study of the philosophical bases of instructional process: Philosophical research probes in to the alternative to instructional designs and system, their worth and social desirability in the overall frame work and understanding to human development.

Study and philosophical analysis of contributions made by theories in psychology: Philosophical studies probe into the contributions of need theories and concept formation from the psychological process.

Study and philosophical analysis of social theories: Issues like freedom, autonomy, democratic values, equality of opportunities, policies and practices, require philosophical analysis from time to time in order to accommodate the changes which improve or develop the societies.

3.1.1 Main Steps in Philosophical Inquiry

There are well defined steps that need to be considered and followed in order to make a successful philosophical inquiry.

Identification of appropriate topic: As it is in every other research method, philosophical studies start with the selection of appropriate topic. You have to ensure that the topic chosen is capable of yielding a system, of thought with sound justification. Of course, you have to consult available literature before you finalize the topic. Look at these two topics.

"A critical study of the educational implications of existentialism". "A philosophical study of Equality of Educational opportunity".

Collection of data: After the identification of the topic and raising some preliminary questions about this topic, you then go to collect all possible data relevant to the topic. Data can be collected from different sources including available literature. The type and sources of data may be of literary nature like to rite ups or opinions of the philosophers concerned, commentaries on relevant philosophical works which appear in the form of books, journals, transcriptions, recording, research reports etc. collection of these types of data is mostly done through library work. You have t note that this is a very crucial stage in this type of research process. You will have to decide the relevance and authenticity of the data and the nature of the sources.

Classification of data and the interpretation: Logical classification of the data under different heads that focus on the topic of investigation is required here. After the classification comes the interpretation. This follows different processes such as description, comparison, appraisal, cross examination, etc. of the different ideas or concepts in the context of the major question under consideration, interpretation. Here is a scholarly exercise it rests on our analytical insight and your synthesizing ability.

According to varma (1965) the task of interpretation is chiefly that of ascribing a significance, meaning, purpose and relatedness to a common end and to an apparently heterogeneous mass of data. Personal biases and subjectivity must be as much as possible avoided.

Reporting the study: This is the final stage of the research. You have to maintain logical sequences among the different heads of classification appropriate conclusion are drawn towards the end of the presentation.

You have to be careful to ensure clarity and precision in your presentation. Cite appropriate references with quotations as well as all necessary points and emphasis on the presentations very carefully in the report.

SELF ASSESSMENT EXERCISE I

Explain the main steps in Philosophical Research.

3.2 HISTORICAL RESEARCH

Right from your primary school, you have known that history is the study of the past. Therefore a historical research consists of the studies of the past happenings. In this process of searching for the amount of what happened in the past, the historian may reveal several interacting factors that contributed to a particular event within a specific context of time and space occurring. Historical studies highlight some causal relationships of past events and unearth the background for the purpose of understanding the social phenomena both past and the present. It means that the understanding of our past will help us to develop better perceptions of the dynamics of the present times. History is a study of the road for the march of progress indicating the nature of advance in socio-economic and political contexts. According to Borg (1963) historical research can be seen as the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions about past events.

3.2.1 Main Features of Historical Research

Historical method of research otherwise called „historiography" has some unique features that make it count as a method of scientific inquiry.

These features are:

It aims at developing knowledge of past events within a particular framework of time and social – political, economic and cultural context. As a historical researcher, you attach importance to the meaning of specific events which have already occurred and explain their casual relationships on the basis of the analysis of the existing data.

You dig into the significant data that tell us about the past events. You do not have any control over data because you are studying situations that do not exist in the

present. You have to consider every piece of information of the past which are relevant to your problem of investigation for analysis.

Historical research is conducted based on the analysis of all the known information related to the research problem.

Data concerning the past events are available through different sources. **These sources are classified into primary and secondary sources. Before we go on let look at these.**

3.2.1(A) Primary sources of Historical data.

These provide first hand information about the past events. They include direct observation and reporting a recording of experiences. Other primary sources include:

Personal primary sources such as personal direct observation of events which the participated in the past.

Physical artifacts like collections in museum or evidence of historical spots, relics, remains etc.

Mechanical artifacts like films, video, audio and photographs

Records written by actual participants or observers in the form autobiographies, charters, court decisions, official minute or record deeds, wills, permits, licenses, certificates, bills, receipts, maps, pictures, paintings etc.

3.2.1 (B) Secondary Sources of data:

These involve second-hand information about past events. The person giving the information is neither a participant nor an eye witness of events. The information can be in the form of written materials such as newspaper articles, magazine, books, research reports etc. You have to note that secondary sources of data are usually of limited worth because of the errors which result when information is passed on from one person to another.

Another major feature of historical research is the evaluation of data. Doubts can be raised about the validity, reliability and relevance of the data. The process of evaluation is called historical criticism. This can be external or internal criticism. External criticism is

concerned with testing the authenticity of the sources of data, while the internal criticism is concerned with the verification of the content of the data.

3.2.1 Main steps in Historical Research

Identification of the problem: As usual this is the first step. It involves selecting a problem which falls in the area of history or which has issues of historical significance.

Specification of the population of data: There may be a lot of information about the past available in most cases. You need to point out the types that are relevant to your study.

Data Collection: The description of the required population of data will help you to develop an overview about the data and to assess whether all relevant information is available or not. You need to study the relevant literature and make efforts to discover new data in addition to what is available. To collect data:-

You should be aware of all the data known to exist.

You should know sources of data and be ready to explore new data from the existing sources.

You should be ready to exercise great care in exploring the sources and previously known data in the context of the problem under investigation.

Organization of Data: Here you arrange the data under different headings in order to show a holistic picture of the problem. This will enable you to scrutinize the data in hand to see if they are enough for the study or if there is need for more.

Interpretation of data: At this stage you have to show the events which give details of what happened to whom, in that place and at what time. This will lead you into being curious to know why something happened. It poses a great challenge because interpretation is based on forces which shaped event and determined policies. A sound knowledge of related fields like sociology, political science, economics, philosophy, geography, educational management and educational technology, will enable you to develop a holistic view about the situation and to deduce the implication for the present.

Report writing: This starts once the first round of data collection is over. There is the interaction between writing interpretations, selections of additional data and

subsequent reached. The final touch will be given to the study by way of preparing a systematic and comprehensive report.

SELF ASSESSMENT EXERCISE 2

Identify a study topic about the history of your Alma matter?

State the main steps you will take in conducting this historical research?

4.0 CONCLUSION:-

You have added two more research methods which are qualitative researches in your repartuor of knowledge. These are research options for your study when you need to do any investigation. In the next unit you will also add more so hat you have varieties of choices when you are ready for your research project.

5.0 SUMMARY

In this unit you have learnt that philosophical research aims at the assessment of the status of knowledge through analysis of meaning and relationships of different concepts and expositions of underlying assumptions. The main steps expositions of underlying assumptions. The main steps are

Identification of appropriate topic

Collection of data

Classification of data and the interpretation

Reporting the study

You also learnt that a historical research consists of the studies of what happened in the past in order to reveal several interacting factors that contributed to a particular event within a specific content of time and space. The main features of Historical Research highlighted in this unit. You saw the two sources of historical data which are the primary sources and secondary sources. In evaluation of historical data which is called historical criticism, two types involve. These are external and internal criticism. The main steps in historical research are:

Identification of the problem

Specification of the population of data

Data Collection

Organization of Data

Interpretation of data

Report writing

6.0 TUTOR MARKED ASSIGNMENT

What are the main steps in Philosophical Research?

Explain the sources of Historical Research?

What are the two ways of evaluating Historical Research?

7.0 REFERENCE / FURTHER READING

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi STRIDE

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ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

The main steps in Philosophical Research are:-

Identification of appropriate topic

Collection of data

Classification of data and the interpretation

Reporting the study

EXERCISE 2:-

The students are required to identify a topic.

The main steps are:

Identification of the problem

Specification of the population of data

Data Collection

Organization of Data

Interpretation of data

Report writing

UNIT 9.0 NATURALISTIC INQUIRY AND CASE STUDY

CONTENT

1.0. INTRODUCTION

In the last unit, you learnt two research methods which are qualitative. This unit is a continuation you are going to learn yet another two methods of research which are qualitative. These are the Naturalistic research method and the case study method. Under these we are going to discuss the meaning, significance, their uses and the steps in conducting them.

2.0 OBJECTIVES

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

Explain the meaning of naturalistic inquiry

Discuss the uniqueness of the naturalistic inquiry

Describe the main steps in naturalistic inquiry

Explain case study research

Mention the characteristics of case study

List the main steps in case study.

3.0 MAIN CONTENT

3.1 NATURALISTIC INQUIRY

As the name implies, this can be said to mean all investigations about social and educational phenomena conducted in natural settings. It is identified with the concept of field studies in the areas of Anthropology and Sociology. It has a unique position in the conduct of social sciences researches. For instance, if you are interested in studying the problems of hotel management in Nigeria, you may decide to use the naturalistic inquiry method. In this case, it means that you have to go down to the natural settings of the hotels and their management in order to study the problems.

In an ordinary scientific inquiry, you start with the statement of the hypotheses, which you formulated through a deductive process. You can then start collecting data in order to test the hypotheses or theoretical questions. You may use a physically controlled situation or statistically controlled techniques. In whatever you are doing, objectivity must be ensured through the use of representative samples, standardized instruments and different sophisticated statistical designs for treatment of data and generalization of finds. Naturalistic inquiry does not follow these steps. It follows an altogether different conceptual framework this takes into account such factors as:-

Multiple Realities: Naturalists believe that multiple realities exist in social situations. These exist in concrete forms. Realities can be regarded as what people perceive at a particular point in time. You know that social situations keep changing from time to time. Therefore, realities will also be changing.

Meanings and Interpretations: Naturalists lay emphasis on the meaning and interpretations given to objects, events and processes concerning social and educational situations. You need to understand human behavioural or social phenomenon in order to

see the changes, the way people see them, what they are doing or how they participate in an activity.

Generation of Knowledge: Naturalists insist on the generation of knowledge as a result of the interaction between the researcher and the respondents. The respondents answer questions from the investigator in order to show their perceptions or the meanings attached to their actions. This makes the respondents to achieve maximum levels of responsiveness and insight into the problem under investigation.

Generalization: Naturalists do not believe in generalization as is done by the scientists. They believe that the process of knowledge generalization must take into account the differences or the real evidence existing in specific situations.

Human Relations: There are several intrinsic factors, events and processes that keep influencing each other. If is not possible to identify one to one cause and effect relationship in the case of naturalistic studies. Causality in social studies is not demonstrated in the hard sense, but only patterns of plausible influences can be inferred from social and behavioural studies.

Value Systems: There is no value – free inquiry. Naturalists assume the influence of value systems in the identification of problems, selection of samples, use of tools for data collection, the conditions in which data are gathered, and the possible interaction that takes place between the investigator and the respondents. Naturalist‟s points out that the researcher‟s bias is always there and should be mentioned in the research reports and to be ignored.

3.1.1 The Uniqueness of Naturalistic Inquiry

In terms of procedures, naturalistic research is quite unique. Let us highlight the uniqueness as follows:

Holistic Approach: The intention of naturalists of the development of deeper understanding of a given situations in a holistic manner. All possible information in regards to all the significant dimensions of the situation under study is collected with a view to show the situation in the totality.

Insightful Inquiry: This is emphasized by the naturalists where human beings are treated as the sole means of data collection.

Naturalistic research makes use of qualitative methods such as participant observation informal interviews and discussions, review of relevant literature, daily observation notes and dairy writing, very often for field work. It can also make use of quantitative method like use of tests, questionnaires etc sometimes for data collection.

No a Prior Theory: A naturalistic research is such that you go to the field collect data without having any pre-specified theory in mind. Your belief as a naturalist is that and a prior limits the inquiry to those elements which may have been significant before developing an understanding of the situation. The process of holistic inquiry is blocked. Theoretical propositions are insistence on the development of theories afresh in every enquiry conducted.

No Pre-specified design of study: There is no explicit statement on the hypotheses and the conditions for data collection, analyses and interpretation. You can only develop; decisions are taken about the samples during the field work. Experiences got through personal insights, intuition, personal images and apprehensions are recast into appropriate propositions during the period of data collection. The data collected are used to analyze and adopt the study to the pattern of relationship.

Naturalistic setting: in the description of naturalistic research above, you learnt that it takes place in the natural setting. So naturalistic believe in conducting their studies in realistic settings since reality cannot be studied in fragmented and controlled situations. They try to bring out what happens in the realistic situation i.e. a hotel room, restaurant, bar, recreation, club etc.

SELF ASSESSMENT EXERCISE I

Explain how the naturalistic researches are unique.

3.2 MAIN STEPS IN NATURALISTIC RESEARCH.

There are two groups of naturalists. One believes in the procedural details of the study, while the radical naturalists believe in non-specification of the processes of conducting the study.

However, these are the main steps:

Identifications of broader questions of Inquiry: You have to first specify the pertinent issues or questions related to the settings and which can be resolved or answered through field study. Your main focus should be on the specific structure of occurrences rather than general character of the Phenomenon.

Your emphasis should be on identifying individual perceptions as regards his own decisions or contributions to the occurrence of the events or processes. You should focus on the understanding of the realities by identifying satisfactory patterns in the action of the individuals participating in the activities.

Collection of the initial level data: The next step is to make deliberate attempts to identify a full range of variations in the social and organisational arrangement related to the problem under study. You may start the investigation from a broader context of the problem before you proceed to the specific occurrences of the events.

Procedures for data collection: You can collect data in different phases through participant observation. Data collection can be done through all the relevant and available sources and means like:

Review of available literature, records and documents, dairies, pictures, photographs etc.

Interactions with the people concerned in the programme

Direct observation and experiences about the programme.

Note that you have to use flexible approaches in the field to identify:

The situation for participation to take place

The persons for intensive interaction that is required

The people with whom dialogue is needed

Devices of data collection: Different types of devices can be employed for the purpose of data collection. These include: writing notes about an observed situation; using electronic appliances such as tape recorders and video camera; taking photographs; and collecting relevant documents and literature on the problem. You can also make arrangements for informal interviews or dialogues with different groups of respondents. In this case you have to record their opinions and perceptions.

You have to be taking daily diaries about your experiences in the field. We have already told you that field work can be conducted in phases. So after the first phase, you can analyze the data qualitatively, refine the previous questions and arrive at new specific questions for further verification.

Data Analysis: Data are analyzed by describing them. The frequency data are presented in two or three way contingency tables to show the patterns of behaviour. You can some of the times use descriptive or nonparametric tests like chi-square, Man Whitney, rank order correlation etc to identify certain patterns of relationships in the context of the specific situation under study.

A sound naturalistic research follows a cyclical process. This involves, data collection, generation of hypothesis, data examination, further generation and or modification of hypotheses, further data collection and verification until specific research questions are identified and the patterns of refined relations are arrived at.

3.2.1 Trustworthiness and objectivity in Naturalistic Research

Trustworthiness: The naturalistic process of inquiry has been criticized based on the issue of trustworthiness. It is noted that qualitative approaches bring about subjectivity of inquiry. Again the investigation biases may not allow him to produce authentic information. As a result of subjectivity valid knowledge may not be generated. The naturalists have objected these attacks. They have made efforts to fix certain standards to check the trustworthiness of the investigation.

Credibility: This is the level of agreement between the researcher‟s data and the interpretation and the multiple realities that exist in the minds of the respondents.

Transferability: This is the quality that makes it possible to derive accruable meaning of information on interpretation available in specific contexts.

Dependability: This is the stability of information sought and interpretation derived in different situations on specific issues.

Confirmability: This is the possibility of studying the collected objective / systematic information and getting the same or similar conclusions by different researchers.

The following principles guide naturalistic research in achieving the four criteria above.

The use of prolonged field work to overcome biases and wrong perceptions that may appear in one short trip.

Persistent observation of certain typical meaningful features can help to increase the credibility of the study.

Interaction with colleagues helps to evolve suitable designs, share anxieties, apprehension and feelings about field work

Variety of data sources using different investigators with different perspectives help to project a consolidated picture of the field and enhance dependability and confirmability of data.

Varieties of related references materials like documents, pictures, films, video and audio tapes helps to increase trustworthiness

Using varieties of data collection techniques can help to increase confirmability and dependability of data.

Cross checking of data and interpretations by some of the respondents can enhance internal validity of the study.

Increasing purposive sampling to collect different instances across a wide range of events can be useful in maximizing the range of information an increase external validity of data.

Substantive description of events in specific contexts can be useful in establishing the reliability and dependability of information and conclusion.

Note that these cannot guarantee trustworthiness, but can generate a convincing situation about the meaningfulness of study.

SELF ASSESSMENT EXERCISE 2

Explain the criteria outlined to ensure trustworthiness of a naturalistic inquiry?

3.3 CASE STUDY RESEARCH

This can be defined as our intensive investigation about pertinent aspects of a particular unit in a given situation. This unit of investigation can be an individual, a family, a group of individuals or families, educational or social institutions, a community or a culture, a village, a tribe, a slum area, or even a hotel unit, a bank or group of banks or hotel etc. Whatever the unit is, it is treated as a whole in the context of specific situations. This wholeness is determined through an abstraction of ideas. A case study conducted on individuals may be linked with the processes of growth and development of a child, the behaviour of gifted children, psycho-analysis of a problem child, role of a leader in a specific social movement, the role of a manager in a company, etc.

Case studies are conducted for developing deeper understanding of intricate relationships existing in the process – aspects of a specific unit or unit through qualitative investigation. It is not very different from naturalistic methods. This is why most of the times; it is treated as kind of naturalistic research.

3.3.1 Characteristics of Case Study Method

Certain specific characteristics shown by the procedural aspect of a full-pledged case study include:

Continuity in investigation: A continuous and prolonged enquiry about the situations is very necessary till the underlying factors are explored and plausible patterns of their interaction or relationship are identified. For example, if you want to study the problems militating against learners support services in the Open University, NOUN for instance, you will see that is not something you can study in one ego. You have to take prolonged inquires.

Completeness: A sound case study must involve extensive collection of data from internal and external environment of the unit under study. Data collection will continue till the completeness of data is ensured and a complete picture emerges.

Authenticity of Data: A case study report must be based on meaningful, reliable and valid information about the case. Appropriate applications of both qualitative and quantitative methods like interviews, observations, records, surveys and the administration of tests and questionnaires can be made. The use of multi-techniques approaches to data collection and cross examination of data through different methods can take care of the authenticity of data.

Confidential recording: All data involving personal and ethnical issues like relationships of teachers and pupils with the management, discipline, confidential records, documents about the institutions etc, must be handled tactfully and care must be taken to maintain their secrecy.

Intellectual synthesis: You know that case study involves multi-method of inquiry and deals with all significant situations concerning the unit, appropriate synthesis of the data is very necessary in order to show the uniqueness of the unit and to explore significant relationships. If you are skilled in the investigation with theoretical sophistication, insightfulness and writing skills, then you can do justice and prepare a sound case study.

3.4 Main Steps in Case Study

Case study method is sometimes treated as a naturalistic inquiry in that, the same steps followed by the naturalists are also followed in case study. But the following steps are very significant.

Selection of a case for investigation: In selecting your case for investigation, there are some basic questions:

Are you interested in the study of a normal situation with a view to developing deeper in the phenomenon?

Are you determined to solve the problems of a typical institution?

Are you assigned the job of evaluating the functioning of an institution?

Are you interested in identifying the underlying factors contributing to the excellent performance of an institution?

Once you have identified the case, then you need to determine the status of the case based on preliminary information collected about the background of the case.

Data Collection: The process of data collection can be through both qualitative and quantitative techniques like observations, interviews, check lists, Performa, open ended questionnaires, surveys, records, psychological tests etc. Personal interaction should come first. Then care must be taken to make sure that only tools relevant to the case are used.

Analysis of first round data: This is done systematically in order to identify the more complicated situations or problems and therefore raise important questions about the influential factors.

Second Round Investigation: This is conducted for these specific questions or factors which are identified during the first round data analysis. This second round involves intensive investigation through prolonged observations. Formal and informal interviews, questionnaires, cross-examination of different documents and record, administration of specific test etc. After this round analysis and interpretations of data begin.

Introduction of alternative measures: This is mostly done in clinical studies where most of the suitable alternatives as hypothesized through investigations are introduced.

Follow-up activities: The effectiveness of the alternative measures introduced should be investigated. This will give a feedback on the strengths and weaknesses of the corrective measures.

SELF ASSESSMENT EXERCISE 3

Explain the main steps in case study?

3.4.1 Is Case Study Scientific in Nature?

There are criticisms against case study research for lack of scientific approach. A criticism is that case study is useful in the exploration of knowledge related to a single unit but has no scope to test hypothesis or confirm any evidence. This limitation of the case study cannot undermine its meaningfulness in the process of generating knowledge. Moreover, it accommodates the process of hypothesizing in a manner different from that o survey and experimental studies.

Generating hypothesis in case studies: Hypotheses are stated in the form of questions or statements related to the various aspects of the process. These hypotheses are tested or confirmed using qualitative method in the given context of the investigation.

Testing hypotheses in the case study method: This follows a qualitative approach. This involves your insight into an impressionistic view about the process under investigation. But data processed in quantitative terms can be integrated with qualitative treatment for developing a holistic perspective regarding the case.

Generalization of case study findings: The process of evidence-generalization here depends on several considerations. These include the nature of the case study, the theoretical framework generated, and the extent of objectivity possible. There also possibilities of considering the findings of a case which are significantly similar to another case that will be studied at a later stage. There are also situations where studies of different cases can be useful in developing a new trend.

4.0 CONCLUSION

From this unit, you have added two more research methods to your collection. This means that you have many of the qualitative research methods to choose from any time you feel. But if you are in love with the quantitative methods, you wait for the next unit where you are gong to be exposed to the major ones.

5.0 SUMMARY

In this unit, you learnt about two major types of research studies which are qualitative in approach. Naturalistic studies refer to investigations about social and educational phenomena which are conducted in natural settings. It takes into account such factors as multiple realties, meanings and interpretations, generation of knowledge, generalization of knowledge, generalization, human relations and value systems. It is also unique in procedures in such ways as

Holistic Approach
Insightful Inquiry
No a Prior Theory

No Pre-specified design of study

Naturalistic setting

The main steps are

Identifications of broader questions of Inquiry

Collection of the initial level data

Procedures for data collection

Devices of data collection

Data Analysis

You also learnt that the naturalistic research has some standards for checking objectivity and trustworthiness these are

Credibility

Transferability

Dependability

Confirmability

You also learnt about the principles of achieving these criteria

A case study is an intensive study about pertinent aspects of a particular unit in a given situation. Its characteristics are

Continuity in investigation

Completeness

Authenticity of Data

Confidential recording

Intellectual synthesis

The main steps are

Selection of a case for investigation

Data Collection

Analysis of first round data

Second Round Investigation

Introduction of alternative measures

Follow-up activities

You have seen the attempt to prove that case study is scientific.

6.0 TUTOR MARKED ASSIGNMENT

What are the different conceptual frame works in Naturalistic Studies?

What are the characteristics of case study research?

7.0 REFERENCE / FURTHER READING

Ary. D. Jacobs, L. C. and Razavich. A. (1972) Introduction to Research in Education. New York. Rinehart & Winster.

Cohen, L. and Morrison, L. (1989) Research Methods in Education. London. Rutledge.

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi STRIDE

ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

Naturalistic Researches are unique in these areas:-

Holistic Approach

Insightful Inquiry

No a Prior Theory

No Pre-specified design of study

Naturalistic setting

EXERCISE 2:-

The criteria outlined to ensure trustworthiness.

Credibility

Transferability

Dependability

Confirmability

EXERCISE 3:-

The main steps are:

Selection of a case for investigation

Data Collection

Analysis of first round data

Second Round Investigation

Introduction of alternative measures

Follow-up activities

UNIT 10.0 DESCRIPTIVE RESEARCH

CONTENT

1.0. INTRODUCTION

In the preceding units, you have been learning some research studies that adopt the qualitative approach. You have got enough of that. So let us shift our studies to those research methods which adopt the quantitative approaches. In this unit, you are going to learn the details of descriptive research. Descriptive research as the name implies describes what is. This involves the description, recording, analyzing and interpreting such conditions that exist. It is one of the most popular research methods in the world.

2.0 OBJECTIVES

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

Explain descriptive research

Describe the main steps in conducting descriptive research

Discuss the types of descriptive research

3.0 MAIN CONTENT

3.1 INTRODUCTION OF DESCRIPTIVE RESEARCH

The main aim of descriptive research is to describe "What exists" with respect to variables or conditions in a situation. They are designed to obtain information about the current status of a given phenomenon. You can say that they are concerned with the existing conditions or relationships, prevailing practices, current beliefs, points of view or attitudes processes that are on-going and their effects, developing trends etc. They determine the nature of situations as they exist at the time of the study. It is very appropriate in behavioural sciences. You can see that there are behaviours which may be of interest to you as a researcher and which cannot be arranged in a realistic setting. Think of one example of this. For instance, you know it is not possible for you as a researcher to arrange for a motorcycle accident to happen so that you can assess the effectiveness of the use of crash helmets in preventing serious injuries by „Okada" riders. Again, you know that it is not possible for you to bring some people and give them cigarettes to b smoking so that you can study the effects and relationship with lung cancer.

You know that some experimental studies of human behaviour can be appropriately carried out both in the laboratory and in the field. But the prevailing method which is mostly used in social sciences is descriptive. Human behaviour can be systematically examined and analyzed under the conditions that naturally exist at home, inside the classroom, on the play ground or within the community, family, social circle etc. The analysis can lead to the modification of factors or influences that determine the nature of human interaction.

3.2 MAIN STEPS IN DESCRIPTIVE RESEARCH.

Descriptive studies do not present private convictions or data based on casual or cursory observations rather you:

Examine the Problematic situations

Define the problems and state your hypotheses.

List the assumptions upon which your hypotheses and procedures are based.

Select appropriate subjects and source materials.

Select or construct techniques for collecting data.

Validate the data gathering techniques.

Make objective an discrimination observations

Describe analyses and interpret your data in clear, precise terms.

The summary of it all is that as a research, what you do is to collect evidence on the basis of some hypotheses, tabulate and summarize the data carefully, and then analyze the results thoroughly in order to draw meaningful generalizations that will advance knowledge.

3.2.1 Collection of data

When you write you descriptive research report, you must identify the kind of data obtained as well as the exact nature of all population. What are the units that constitute your population? Are they people, items, events or objects? After you have identified the population, you must decide whether to collect data from the total population or a representative sample of the population.

Total Population

If you want to obtain information from every unit of a small population, it may not be very difficult in some cases, but the findings can not be applicable to any population outside the group studied. For instance when you collect information, from every student of school of Business and Human Resources Management from Lagos study centre, you may draw your generalizations based on the information. But you cannot claim these generalizations will hold true for students from the same school of BHRM outside Lagos Centre.

Sample Population:

When you try to obtain information from a large population for instance all the teachers in Imo state, you will see that it is often not practicable, impossible or exorbitantly costly. If you try to contact, observe, measure or interview every unit in the group, you will realize that it may take so much time that the information may become still or absolute before you complete the study. To this effect what you do is to collect information from a few carefully selected units drawn from the population. This few units are called samples.

For instance assuming you want to study the study habits of NOUN students and there are about 75,000 students in all study centres of NOUN. You can see that you cannot collect data from all these students. What will you do? You will have to select a representative sample of this population.

It means you have to select your sample from different categories of the student population. Hence, male/female, employed/unemployed, graduates/undergraduates etc. If you sample represents accurately the characteristics of the population, the any generalizations based on the data obtained from them may be applied to the entire group. But it is not easy to select a representative sample. We shall discuss this in other parts.

3.3. TYPES OF DESCRIPTIVE RESEARCH

There are different types of descriptive research. Note that this categorization is not sacrosanct. It is just to help you understand the research more clearly.

3.3.4 Survey Studies

Most of the times, descriptive research is called survey research. But it is better to call survey a category under descriptive research survey itself is the most widely used method for obtaining descriptive and evaluative information. This can be used when trying to solve problems in education, government, industry, politics, organization etc. When detailed descriptions of existing phenomena are collected, they can be used with the aim of employing the data to justify current conditions or practices or to make more intelligent plans for improving them. In a survey studies, we may need to collect three types of data

Data concerning existing status: e.g. find out the study habits of students of NOUN

Comparison of status and standards: e.g. to compare the study habits of distance education students and those in face to face

Means of improving status: e.g. to find ay of helping distance education students improve on their study habits.

Survey can be broad or narrow in scope. They may be confined to a small geographical area like community, a local government a state or even the whole country or more.

Data may be gathered from every member of a specified population or from a carefully selected sample. The steps involved in survey research are in general, similar to what obtains for descriptive research:

Planning: This involves determining what topic to be studied, the type of population to be investigated and the methods and procedures to be used for data collection.

Sampling: This involves a decision about which people from the population to be included in the survey. Note that if you are going to generalize from the sample to the population. Then your selected sample must be representative of the population.

Development of data collection instrument: This involves listing the questions and planning for the format of the instrument to be used. Is it personal interview, questionnaires, rating scales etc?

Carrying out the survey: This includes pre-testing the instruments to see if it will yield the desired data, interviewing the subjects or administering the questionnaires and verifying the accuracy of the data collected.

Processing the data: This includes tabulating the data, analyzing the data (you can use computers if you like) interpreting the results and reporting the findings.

3.3.5 Analysis of documents:

Documents and records can be used to bring out pertinent data. Documentary analysis otherwise referred to as context activity or informational analysis is very much like the historical research. But while historical research is primarily concerned with the more distant past, descriptive research is concerned chiefly with the present. There are wide varieties of documentary surveys made; some researchers can analyze judicial decisions, state laws or court rulings. Some others may collect and analyze data describing existing practices, processes and conditions from administrative records, forms and reports, committee reports and minutes of meetings, budgets and financial records etc. university catalogues, bulletins, syllabi, courses of study, reading lists, text book and others may be useful in the investigation.

Also newspaper, periodicals, motion pictures, cartoons and other sources can also help. Some of the advantages include:

To describe the prevailing practices or conditions in the field

To discover the relative importance of, or interest in certain problems or topics i.e. to spot trends.

To discover the level of difficulty of presentations available in text books or in other publications.

To evaluate bias, prejudices or propaganda in text book presentations.

To analyze the types of errors and weakness in performance.

To evaluate the relationships of stated objectives and what is being done practically.

To identify the literary style, concepts or beliefs of a writer. Documentary research produces valuable information, but the method can have its own limitations. A faulty conclusion from the data may be drawn by the investigator. There is no representativeness in the samples of sources of materials used.

3.3.6 Correlational Studies

In order to have a fuller understanding of human behaviour is to begin by testing out simple relationship between factors and elements which are supposed to have some bearings on the phenomenon in question. The value of Correlational research is that it is able to achieve this end. You know that one of the primary purposes of science is to discover relationships among phenomena with a view ultimately to predicting and, in some situations, controlling their occurrences. Most of the researches in social sciences and education are concerned with the establishment of interrelationships among variables. Therefore we can simply say that Correlational studies are concerned with determining the extent of relationship existing between variables they enable us to measure the extent to which variations in one variable are associated with variations in another. For instance, what is the relationship between the income level of individuals and their expenditure patterns? What is the link between personality and academic achievement?

Correlational studies are intended to answer such questions as:

Is there a relationship between two variables or two sets of data? If the answer is yes then look at the questions below

What is the direction of the relationship?

What is the magnitude of the relationship? This is determined by a correlation coefficient. Correlational studies can be broadly classified into two methods.

Relational Studies: Which is particularly useful in exploratory studies in the fields where title or no previous research has been conducted. It is a shot in the dark in order to verify haunches which you have about presumed relationships between some characteristics of variables.

Prediction Studies: Which are usually conducted in an area having a firm and secure knowledge base? It is based on the assumption that at least some of the factors that will lead to the behaviour to be predicted are present and measurable at the time the prediction is made.

3.3.7 Causal-Comparative studies

Some of the times, it is very necessary to discover how and why a particular event occurs, instead to confirming ourselves to investigations about what the event is like. So you try to compare the similarities and differences among phenomena to find what factors or circumstances seem to accompany or contribute to the occurrence of certain events, conditions, activities, practices etc. In the behavioural sciences you cannot select, control or manipulate factors that necessary to study cause effect relationships. You see that you cannot manipulate things like domestic background, social lass, intelligence, etc. so if you can not manipulate the independent variable and establish the controls that are required in true experiment, you can conduct a causal comparative study. Here, you study a real life situation in which subjects have experienced what you want to investigate.

Causal comparative studies provide the means for tackling problems that cannot be probed in laboratory situations.

Again they yield valuable information and elites about the nature of phenomena and are well suited to many types of field studies seeking to establish causal relationships. Their limitations are:

Lack of control is a serious limitations and weakness

It is usually difficult to identify the relevant factors causing the particular conditions or phenomena

When a relationship between variable is established, it is difficult to distinguish between the cause and the effect.

The classification of subjects into dichotomous groups for the purpose of comparison also presents problems

In comparative studies of natural situations, you do not have the same control over the selection of subjects as you have in experimental studies.

SELF ASSESSMENT EXERCISE

What are the particular steps of survey research?

Explain the types of descriptive research?

4.0 CONCLUSION

In this unit you have added yet another research method to your collection. The descriptive research method which is a quantitative approach has been discussed in details here. You can use this method when you have to investigate a very large population of respondents. In the next unit, we shall continue with other quantitative research methods.

5.0 SUMMARY

In this unit, you learnt that the descriptive research methods are designed

to obtain information about the current status of a given phenomenon. The summary of the main steps in this research methods include identification of the problem situation, collecting evidence on the basis of some hypotheses, tabulate and summarize the data and analyze the results in other to draw meaningful generalizations that will advance knowledge.

You also studied the types of descriptive research to include

Survey Studies

Analysis of documents

Correlational studies

Causal comparative studies

These types have been treated in details for you to make your choice when the need arises.

TUTOR MARKED ASSIGNMENT

What are the main steps in a Descriptive Research?

Explain the types of Descriptive Research?

7.0 REFERENCE / FURTHER READING

Ary. D. Jacobs, L. C. and Razavich. A. (1972) Introduction to Research in Education. New York. Rinehart & Winster.

Cohen, L. and Morrison, L. (1989) Research Methods in Education. London. Rutledge.

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi STRIDE

ANSWERS TO SELF ASSESSMENT EXERCISES

The particular steps in survey research are:

Planning

Sampling

Development of data, Collection instrument

Carrying out the survey

Processing the data

UNIT 11.0 EXPERIMENTAL AND ACTION RESEARCHES

CONTENT

1.0. INTRODUCTION

A research method, as you have studied in the previous units, is a particular way of studying a problem. The method is determined by the features of the research problem and also the field inquiry. You have seen many of these research methods before now.

In this unit, which is a continuation of the others we shall discuss one of the most important methods of research the experimental research. Again we are going to conclude the unit by concluding our discussions on the research methods with other research.

2.0 OBJECTIVES

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

Explain the experimental research?

Give the characteristics of experimental research

List the steps in experimental design

Explain the types of experimental designs

Describe action research

Discuss the stages of action research.

3.0 MAIN CONTENT

3.1 EXPERIMENTAL RESEARCH

The studies here are designed fro establishing causal relationships. The method begins with a question concerning the relationship between two or more variables. In order to do this, you propose one or more hypotheses stating the nature of the expected relationship. Thus an experiment is the events planned and carried out so as to enable you collect evidence relevant to the hypotheses. Kerlinger (1974) considers experimental research the idea of science because

answers to research questions obtained in experiments are on the whole clearer and less ambiguous than answers obtained in non-experimental research types. An experimental research may be described as a research study in which one ore more independent variables are manipulated and in which all or nearly all possible influential variables not pertinent to the problem of investigation kept to a minimum. You may conduct a field experiment or a laboratory experiment from which you collect data for analysis and then subsequent making of generalizations.

An experimental research in its simplest form has three characteristics. These are

The manipulation of the independent variable.

All other variables except the independent variable are hold constant

The effect of the manipulation of the independent variable on the dependent variable is observed.

You have to note that both the independent and the dependent change variables are very important in an experiment. You manipulate the independent variable and then observe the effects of the changes or manipulation on the dependent variable. The dependent variable is so called because its value is hypothesized to depend upon and vary with the value of the independent variable. For instance, you can investigate the effect of warm reception on the attitude of customers. Here, you will continue to change the type of reception given to your customers and observe their attitudes. The independent variable is type of reception while the dependent variable is the attitudes of the customers.

3.2 Characteristics of Experimental Research.

In the conduct of an experiment, there are three major ingredients. These are Control, Manipulation and Observation

3.2.1 Control:

This is very important in experimental studies because without it, it is impossible to evaluate unambiguously the effect of an independent variable. The major purpose of control is to arrange a situation I which the effects of variables only can be measured. We can simply say that control is the term used to indicate your procedures or methods fro eliminating the differential effects of all variables extraneous to the purpose of the study. Note that an extraneous variable is one

which is not related to the purpose of the study but which may affect or have influence on the dependent variable.

3.2.2 Manipulation

This refers to a deliberate operation performed by the researcher. In the behavioural sciences and education, the manipulation of a variable takes a characteristic form in which the experimenter imposes a predetermined set of varied conditions on the subjects. This set of varied conditions is referred to as the independent variable, the experimental variable or the treatment variable.

3.2.3 Observation:

In an experimental study, we are interested to know the effect of the manipulation of the independent variable on a dependent variable. Therefore you make observations with respect to some characteristics of the behaviour of the subjects used in the research. These observations, which are most of the times quantitative in nature, may constitute the dependent variable. For instance in an educational situation, we are interested to know the performance of students after going through some learning.

These performances can only be estimated through measures like scores in a test. If we want to explain or predict student‟s performance we use their test scores. It means that these test scores are the dependent variables or observations rather than performance.

3.3. Steps in Experimental Research

There are number of steps involved in experimental studies. The steps that will lead you to the actual experiment are:

Making a survey of the literature related to the problem.

Identification and definition of the problem.

Formulating the hypotheses and defining basic terms and variables. Hypotheses must be formulated in an experimental research. This is because they suggest how an antecedent condition or phenomenon or the independent variable is related to the occurrence of another condition, phenomenon, event or effect otherwise called the dependent variable. For you to test the hypothesis, you have to attempt to control all the conditions except the

independent variable which you manipulate. You now observe if the effect on the dependent variable is as a result of the exposure to the independent variable.

Construction of the experimental plan. This refers to the conceptual frame work in which the experiment is conducted. The plan involves:

Identification of all the non-experimental variables that might contaminate the experiment and determine how to control them.

Selection of a research design

Selection of the sample of subjects to represent a given population and the assignment of the subjects to groups and experimental treatments to the groups.

Construction or selection and validation of the instruments for measuring the outcomes of the experiment.

Outlining the procedures for collecting the data and possibly conducting a plot or trial test to perfect the instrument or design.

State the statistical or null hypothesis.

These steps above will bring you the actual experiment. After the experiment, you apply statistical measures to the data obtained and then test the significance of the results.

SELF ASSESSMENT EXERCISE 1

What is experimental research?

What are the characteristics of experimental research?

3.4. EXPERIMENTAL DESIGN

You have to note that a well developed design will provide the structure and strategy for you to control the investigation and get dependable answers to the questions raised in the problem or hypothesis. Again you have to note also that the nature of the problem determines the appropriateness of the design. Let us look at the various types of designs.

3.4.1 Pre-experimental Designs

These are so classified because they offer minimal control of extraneous variables. Let us see examples.

One group Pre-test, Post-test design.

This involves three steps:

Administering a pre-test measuring the dependent variable.

Applying the experimental treatment X to the subjects

Administering a post-test measuring the dependent variable.

This can be presented as shown below.

O_1 X O_2

Pretest treatment posttest

When the pretest and post tests are compared, any difference can be attributed to the application of the experimental treatment. Let us use one example. Assuming you want to assess the effectiveness of a particular self instructional materials (SIM) in a business management course. At the start of the semester you give all the students taking this course a standardized test that measures the objectives of the course. After the test, you give the student the SIM on the course. At the end of the semester, you give the students the same standardized test. You compare the scores of two tests. Any difference will be attributed to the use of the SIM. This design has some faults. With the passage of time some students would have grown mentally or physically, or may have acquired additional learning experiences, like extra lesson or electronic devices etc. this may have affected the dependent variable. This is an extraneous variable called maturation. Other factors are history, practice effects, instrument reaction etc.

Static Group Comparison:

This design uses two or more groups. Only one of them is exposed to experimental treatment X. However the groups are assumed to be equivalent in all relevant aspects except in treatment. This can be shown as follows.

E = Experimental Group while

C = Control Group.

E	X	O_2
C	-	O_2

Group treatment posttest.

You can see that this design has two groups experimental E and control C. These are compared. If the E group is superior the difference is attributed to the treatment. But there is no

randomization or matching of the groups to ensure equivalence. Therefore, we cannot be sure that the groups are equivalent before the experimental treatment.

3.4.2. True Experimental Design

This is so called because it provides:

Random assignment of subject to the groups

Random assignment of treatment to the groups

Post testing of all groups.

(A) Randomized Groups Post – test only control group design

There are two groups to which subjects are randomly assigned. Each group is assigned to a different condition. There is no pre-test given. Randomization is used to control all the possible extraneous variables. Only the experimental group is exposed to the experimental treatment. Both groups are given the post test and their performances are compared. This can be represented as follows:

RE	X	O_2	R=randomized
RC	-	O_2	

Randomized matched subject pre-test, control group. This is very similar to design above. The differences are that

Subjects are matched on one or more variables than can be measured conveniently, like IQ, reading scores or mathematical ability. The matching variables used are generally those that have significant correlation with the dependent variable

Pre-test is given to the groups before treatment to the experimental group. At the end of treatment, the two groups are given the post test. The two tests are compared. It should be assumed that the post test scores of the experimental group should be better than the pre-test scores, if the experimental treatment is effective. This can be represented thus:

MR.E	O_1	X	O_2	M= Matched
MR.C	O_1	-	0_2	

3.4.3. Quasi-Experimental Design

The difference between this type of design and the true experimental design is that the groups are not randomized nor matched. Therefore, they are likely not to be comparable. ***Because of this reason of non-randomization, the design is called quasi-experimental design and not true experimental design.*** Otherwise all the designs in the true experiment, and we have given only two examples, are applicable to the quasi-experimental designs. See this example: non-randomized control group pre-test post-test design shown below.

E	O_1	X	O_2
C	O_1	-	O_2

3.4.4. Time Series Design

This is also not a true experimental design. It can also use one group or two groups as above. But instead of a one –tone pre-test, the pre-test is repeated three or four or more times before treatment is administered. This can be used to generate data on the trend of behaviour. Again, after the treatment, instead of one time post – test, there are also several times of post test given. This provides data to derive the trend in the change of behaviour. Because the pre-test and post-tests are used over a time. It is called time series design. Look at these two examples.

i.	O_1	O_2	O_3	O_4	X	O_5	O_6	O_7	O_8	
ii.	E	O_1	O_2	O_3	O_4	X	O_5	O_6	O_7	O_8
	C	O_1	O_2	O_3	O_4	-	O_5	O_6	O_7	O_8

SELF ASSESSMENT EXERCISE 1

Explain the main difference between experimental and non-experimental design?

3.5. ACTION RESEARCH

Let us start this section by looking at the two words – action and research. Action indicates a here and now activity, whereas research is a planned, carefully applied sophisticated methodology for generating knowledge that can be generalized. Therefore the meaning of action

research can be implied in the two words. We can then say that if you super-impose relevant research methods and processes over action, then you have the main intention of action research as a means of solving problems. ***Put specifically, action research is a research intended to solve practical problems of an individual or a group or an institution through planned intervention in the day-to day working.*** You can see that the emphasis lies on solving problems through adoption of alternative practices. According to Cohen and Marion (1989) action research is a small – scale intervention in the functioning of the real world and a close examination of the effects of such intervention. It is characterized by:

Situational: It is derived out of situational needs and a solution is also designed with regards to the situation.

Collaborative and Participation: It can be carried out on individual basis. But it is increasingly becoming a team work where practitioners and colleagues in an organization collaborate and participate with the researchers.

Self evaluation: This is necessary where the research team evaluates the outcome of the exercise. Remember that the study is self-initiated and evolves out of the perception of the problems by the practicing individual or group.

3.6 STAGES OF ACTION RESEARCH

There are four main stages in the conduct of action research

3.6.1 Stage One: Diagnosis

The actual diagnosis of the problem involves going beyond the symptomatic perception and deep into the problem to diagnose it clearly.

At this stage we have the following:

Identification, evaluation and formulation of problems i.e. diagnosing the problem on the basis of the symptoms.

Preliminary discussions and negotiations among interested parties

Review of literature – although not in all cases, but some types of problems may call for this before articulating the problem.

Modification and redefinition of initial statement of problem.

3.6.2 Stage Two: Planning and Intervention

This involves the selection of the research procedure-designing the intervention, sampling, administration, choice of material and methods of evaluation.

3.6.3 Stage Three: Intervention and impact assessment

This is the actual implementation, collection and analysis of data to assess the change in the magnitude of the problem. It involves:

Implementation of the project: That is actually carrying out the treatment designed on the sample. It will include collection of relevant data.

Interpretation of data: Using minimal statistical or qualitative analysis, the data collected can be interpreted so that the impact of the treatment on the alleviation of the problem can be assessed.

3.6.4 Stage Four: Reflection

At this stage you look beyond the factual data based result, with the main purpose of interpreting the results. Reflect on the why‟s and how‟s of the finding and the onward destination.

4.0 CONCLUSION:-

This unit brings us to the end of our discussions on the research typologies. Although our presentations are not exclusive enough, but you have got enough to enable you select the one you will use for your research projects. In the next unit we shall look at the population of the study and how to select your samples.

5.0 SUMMARY:-

In this unit, you learnt that experimental researches are designed to establish causal relationships. It involves the manipulation of independent variables and holding all other variables constant, and observing the effect of the independent variable. The characteristics are control, manipulation and observation. You studied the steps in experimental research and the different types of designs. You also studied the action research where you were told that it is a research intended to solve practical problems of an individual, group or institution through planned intervention in the day to day working. The stages are

Diagnosis

Planning and intervention.

Intervention and impact assessment

Reflection

6.0 TUTOR MARKED ASSIGNMENT

Explain the characteristics of Experimental Research?

What is Action Research?

What are the characteristics of Action Research?

7.0 REFERENCE / FURTHER READING

Cohen, L. and Morrison, L. (1989) Research Methods in Education. London. Rutledge.

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi STRIDE

ANSWERS TO SELF ASSESSMENT

EXERCISES EXERCISE 1

An experimental research is a research study in which on or more independent variables are manipulated and in which all or nearly all possible influential variables not pertinent to the problem of investigation are kept to a minimum.

The three characteristics of experimental research are

Control

Manipulation

Observation

EXERCISE 1

The main difference between experimental and non-experimental designs is randomization. The groups are randomly selected and matched to ensure equivalence before treatment

UNIT 12.0 POPULATION AND SAMPLING

CONTENT

1.0. INTRODUCTION

As a student of research, you will always be concerned with populations and samples as concepts in the research process, especially at the levels of data collection and analysis.

Population parameters and sampling techniques are of paramount importance and are regarded as very critical factors for the success of most researches. In this unit, you will be exposed to concepts, processes and methods or techniques for selecting your samples from your target population.

2.0 OBJECTIVES

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

Define a population?

Describe a sample?

Differentiate between probability and non-probability samples?

Explain the sampling techniques?

3.0 MAIN CONTENT

3.1 POPULATION AND SAMPLES

In your research studies, you need to administer questionnaires or conduct interviews or use other methods to collect information about some persons, objects, events or ideas from some particular group of people like all accountants in the banks, all bank managers in Lagos State, all hotel owners in Lagos etc. Each of these groups of persons constitutes target groups called the population of study. You can see that each group is a collection of persons with the same characteristics or qualities required in the research situation. According to Best and Khan (1995) ***a population is any group of individuals that have one or more characteristics in common that are of interest to the researcher.*** You know that the primary purpose of research is to discover principles that have universal application. To study the population in order to arrive at generalizations would be impracticable, if not impossible. Some populations are so large that their characteristics cannot be measured. Before the measurement may be completed, the population itself would have changed. Take for instance, a study of all hotel managers in Nigeria. You can be sure that you will need the services of thousands or researchers, millions of naira,

hundreds of thousands of working hours to study this population. The process of sampling makes it possible to draw valid inference or generalizations on the basis of careful observation of variables within a relatively small proportion of the population. ***A sample is a small proportion of a population selected for observation and analysis.*** Using the characteristics of the sample, you can make certain inferences about the characteristics of the population from which it is drawn. Samples are not selected haphazardly. They are selected in a systematically random way, so that chance or probability operations can be used. Remember, a sample consists of elements selected from a population.

Population is not always made up of people, it could be objects, things etc. it could be all matches played in the premier league in 2009/2010 league year, all banks in the South East Zone etc. To select a good sample, you need to define clearly the population from which the sample is to be drawn. ***Failure to define the population clearly can make generalization from the sample observation highly ambiguous and result in drawing in accurate conclusions. The sample should be a representative number of respondents from the defined population.*** If the samples are truely representative of the target population in all its parameters or characteristics, then the information from the sample can be generalized to the population.

3.2 THE PURPOSE OF SAMPLING.

The major purpose of studying samples instead of the entire population is that the population is sometimes too large that it is not feasible to study it. Take for instance a population consisting of all banking and finance students in Nigerian Universities.

You can see that it is not possible to study each student across Nigeria. The lost of time and the weight of volume of the report would be very prohibitive. ***So sampling allows you to study a workable number of cases from a large group to get findings that are relevant to all members of the group.***

Again, information based on carefully drawn samples can be better than information drawn from an entire group. This is because, if the population is large and a large number of assistants are used, many of them may not be proper in doing the work. It becomes better to use few qualified and committed assistants likely to do the work effectively and also use samples. It

offers opportunity for better control.

Of course you know that an improperly drawn sample will render the data collected useless. Therefore you have to consider the representativeness of the samples to the population from which they are drawn. A representative sample is one that accurately reflects the distribution of relevant variables in the target population. You have to assess the representations of your samples in order to make accurate conclusions.

3.3. TYPES AND PROCEDURES FOR SAMPLING

You have to note that not all studies lend themselves to sampling. Sampling is only appropriate whenever large populations that have outward semblance of homogeneity are to be studied. Sampling techniques are simply defined as methods of drawing samples from total populations. They are classified into two: ***Probability and Non-probability sampling techniques***

Probability Sampling

In this technique, the components of the samples are chosen from the larger population by a process known as randomization. The principle of randomization ensures that all the individual subjects of the larger population have equal chances of being selected and included to be members of the drawn samples. This generates valid samples that are truly representative of the larger populations. This will also permit you to estimate precisely the likelihood of a sample differing from the true population by a given amount. It can be calculated as sampling error. This is an estimate of the extent to which the values of the sample differ from those of the population from which it is drawn.

Non-Probability Sampling

This is a type of sampling where you do not know the probability of each population element being included in the sample. They are known to generate biased samples that are not truly representative of the target population from which they are drawn. Any sample that is non-valid can encourage errors in findings that cannot be generalized to the total population.

The greatest limitations of the non-probability samples are:

Because there is no probability in the selection of the elements for the samples no real claim of representativeness can be made. This greatly limits the ability to generalize findings beyond the level of the sample cases.

The degree of sampling errors remains unknown and unknowable. The method of estimating samples errors are not applicable to non-probability samples because there is no clear population represented by the samples.

All the statistical test of significance is based on laws of probability and assume that a random process is used in selecting the samples. So non-probability samples do not qualify for test of significance.

However, they are very useful in research especially where there is no intention to generalize the results from the sample to larger population.

SELF ASSESSMENT EXERCISE 1

What do you understand by population and samples?

Differentiate between the two types of sampling?

3.4. SAMPLING TECHNIQUES

In the section above, you learnt that the two broad sampling techniques are probability and non-probability sampling. Each of these sampling techniques has a number of sampling approaches or methods under it. For instance the probability sampling has under it, simple random, systematic, stratified and cluster sampling. Let us look at them.

3.4.1 Simple random sampling

This is based on the principle that individuals are chosen from a target population such that each has an equal chance of being selected, and each choice is independent of the other. Assuming you have a need to select one hundred customers of a hotel or bank from a list of five thousand 137

customers of the bank or hotel. What you will do is to assign numbers from one to five thousand to all the customers. Fold these numbers and put them in a container like basket. Shuffle them well and start picking and shuffling from the basket, until you get the 100 customers. You will notice that all the customers have equal chance of being selected.

Another and more convenient method of doing the same thing is to use a table of random numbers. This is mostly used these days in lotteries and try your luck games. You can get it in texts.

3.4.2 Systematic Sampling

If your target population can be accurately listed, then this method can be used to get what approximates a random sample. It consists of the selection of a K^{th} number from the list. For instance, if you have 100 customers and you want select 10 out of the 100 as your sample. You will divide 100 by 10 to get 10. From a list containing 1-10 select any number at random. Let us say 8. In this method all the numbers connected to 8 are automatically selected. So you will have 8, 18, 28, 38, 48, 58, 68, 78, 88, and 98, as your samples.

3.4.3 Stratified Random Sampling

In the case the population is sub-divided into smaller subgroups called strata, e.g. male, female, urban, rural, Christians, Muslim, traditionalist etc. Then simple random sampling is employed to draw required samples from each of the strata.

3.4.4 Cluster sampling

When the population is spread across a large area, it becomes difficult to make a list to select samples for study through the normal simple random process. The large area has to be sub-divided into sub-units for effective handling. For instance a state could be sub divided into zones,

local governments or wards and a series of cluster sampling is done from each of these sub units to get the sample which will be truly representative of the target population.

3.4.5 Non – Probability Sampling

This type of method uses whatever subjects are available rather than following a specific subject selection process. This method produces samples which do not accurately reflect the characteristics of the population of interest. Such samples may lead to unwarranted generalizations and should not be used if randomization is possible. Under this we may have

Accident or Continuance Sampling: This takes the subjects as they come to the scene or as they are presented to you by mere happenstance. There is no attempt to control biases.

Quota Sampling: This selects the respondents in the same ratio as they appear or are found in the target population. It is also an unregulated type of sampling. This is because you have no probability of how the subjects will be selected. ***Others in this category are Availability Sampling, Purposive Sampling, and Dimensional Sampling etc.***

SELF ASSESSMENT EXERCISE 2

Explain the types of probability sampling?

Give two types of non-probability sampling

3.6. SAMPLING SIZE

Most of the times, such questions like what samples size is adequate enough for a study, may arise. According to Best and Khan (1995) the ideal sample is large enough to serve as an adequate representative of the population about which the researcher wishes to generalize and small enough to be selected economically in terms of subject availability, expenses in both time and money, the complexity of data analysis etc.

In other-words there is no fixed number or percentage of subjects that determines the size of an adequate sample. The size may depend on the nature of the population of interest or the data

to be collected and analyzed. Samples of 30 and above are considered large samples and less than 30 are considered small samples. ***However, it is important that care must be taken in the selection of the samples. Emphasis should be on representativeness rather than sample size.*** Random sampling or letting chance or law of probability determine which members of the target population are to be selected is the ideal thing to do.

4.0 CONCLUSION

You conduct research in order to establish knowledge and to generate new knowledge. These have to be done scientifically for universal acceptance. This is why you have to use probability sampling techniques whenever you are conducting empirical research. This seems to be the tradition.

It is probably borne out of the overriding scientific reasons and advantages associated with the use of randomization which entails the use of mathematical models, laws and theories to test research hypotheses in order to generate findings in objective and validily acceptable ways, that are tailored after the traditions and values of scientific thinking.

5.0 SUMMARY

In this unit, you have studied population and samples. You learnt that population is any group of individual, things, objects events etc that have one or more characteristics in common that are of interest to the researcher. A sample I a small proportion of a population selected for observation and analysis. There are two major approaches to sampling. These are probability and non-probability sampling. Probability sampling involves the principle of randomization which ensures that every member of the population has equal chance of being selected and included in the samples. Under the probability sampling we have the simple random sampling, systematic sampling stratified sampling and cluster sampling. You also learnt that the non-probability sampling involves a method where you do not know the probability of each population element being included in the samples. Under this we have accidental, quota, availability, purposive etc

sampling. You learnt also that a sample of 30 is large enough but what matters most is the representativeness of the samples to the target population.

With these you can now identify your population and do your sampling in order to collect your data. Therefore the next unit will focus on the statistical tools for the analysis of data.

6.0 TUTOR MARKED ASSIGNMENT

Describe Population and sample

Explain the types of probability sample?

7.0 REFERENCE / FURTHER READING

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Ikekhua, T. I. and Yesufu J. T. (1995) Exposing Research Methods in Education. Study and reporting aid for students and beginning Researchers. Warri, Agbon and Botali / Okorare publishers‟ ltd.

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi

STRID **ANSWERS TO SELF ASSESSMENT EXERCISES EXERCISE 1**

Population is any group of individuals, things, objects, and events etc that have one or more characteristics in common that are of interest to the researcher.

A sample is a small proportion of a population selected for observation and analysis.

EXERCISE 2

The types of probability sampling are simple random sampling, systematic sampling, stratified sampling and cluster sampling.

Examples of non-probability sampling include accidental quota, availability, purposive etc.

UNIT 13.0 STATISTICAL TOOLS OF ANALYSIS

CONTENT

1.0. INTRODUCTION

When you have successfully collected your data through the use of any f he data collection instruments or tools, the next thing to do is to organize the data collected using tables, graphs, pie chart, diagrams, frequency distribution tables, polygon, curves among others. At this stage you saddled with the responsibility of analyzing the organized data in order to test your stated hypotheses for results or situations to the problem of study.

After the analysis of data comes the interpretation of data as maybe found in most quantitative research studies. Data analysis is essentially statistical but in this unit little instruction is provided on statistics. This is because it is not the purpose of the unit to deal on statistics, but to provide guidance to its uses in research. You will get the detailed statistical methods in some of you courses on statistics.

2.0 OBJECTIVES

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

Explain data analysis?
Describe the concept of statistics
Differentiate between parametric and nonparametric statistics
Calculate each of the measures of central variability
Explain How to use each of the measures of variability
Discuss the use of measures of association
Distinguish between parametric and non parametric tests.

3.0 MAIN CONTENT

3.1 DATA ANALYSIS: DEFINITION AND MEANING.

Nwana (1981) has described data analysis as referring to those techniques whereby the investigator extracts from data, information that was not apparently there before and which would enable a summary description of the subject being studied, whether human or material, to be made. To Kerlinger (1971) data analysis is the categorizing, ordering, manipulating and summarizing of data, adding that its purpose is to reduce large quantities of raw data to manageable and interpretable form so that characteristics of situations, events and people can be succulently described and the relations among variable studied and interpreted. A look at these definitions indicate that the process of data analysis in research involves a series of activities that are all practical applications of theories, models, principles and laws of the science of descriptive, sampling and inferential statistics. You will notice that the activities of data analysis in research cannot be separated from statistics; scoring, categorizing, ordering, manipulating, summarizing, interpreting data etc are all activities involving the use of statistics in data analysis. The goal of data analysis in research is essentially the production of valid results or empirical information which will be used to test formulated hypotheses in order to generate dependable findings that will provide solutions to research problems. Data analysis cannot generate valid results, test hypotheses effectively and convincingly without the services of the principles of statistics. The culture of data analysis is the culture of scientificism and empiricism having the value pillars of measurement, qualification, validity, reliability, reality verification, comparism, representation and presentation. The science of statistics guarantees all and more of these values. Now, let use look at the concept of statistics.

3.2. WHAT IS STATISTICS?

Let us start this section by describing statistics as a body of mathematical technique or processes for gathering, organizing analyzing and interpreting numerical data. You know that most research yields such quantitative data. Therefore statistics is a basic tool of measurement,

evaluation and research. The concept statistics is sometimes used to describe the numerical data that are collected. Statistical data describe group behaviour or group characteristics abstracted from a number of individual observations that are combined to make generalizations possible.
According to Kerlinger (1971) statistics is considered the theory and method of analyzing data obtained from samples of observations in order to describe population, to study and compare sources of variances, to help make decisions to accept or reject relations among phenomena, and to aid the process of making reliable relations among empirical observations. The point is that unless abstract and concrete phenomena are quantified and represented by figures are numerals, their nature relations and dynamics will not be understood.

So we can say that the analysis of data depends a lot on the techniques and approaches of statistics. Most of the time, you talk about the number of students, length of the room, number of rooms, ages of customers, size of the dining hall and other facts that can be described quantitatively. Again, you have being hearing about the average score, height, size, age, number etc. These are the generalizations of a group or set of distributions not about a particular individual. So you can see that the statistical measurement is an abstraction that may be used in place of a great mass of individual measures.

You see, when you use statistics, you are concerned with more than the manipulation analysis of data in research. You have been told that research consists of systematic observation and description of the characteristics or properties of objects or events for the purpose of discovering relationship between variables. The ultimate purpose is to come up with generalizations that may be used to explain phenomena and to predict future occurrences. In conducting a research, you must establish principles so that the observation and description have a commonly understood meaning. Measurement is the most precise and universally accepted process of description, assigning quantitative values to the properties of objects and events.

3.3. PARAMETRIC AND NON-PARAMETRIC STATISTICS.

In general statistics can be divided into two broad categories. These are parametric and nonparametric statistics. For parametric statistics, we assume that most populations have at least

one parameter. A parameter is a characteristic or quality of a population that, in concept is a constant but whose value is a variable. In statistics parameters refers to characteristics of a population. But when you have similar characteristics of a sample, these sample characteristics can be called statistic. Before we move to the next stage let us look at some of the concepts you my meet as you go on in this discussion.

Non Parametric Data: These are data which are either counted or ranked. They are sometimes known as distribution free tests. They do not depend on the assumption of normally distributed populations.

Descriptive Analysis: In this type of statistical analysis, generalizations are limited to the particular group of individuals observed. The conclusions are not extended beyond the group. Similarity to those outside the group cannot be assumed. So the data can only describe one group and that group only. Most of the simple action researches you conduct involve descriptive analysis and provide valuable information about the nature of a particular group of individuals.

Inferential Analysis: This type of statistical analysis involves the process of sampling and the selection of a small group that is assumed to be representative of the population from which it is drawn. So drawing conclusions about population based on observation of the samples is the purpose of inferential analysis. We shall briefly touch on both descriptive and inferential statistics which you will be using in your research projects.

3.4. MEASURES OF CENTRAL TENDENCY OR LOCATION

These are used to indicate the central point around which data revolve. They are of several forms. The most common is statistical analysis of data are the mean, median and mode. They

help you to find out from your data of numerical values what values can be representative of the sample of people or objects which you are studying.

3.4.1 Mean

This is the arithmetic average of the values in a distribution. It is obtained by adding up all the values in the distribution or group of scores and dividing by the total number o values. It is the most useful of all statistical measures, because, in addition to the information that it provides, it is the base from which many other important measures are computed. For instance if

$$X = 2, 3, 4, 5, 6, 7, 8$$

$$\text{Then } \sum X = 2+3+4+5+6+7+8 = 35$$

$$N = 7$$

$$X = {}^{35}/_{7} = 5$$

Depending on the type of data distribution of scores, the mean can be computed in different ways. There is a method for calculating the mean for grouped frequency distributions and a method for calculating the mean using the assumed mean method.

3.4.2 The Median

This is a point or value that divides the distribution of values into two equal groups with as many cases above it as below it. It is a measure of position rather than of magnitude.

It can be found by both inspection and calculation. When we have single values we use inspection. But if the values are grouped we use calculation. For instance if

X = 2, 3, 4, 5, 6, 7, 8. You can see that the middle number is 5. It is the median. But if we have see 2, 3, 4, 5, 6, 7, 8, 9. The middle number is added and divided by 2. In this distribution 5 + 6 = 11 ÷ 2 = 5.5. The median is **5.5**

3.4.3 Mode

This is the value which is characterized as the highest number of frequencies in a frequency distribution of values. It is the value that occurs most frequently in a distribution.

It can be located by inspection when values are listed or by calculation when values are grouped. For instance:

2, 3, 3, 4, 4, 4, 5, 6, 6, 7, 8, 9. You can see that the highest occurring number in this set of number is 4. It is the mode.

ACTIVITY 1:

A group of 9 students had a test in Mathematics. They have the following scores: Ade = 70, Femi = 65, Hassan = 60, Musa = 55, Effiong = 75, Obi = 80, Uche = 85, Wale = 90, Emeka = 95. Find the mean and median.

Solution 1:

Find the total by adding all the values = $\sum X = 675$

Divide the total by the number which is 9 = $\sum X \dagger N$

$$\frac{675}{9} = 75$$

For the median, arrange the scores in ascending or descending order of magnitude. The middle number is 75.

3.5. MEASURES OF VARIABILITY OR DISPERSION

These tell us how the values spread in a scale of distribution. According to Nwana (1981) the variability of a set of values can contribute immensely to the need for researchers to determine objectivity, the extent to which marks, weights, heights, views, opinions and infact all values of a variable obtained in a research do differ from one another. Let us look at some of these measures.

3.5.1 The range

This is the difference between the highest value and the lowest value in a set of data. It is the difference between the two extreme values in a distribution of figures. It is an unreliable measure, because it does not guarantee the researcher a fair and dependable index of variability.

This is because of the use of the two extreme values. If you look at the mathematics test in activity 1, you will see the highest number is 95 and the lowest number is 55. Therefore the range is

95 – 55 = 40. There are two types of range but we can not go to that now.

3.5.2 Mean Deviation

This is the average distance away from the mean in which the measure lies. It is used by the researcher to determine the power of representativeness of the mean as a measure standing in for other measures in the same distribution. A value expressed as its distance from the mean is called a deviation value. It is given by the formula $X = (X - X)$. For the mean deviation it will be $X. (X - X)^2/N$. This can be done regardless of the signs.

3.5.3 Variance (δ^2)

You will note that the value of the sum of the deviations from the mean is always zero. So when you square the deviations around the mean and sum up the value and divide by N what you get is the variance. It will give you a positive value.

It is given by $\delta^2 = \sum(\underline{X - X})^2$. The variance is a value that describe how all the values in a distribution are dispersed to spread about the mean. It is very useful in describing the characteristics of a distribution and will be employed in a number of very important statistical tests.

X	(X – X)	$(X - X)^2$	Variance $\delta^2 = \sum\underline{(X - X)^2}$
70	-5	-25	N
65	-10	100	
60	-15	225	
55	-20	400	
75	0	0	
80	+5	25	
85	+10	100	
90	+15	225	
95	+20	400	

$\sum(X - X)^2 = 1500$

3.5.4 Standard Deviation

This is the square root of the variance. It is the most frequently used measure of variability or spread in a distribution.

According to Cohen (1976) it is the most reliable of all the available measures of dispersion. It is given by

$$\delta^2 = \sqrt{\frac{\sum(X - X)^2}{N}} \text{ or } \sqrt{\frac{\sum X^2}{N}}$$

In the above example where variance $\delta^2 = 1666$.

67 The standard deviation will be 166.67 = 12.91

Both the variance and standard deviation can be calculated using the raw score method. It is given by

$$R^{\angle} = \frac{N\sum X - (\sum X)^2}{N2} \quad \delta = \frac{N\sum X - (\sum X)^2}{N2}$$

3.6. The Normal Curve:

The law of probability and the normal curve that illustrate if it is based on the law of chance or the probability occurrence of certain events. If a set of observations conforms to the mathematical form it is represented by a bell-shaped curve which has definite characteristics.

3.6.1. Features of a normal Curve

The curve is symmetrical around its vertical curve axis.

The terms cluster the centre or median

The mean, median and the mode have the same value

The curve has no boundaries in either direction for the curve

The cover touches the base line no matter how far it is extended.

The curve is a curve of probability not certainty.

3.6.2. Characteristics of the Normal Curve.

It is symmetrical – the percentage of frequencies is the same for equal intervals below or above the mean.

The terms of values cluster or crowd around the mean

The terms curve is highest at the mean.

The curve has no boundaries.

3.6.3. Applications of the normal curve.

To calculate the percentile rank in a normal distribution

To normalize a frequency distribution an important process in standardizing a psychological test or inventory.

To test the significance of observed measures in an experiment.

SELF ASSESSMENT EXERCISE 1

What are the measures of central tendency?

What is statistics?

What are the two types of statistics?

3.7. MEASURES OF ASSOCIATION OR RELATIONSHIP

These measures called correlation coefficients are concerned with the determination of the relationships between variables and variables. They are mostly used in determining whether or not there is a relationship is always expressed in some degree of coefficient the degree of relationship, direction, and amount are always represented by the index of positive or negative called correlation is a method in which an index of coefficient. Technically, in quantitative research, correlation is a method in which an index of coefficient is calculated to describe the degree of relationship or association between two sets of paired values and then tested to determine the probability or the chances of occurrence of the relationship. Correlation is indicated by +1.00 No correlation or association is indicated by 0.00. While perfect negative relationship is indicated by -1.00. There are different types of techniques are spearman‟s rank correlation coefficient. For details of the copulation consult your course material on statistics

3.8. PARAMETRIC TESTS.

These are the powerful tests in statistics and should be prefentially used if their base assumptions are not. The assumptions are related to the nature of the population distribution and on the way the type of scale is used to quantify the data observations.

However some parametric tests are so robust that they can be appropriately applied even when some of the assumptions are violated.

These assumptions according to the Best and Khan (1995) are as follows.

The observation are independent selection of case is not dependent on the selection of another case.

The sample have equal or nearby equal variances

The variance described are expressed in interval or ratio scales

3.8.1 The Null Hypothesis (Ho)

Elsewhere, you have been told that a hypothesis is an academic or speculation as regard the result, outcome or solution of a research problem. We have also told you that there are two types of hypotheses. These are the null hypothesis (Ho) and the alternative hypothesis (H1). The null hypothesis says that there is no significant difference to relationship between two or more parameters. It is concerned with the judgment as to whether apparent differences or relationships are true or whether they merely result from sampling error. When you propose for statistical purpose, a null hypothesis we have the alternative hypothesis. These propose that differences will exist.

3.8.2 The Level of Significance

When you propose a hypothesis for your problem, you have a direction as to how to collect your data. You analyze the data collected in order to test the hypothesis. Based on stronger test of

logic and evidence before you, you can accept or reject the null hypothesis. Of course, when you reject a null hypothesis, you accept the alternative and vise versa. The acceptance or rejection of a null hypothesis is based on some level of significance otherwise called alpha (α) level of significance.

When you choose the 5% or 0.05 alpha levels, it shows that out of 100 replications of your experiment sampling error will account for 5% of the results. In other words 95% probability that any difference between the experimental treatment. This is to say that if you conduct the experiment 100 times 95 of them will be correct while 5% will have error due to chance or sampling error. A more rigorous test of significance is the 1% (0.01) alpha level.

3.8.3 Decision Making

In the above section, you were told that based on the evidence before you, you make a decision as to whether to accept or reject the null hypothesis such statistical decisions about parameters based on evidence observed in samples may have the possibility of error. Statisticians do not deal with decisions based on certainty. They estimate the probability or otherwise of occurrence of events when you reject a null hypothesis when it really true and should of have been rejected, there is an error. This called type I error when you accept a null hypothesis when it is really false and should have been rejected, there is also an error, and this called type II errors. So you set the level of significance you will consider the relative seriousness of making type I or type II error.

SELF ASSESSMENT EXERCISE 2

Explain type I and type II error?

The different types of parametric tests or influential statistics that you can use are z-test, t-test, one way analysis of variance ANOVA, two ways ANOVA, Analysis of Covariance ANCOVA etc. You will get them in your statistics texts or course materials

3.9. Non Parametric tests

The major difference between parametric and non-parametric test lies in the sophistication of the measures used for calculating the variability of the values. Non-parametric tests are much simple to calculate. A major criterion for selecting an appropriate non parametric test is based on whether you have used same subject for all experimental conditions or different groups of subjects for each conditions. Let us look at some of the test under this.

The Chi-square (λ^2): This is employed in comparism between observed and theoretical or expected frequencies or in testing the mathematical fit or frequency of an observed frequency distribution. So for frequency evaluation in certain research instances this is the most appropriate statistical method.

The Mann Whitney U Test: This is the counterpart of the t-test in parametric measurements. It is used for a two-condition unrelated design when different subjects are used for each of the conditions.

Wilcoxon signed ranked tests: This is used for a two-condition related design when the same subjects perform under both conditions i.e. matched subjects.

Friedman tests: This extension of the Wilcoxon tests. It is used for a related design if the same subjects or matched subjects are performing under three or more conditions. Others are Paye‟s L. Trend test. For trends between three or more conditions. Kris Kal – Walhi test which is an extension of the Mann Whitney test using three or more conditions unrelated design when different subjects are used. Jonckheere Trend Test which is an extension of the Kruskal Wallis test etc.

4.0 CONCLUSION

You have been given a faint idea about the type of test to use in your research analysis of data and when to use them. You can consult any of your statistics test or course material to get the details of their computation. In the next unit we shall look at how to write the reports of your research.

5.0 SUMMARY

In this unit, you have read the meaning of data analysis and that of statistics. You also read the two types of statistics which are parametric and non-parametric statistics. The measures of central tendency, variability and association were discussed. The normal curves, the types of parametric and non-parametric tests were also discussed.

6.0 TUTOR MARKED ASSIGNMENT

What are the two types of statistics?

List the main types of measures of central tendency.

What are the characteristics of normal curve?

List 3 types of parametric tests.

7.0 REFERENCE / FURTHER READING

Best, J. W and Khan J. V. (1995) Research in Education. New Delhi Prentice- Hall of India.

Leedy, P.D. (1997) Practical Research: Planning and Design. New Jersey Merril.

Ikekhua, T. I. and Yesufu J. T. (1995) Exposing Research Methods in Education. Study and reporting aid for students and beginning Researchers. Warri, Agbon and Botali / Okorare publishers‟ ltd.

NOUN (2004) Education Research. EDU 702 Lagos NOUN.

UNIT 14.0 WRITING RESEARCH REPORTS AND PROPOSALS.

CONTENT

4.0 Conclusion

5.0 Summary

6.0 Tutor marked Assignment

7.0 References / Further Readings

1.0. INTRODUCTION

You have been told that research is useful for generating findings that are used for rational decision making and as a spring board for further research. Therefore the findings and the procedures used to generate such findings must be disseminated to make research serve these purposes. To do this, the research reports are written for circulation to a wide audience. The final stage of the research report is to communicate to the literate world the findings of the researches activities in the course of conducting the study. The contents of your research report in principle should include the description of the research problem investigated why the problem was investigated, how it was investigated and the method used in the process, what the findings and conclusions of the analysis were.

In order to present a lucid and co-ordinated research, you must have a through grasp of the entire nature of the research process as well as a good command of written English. This unit will help you learn the details of how to write your research project report, and more.

2.0 OBJECTIVES

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

List the chapters and sections constituting a research reports

Describe the chapters and sections of a research project report

Explain the differences between research proposal and report.

3.0 MAIN CONTENT

3.1 CHAPTER AND SECTIONS CONSTITUTING A RESEARCH PROJECT REPORT

Speaking technically, the research process is a model of the scientific method of thinking or of analyzing problems. As a model of science, the research process in its simplified form will be constituted by the following stages of activities:

Problem identification and definition

Hypothesis or answer(s) formulation

Research design and data collection

Data analysis and discussion

Conclusion and generalization making

In all applied research studies, these basic stages of activities are mechanically followed in the process of investigating problems peculiar to the various specific areas of life. In writing the research report, the impersonal mode is preferred for communication. Instead of stating that "I did this" or "I did that", you can say "the study was carried out……, the samples are……," the research report will depend on the research philosophy and the culture of the institution, organization or the department in control. NOUN has different schools which have their own house styles. Before you start writing your research report, find out the house style of your own school.

The arrangement of different parts of the report should make it possible for a reader to easily locate any section of particular interest to him. To give you a guideline, a conventional format fro arranging research reports in these/dissertations is given in this section. A particular thesis need not have all the sections therefore; relevant sections would be used in the appropriate order. The format is as follows:

Preliminary pages:

- Title page
- Acceptance page or approval page
- Dedication
- Acknowledgement
- Abstract

Table of content

List of tables

List of figures

List of appendices

Chapter One- Introduction:

- Background to the problem or Rationale for the problem
- Statement of the problem
- Significance of the study
- Objectives of the study or purpose of the study
- Scope of the study
- Area of study / context of the study
- Research questions and or hypothesis
- Definition of terms (operational definitions)

Review of literature:

- Theoretical and conceptual frame work
- Review of related researches

Research Methodology

- Research design
- Population
- Sampling technique and samples
- Instrumentation – development and administration of instruments
- Data collection
- Data analysis techniques
- Limitations

Results and discussion

- Presentation and analysis of data
- Interpretation of the findings

Summary and Conclusion

- Summary of results.
- General conclusion
- Implications of the study and / or recommendations.

Suggestion for further study

g.Supplementary

Bibliography

Appendix

Index

Let us describe some of these sections

3.2 THE PRELIMINARY PAGES

The first page of the report is the title page, where the table of the project is clearly, briefly and to the point stated. The title should contain such essential elements as the major variables and the target population. It should be phrased in such a way that it describes what the study is all about. It should not be phrased in an emotionally laden way in order to suggest that a particular point of view is being sold or emphasized to the reader. Look at this title „Gender differences in Mathematics enrolment among NECO candidate in 2008". You will notice that the title clearly shows the variable is gender and mathematics enrolment while the target population is NECO candidates in 2008. The title page will also show the degree that will be awarded on the successful completion of the research, the awarding institution sometimes the faculty/school, the date of the award, the students name and matriculation number where applicable. In some cases previous qualifications of the student are stated after the student‟s name.

The acceptance page: This is laid out in a way specified by the institution to which the research project report is submitted for a degree. This page may contain the following information: The names, signatures of the departmental head, the dean, the supervisors, the dates, and the name of the students and very importantly an attestation of the originality of the research report. Some institutions also require the name and signature of the external examiner.

The dedication page: This permits emotionally laden words in which tribute is paid to individual or group who are dear to the writer or hose who would be interested in the research findings.

The Acknowledgment Page: This page expresses gratitude to all those who helped you in the research process, that is in conducting the research and preparing the report.

Abstract: This succinctly summarizes the research process by stating the aim of the investigation, the population, samples, and methods of investigation, the measuring instruments used and the findings.

The Table of Content: This lays out in a tabular form, the chapters, headings and sub-headings of the report with the page numbers in which various sections of the report may be located. You have to sequentially arrange and number the content from preliminary to supplementary pages.

The List of Tables: This is similar to the table of contents. It shows the page numbers in which the table presented in the report are located. The number and title of each table should be serially listed. Similarly, the list of figures tabulates all figures, their numbers, titles and the pages where they are presented in the report or where they can be located. Again, the list of appendices should also be serially arranged in numerical order.

3.3 CHAPTER ONE – The Introduction.

The background to the problem: This presents reasonable statements to indicate that it is valuably worthwhile to spend time, energy, to dissipate resources to carry out this investigation in the problem area. You have to present the reasoning to be clear and convincing to the readers.

The problem statement: Some of the times, this is stated in interrogative or question statements which define and limit the scope and direction of interest of the researcher in his topic of study. It deals with the nature of the topic or issue of study which needs clarification.

The significance of the study: This shows the utility value of the research. The findings of your research are expected to profit some individuals or institutions, etc. These beneficiaries and the benefit expected to accrue to them ought to be mentioned.

The objectives of the study: This should state the specific aspects of the problem investigated in the research and the reasons for focusing on these aspects. This section should give a brief overview of all the elements that would be investigated. Some of the times this section is interchanged with the purpose of the study.

The scope of the study: This indicates the extent to which the researcher intended to cover the topic, the geographical area, time period and variables to be covered. Some of the times, this section is interchanged with delimitation of the study.

The research questions and / or hypotheses: These are stated in order to guide and direct the researcher in the investigation especially in the area of literature review, collection an analysis of data, discussion etc.

The definition of terms: This section is used to educate and inform the reader on the operational meaning of any coined or technical words, phrases or expression which cannot otherwise be understood because of their unconventional usage. You should not include any terms to which appropriate meaning is attached by conventional usage. The essence of definition is to make sure your readers understand the specific meanings you ascribe to the term in your study.

3.5 CHAPTER TWO – Literature Review.

In this chapter section, you are expected to show what other researchers and writers have done, said, written, found out in the area of the research topic you are investigating. You are expected to make reviews of theoretical, conceptual and empirical literature. Any literature review should provide guidance on the research hypotheses/questions and problem, the methodology to use for the study and on the anticipated findings of the study.

The theoretical and conceptual literature review will provide theoretical and conceptual information. In other words it will provide the definitions and meanings of the key concepts and variables in the study and also the theoretical bases for the study while the empirical literature review will provide if possible, a comprehensive account of research findings of other studies related to your own study in order to provide comparative empirical findings upon which to evaluate the new ones to be generated in the study on your hand.

3.5 CHAPTER THREE – Methodology

The research design: In this section, you should make a write up to show the extent to which extraneous variables were controlled or eliminated. You should also report any lapses as limitations. The design may or may not fall into the neat categories of research design described

earlier. Infact, you can use a combination of design if need be. Effective control of extraneous variables may dictate the use of unlabelled designs. Therefore any plan that you use should be clearly described even if it cannot be classified under a conventional label used in research.

The population: You should make a description of this in order to specify all the necessary parameters to ensure that all he constituents and characteristics of the target population are not ambiguous. You should not take the population as the area of study. For instance, an area of study could be hotel management staff. To enhance the population description, you should tabulate the constituent‟s elements and their characteristics. For instance, you can take hotel management staff in Lagos state to be managers, accountants, supervisors, board members etc. The hotels could be classified as five stars, four stars, three stars etc. These could also be classified according to gender. An example using hypothetical tabulations can be given as follows:

	5-Star		4-Star		3-Star		Others		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Board Members	8,000	5,000	4,000	2,000	3,000	1,000	2,000	1,000	26,000
Managers	3,000	1,500	2,000	1,000	2,500	500	1,000	1,000	12,500
Accountants	4,000	2,500	5,000	2,000	4,000	2,000	8,000	5,000	32,500
Supervisors	2,000	1,000	2,000	1,500	3,000	2,000	6,000	4,000	21,500
TOTAL	**17,000**	**9,500**	**13,000**	**6,500**	**12,500**	**5,500**	**17,000**	**11,000**	**92,500**

Table 14.1 Population of Hotel management staff in Lagos.

The sampling technique: This should be described in such a way as not a leave your readers in doubt about what you have actually done in selecting your sample. It is not enough to say „A simple random sample of 100 respondents was drawn from the population.

You have to report the specific manner in which a simple random sample was drawn. For instance, you can report that a table of random numbers was used to select 100 out of 1000 subjects or that pieces of numbered papers were jumbled in a basket and members of the population were picked from it. This is very important.

Instrumentation: In this section, you have to describe the tools used for data collection, such as questionnaire, attitude scales, tests opinionnaire, etc. in order to show their essential characteristics. You should also report the reliability indices and validation procedures. If you have used a standard instrument, you have to report and give reasons why you considered it most appropriate. You also have to show that all necessary conditions for its administration were fulfilled. But if you developed new instrument, you have to outline the procedures followed in the development.

You should not present the detailed substantive content of the instrument in the body of the report. Rather, it may be included in the appendix.

Data Collection: In this section, you should indicate the method(s) through which you obtained the data. Such details as whether research assistance were used, if yes, whether they were trained, whether you wee present at each location to collect the data or postal system were used, did you obtain permission before collecting data etc, should all be reported. You should also report whether the instruments used for recording went faulty during data collection and steps taken to correct them. These details, when reported will help future researchers to be formed. These practical details and problems encountered when reported will serve the additional purpose of confirming that you actually carried out the investigation and experience the realities of research. So, you have to report all the steps you have taken in order to ensure the collection of valid data.

Data Analysis techniques: This section describes the methods you have applied to the data and, if applicable, the reasons for their choice. These reasons for choice should be related to the research design, the nature of the sample and the types of data. If the mode of analysis is not widely known, you have to report it in details. Note that it is better as far as possible to use the simplest, ell known techniques. It is not very necessary to report the formula and details of computation of very popular techniques like chi-square, t-test or ANOVA.

Limitations of the study: In this section, you are expected to state the desirable conditions which were not met and which are expected to influence the external and /or internal validity of the research study. It may be possible, for instance that an experimental study is inevitably 164

limited in generalizability of the findings to the target population because of restrictive conditions in which the research was conducted. While a non-experimental research may fail to control for all the relevant extraneous variables therefore, it will reduce the internal validity of the research study.

3.6 DATA ANALYSIS AND PRESENTATION OF RESULTS

Usually in chapter four of the report, results of analysis of data collected is presented. It should clearly and concisely set out the results using the most illuminative modes of presentation. You can exploit fully the use of tables and figures. All tables and figures should be serially numbered. They must have titles or headings. You should highlight the findings of interest displayed in these using brief verbal descriptions. These should be directly related to the hypotheses and / or research questions. It is always better to organize the data presentation and analysis around the hypotheses and research questions. You have to treat each hypothesis or research questions. You have to treat each hypothesis or research questions in turn. All the detailed calculations of the data may be included in the appendix.

Interpretation of the findings: In this section, you have to make the results more meaningful to your readers by discussing possible explanations for the findings. In doing this, you have to cite relevant literature to provide convincing evidence that the interpretation makes a contribution to existing theory and knowledge in the area. You have to make available to the reader all the insights obtained while analyzing the data.

3.7 THE DISCUSSION

Because of the importance of this section, we want to bring it out again for further explanation. The function of this section enable you to evaluate and interprete the implications or meaning especially with respect to the original hypothesis stated in the study. You have to use the fact and figures contained in the reviewed literature to effect accurate interpretations of the finings and the implications. You are free to examine interprete and qualify the research results as well as

draw or make inferences, reasons, and guesses in order to justify or rationalize the results or findings. This is where you have the opportunity to show your scholastic prowess in your area of study. You are expected to give particular emphasis to any theoretical consequences of the results and the validity of your findings, conclusions, and implications. For a good discussion section, the following advice may help you.

You should always open the discussion with a clear statement to support or not to support your original hypothesis. You have to highlight the differences and similarities between our results and the work of others as the literature reviewed would show or should clarify and confirm your conclusions. You may need to briefly note and explain certain short comings of the study but you should not dwell on all flaws as if it is out of necessity. Negative results, even if they are shocking should be accepted as such without an undue attempt to explain their way. You should try to be clear, direct and truthful. Avoid polemics, verbosity and flamboyant discussions. In general, you should be guided by the following questions in order to know that the section should contain.

What have I contributed to this study?

How has my study helped to solve the original problem of the study?

What conclusions and theoretical implications can I draw from my study as contributions to theory and practice development?

What are the noticeable short-comings of the study that may cause one to doubt the findings of my study?

You should use this discussion section in the end to unravel produce and interprete findings and new theories and any inconsistencies you noticed in existing theories as a result of your study. You should also try to integrate or put together the various related findings and inconsistent findings in order to achieve meaningful conclusions any generalizations in the face of the facts and reality. You are also expected to use the discussion section to integrate and put together all past findings related to the findings of you study, the research in progress as well as all the findings of already concluded studies, existing theory. You should use them to formulate new and original theory. This is the ultimate goal of research studies, implications and suggestions

3.8 SUMMARY, CONCLUSION, RECOMMENDATIONS, IMPLICATIONS

These are usually parts of the final chapter which constitutes chapter five of the research report.

The Summary: In this section you should clearly and concisely restate the problem, the hypotheses and / or research questions and findings.

The Conclusion: These should be based solely on the findings generated by the research.

Recommendations: Based on the findings and conclusions of the study you may make some valuable recommendation you think are appropriate for application in your area of practice in order to make activities processes more effective. The overall goal of research is to provide answers to question thereby producing new theories to increase knowledge or generate better theories to increase knowledge for results and better ways of doing things to achieve better results to make life better. You should therefore make clear, relevant and verifiable recommendations that will be of practical value.

Implications of the study: At this stage you may wish to include personal ideas on the relevance of the findings to theory and practice. These ideas should be directly derived from the study. It is an error if you use this section for speculative statements about which your research had no evidence. You will gain nothing by making an unnecessarily lengthy implication section. Instead you loose some marks for speculating outside the scope of the study.

Suggestion for further study: You should genuinely provide these as if they are matters arising from the research study. You are also expected to produce some implications for further study, for further refinement or for repetition to ensure continuous growth of knowledge in the chosen activities in all areas of human life endeavors. Research is for control, improvement and control strategies in the different areas of life.

3.10. SUPPLEMENTARY PAGES

The Bibliography or Reference: These include all references which you have cited in the repot. All the related literature which shed light on the problem but were not cited are also included for more exhaustive study by interested readers. The method with which you can arrange the bibliographical entries depends on the referencing style. Whatever style you want to use, you have to make the format uniform through out the research report. Most institutions make use of the author/date system in which the entries are arranged alphabetical order of the authors‟ names. If an author has more than one work in a year, use the alphabetical suffices a, b, c, d, etc added to the year of publication to distinguish between the different publications. They have to be serially arranged with in the year. Where an author has publication in different years, you should arrange them serially with the earlier work entered first.

To avoid making mistakes in the entries, you should try to be meticulous in cross checking the details of the entries. We may revisit references again in the next unit where more details will be provided for your practical application.

SELF ASSESSMENT EXERCISE

List the component of the preliminary pages of a research report

What are the components of the supplementary pages

4.0 CONCLUSION

In this unit, you have studied in details how to present your research report to the literate audience and the international research community. If you follow the guidelines given in this unit, you make a successful research report. This is because a bad research report renders the whole exercise and efforts spent in conducting the research investigations useless.

5.0 SUMMARY

In this unit, you have studied every detail about writing the report of your research project. You learnt that a research report is made up of three main areas. These are the preliminary pages, the main body and the supplementary pages. You also studied the components of these areas. In the next unit, you will be getting the differences between a research project report and a research proposal.

6.0 TUTOR MARKED ASSIGNMENT

What are the components of the introduction chapter?

What are the components of the preliminary pages?

What are the components of the supplementary pages?

7.0 REFERENCE / FURTHER READING

Ikekhua, T. I. and Yesufu J. T. (1995) Exposing Research Methods in Education. Study and reporting aid for students and beginning Researchers. Warri, Agbon and Botali / Okorare publishers‟ ltd.

Nkpa, N. (1997) Education Research for Modern Scholars. Enugu Forth dimension publishers

ANSWERS TO SELF ASSESSMENT EXERCISES

The components of the preliminary pages are:

Title page

Acceptance or approval page

Dedication page

Acknowledgment page

Abstract

Table of content

List of tables

List of figures

List of appendices

The component of supplementary pages are

Bibliography

Appendix

Index

UNIT 15.0 RESEARCH REFERENCING, PROPOSAL CONTENTS AND ETHNICAL ISSUES

CONTENT

1.0. INTRODUCTION

You have come to the last unit of this course. You have already learnt enough to enable you conduct your research investigations. After writing your research report, you need to cite all

reference materials used in the research report. In this unit, you will also learn about the proposal content and research ethnics. These are some of the things you need to know in your research process.

2.0 OBJECTIVES

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

Explain research referencing

Write reference from variety of sources

List differences between research reports and proposals

Discuss ethnical issues in research

3.0 MAIN CONTENT

3.1 RESEARCH REFERENCING

In writing your research report, you have to make sure that you list all the references cited with full details. You should ensure that the details of the author, date, place of publications, publisher and page numbers are accurate. This will enable your reader to retrieve the source cited. Some of the times some additional references not cited are included in the references. This is then called the bibliography. Such additional references draw the reader‟s attention to further literature in the area. There are different types of methods used. Some of them are Turabian or numeric index, the American Psychological Associational system. This is the most popular. Therefore we shall follow it in this unit. Let us see how to use it in the reports.

3.1.1 Books

When you make a book reference, you should include the following details in the sequence in which we have listed them.

Surname of the author(s) or editor(s) separated from the initials with comma(s)

Add the initials of the author(s) or editor(s).

Use the abbreviations Ed or Eds in parenthesis to specify the editor or editor(s).

Put the year of publication in parenthesis, separated from the title with a full stop. If it is a reprinted book, the year of the first publication is used. If it is a revised edition, the date of the revision is used.

Where applicable, include sub titles to the titles delimited by a full stop

All editions other than the first should be specified using such abbreviations as 2nd ed., rev. ed., African ed. In parenthesis. A full stop should be used to separate the edition from the volume number, serial numb or town of publication as applicable.

Add the volume number and/ or series number and a full stop.

Add town of publication separated from the publisher with a colon. If the towns are more than one, they should be delimited using commas.

The last is the publisher followed by full stop.

Johnston, J. W. C. and Rivera, R. C. (1965). Volunteers for Learning Chicago: Aldline Publishing Co.

Kanu, O. R. (1994). Teacher Education in Nigeria: A historical perspective. Umuahia, Owerri, Enugu, Lagos: Ark Publishers

McKean, D. G. (1977). Introduction to Biology (West African Ed.) London: John Murray Ltd.

Nkpa, N (1992). A Practical Guide to Continuous Assessment in Science. Umuahia, Owerri, Enugu, Lagos, Sokoto: Ark Publishers

3.1.2 Articles or Chapters in Books

For this, essential features of references are as follows.

Author of articles or chapter is listed.

Year of publication is listed in parenthesis

The title of the article is added. This is not underlined. It is delimited with a full stop.

Use the term „in" to show that the article is contained in a more comprehensive work.

Editor(s) of the book is added with the initials before the surname.

Add Ed. or Eds in parenthesis, separated from the title by a full stop.

Add the title of the book underlined and delimited by a full stop.

Add town of publication separated from the publisher by a colon.

Put the publisher delimited with a comma.

Add the page numbers in which the article appeared. Examples:-

Dash, N. K. (1993). Research possibilities in Distance Education. In M. Co. Moore (Ed). Contemporary issues in American Distance Education. New-York. Pergamon Press. PP 386-396

Ohuche, R. O. Nwachukwu, V. and Nzewi, U. (1990). Trends in unpublished higher degree research in Nigeria (1965-1887). In R. O. Ohuche and M. Anyanwu (Eds) Perspective in Educational Research and National Development. Volume I. Onitsha: Summer Educational Publishers Limited, 63 – 73

3.1.3. Government Document

Examples in this category are

Abia State of Nigeria (1995): Government White Paper on the Report of the Panel of Inquiry into the Affairs of the Secondary Education Management Board. Umuahia: Government Press.

Federal Republic of Nigeria (1981). National Policy on Education (Rev. Ed.) Lagos: Federal Government Press.

National Open University of Nigeria (2004). Educational Research methods. EDU 702. Lagos: Noun.

3.1.4. Periodicals

These are published and issued at regular intervals. They may include Journals, magazines, bulletins, News letters, News papers etc. Essentially, these are to be included:-

Author‟s name separated from the initials with a comma.

Year of publication enclosed in parenthesis.

Title of the article. Only the first letter of the title is written in capitals

Name of the periodical underlined

Volume number underlined, issue number in parenthesis or page numbers.

Example.

Nkpa, N. (1992). The Chinese checkers motion game. STAN Bulletin. 6(2), 13-15.

Osuji, U. S. A. (2007). Improving educational access through open and distance learning: The way forward to globalization in Nigeria. International Journal of Development Studies. Vol. 2. No. 2. 100-104.

3.1.5. Others

Technical Reports and Monographs: References for these are entered in the same manner as books. Some monographs or reports may be together without publishers. Examples.

ASUU (1995). The Destruction of the University of Abuja. Academic staff union of universities.

UNESCO/ICDE (1990). Developments in Distance Education in Asia: An Analysis of Five Case Studies, Bangkok. UNESCO.

Published Conference and Workshop Proceedings: References to this are documented in the same way as that for periodicals but the volume and issue numbers are not available.

Osuji, U. S. A. and Okonkwo, C. A. (2005). Open and Distance Learning: A liberalization of Educational Opportunities through integration of ICTs in Teachings and Education. Conference proceedings of the e-learning held at University of Ibadan. 1-10

Unpublished conference and Workshop, proceedings; manuscripts.

Balogun, T. A. (1975). Some current science curriculum development: Levels and global rationale. Unpublished Mimeograph. University of Ibadan

Nzeako, U. (1980). Perspectives in education. Unpublished Manuscripts

Personal Communications: These include letters, memos and telephone conversations. They can be cited only in the text by the authors name and dates e.g.

M. A. Obioha (Personal Communication, June 20, 2004)

Minutes of Meetings: These are cited by the details indicated on the minutes for example:

PTA, Federal Government College, Okigwe (2002). Minutes of the meetings of the Parent / Teacher Association of the Federal Government College, Okigwe held on March 10, 2001.

UTU (2008). Minerals of the meeting of the Umuihi Town Union Lagos Branch held on Sunday November 2 2008 at the Bolade Grammar school Oshodi Lagos.

Published Dissertations: These are documented by citing the Volume, issue and page numbers in which their abstracts appear in the Dissertation Abstract International, and their order number **e.g.**

Nkpa, N. (1984). Clear biology teaching: Students and Observer Perspectives. Dissertations Abstracts International. 45 (a) 2746 – A, N0. Da 84267:7

Unpublished Dissertations: These are listed mentioning the educational institution awarding the degree. The number of pages may be included. For instance.

Osuji, U. S. A. (1992). The effects of group-self evaluation on learning outcomes. Unpublished M. Ed. Dissertation. Abia State University Uturu.

Okpala, P. N. (1985). Teacher attitudinal variables in instructional and assessment practices as correlates of learning outcomes in Physics. Unpublished doctoral dissertation, University of Ibadan. 261 pp.

SELF ASSESSMENT EXERCISE 1

Locate 3 Text books, 3 Journals and 3 News Papers of your choice. List these as references in a research report.

3.2 PROPOSAL CONTENTS

In the last unit, you studied in details how to write the research project report. We think it is very necessary for you to learn about research proposals. The research proposal is written before the actual research work is carried out. It tells the reader the type of problem or issue you are intending to study, why and how you intend o carry out the study. It is usually differentiated from the final research report from the language used in writing the proposal. In other words, the

language of the future is usually cast in the proposing write up. That is to say that you use such expressions in the language of the future tense.

For instance the problem of study will be, the researcher shall, the population will compromise, the samples shall be, observation techniques will be used for data collection, the Chi-Square Statistics will be used for the data analysis, etc. The research proposal is made up of the first three chapters of the orthodox research report. The only difference is in language. So, while the language of the proposal will be in the proposing language of intention cast in the future tense, the final research project report will be in the language of finality or of accomplished actions cast in the past tense. **Examples –** The problem of study was, the researcher delimited, delineated, defined, the population of study was, the samples were selected using…….etc.

Apart from the three chapters, the research proposals for grants or contracts etc will also include Time Schedule. This gives the time period allocated to each step of activities from the beginning to the end including the submission of the final research project report. For instance: Review of Literature – 6 months, development of instruments – 2 months, Trial testing of the instruments 3 months data collection – 6 months, organization of data – 4 months etc. The Proposal will also contain the budget of estimated expenses for carrying out the main research.

Note that budgets and Time schedules are not added in a proposal meant for your supervisor or defence in the school or faculty. The degree research proposal may also contain supplementary pages where appendices will contain references among others.

3.2. ETHICAL ISSUES IN RESEARCH

It is very important to talk about ethical issues in research process. Ethics in research process have assumed considerable significance especially when the area of study transgresses national boundaries and because information needs to be disseminated or distributed accurately and with equity.

In designing your questionnaires tests and experimental procedures you have to take into considerations the diversity in the circumstances of the students, and in relation to the effective data collection procedures and ethical requirements. According to Evans and Jakupee (1996); Sample participants in the research projects should be informed very clearly about the objectives of the research, the procedure and the implications of the research findings including their utilization. When you have distance participants in Pestal or telephonic interviews, you must try to empower them in order to be able to respond to the research questions. Again, before you start the interview or the questionnaire administration you should try to get written contents from them to ensure their freedom and to reduce uncertain or unproductive travel time and cost. Strong ethical considerations are required for the conduct and utilization of institutional research. You have to make a distinction between students‟ research and research involving evaluation for the improvement of courses and students services. You need to exercise caution and restrain in your temptation to publish result or present them in a conference, when the findings are essentially meant for institutional monitoring and quality assurance.

You have to distinguish between data stored for institutional monitoring and confidential strictly and those meant for public use. When you want to use any data belonging to an institution, professional ethics require that you seek prior consent from such institution before utilizing such data for purpose of research and publication of publication of findings.

According to Evans and Jakupee (1996); Every research should not expose individuals to risks of course unjustified political, personal, economic, physical, emotional, moral and psychological harm. No researcher should undertake any researcher should undertake any research which violates principles of free informed content. You should be truthful, honest and objective in caring out your research investigations.

SELF ASSESSMENT EXERCISE 2

What are the main components of a research proposal?

4.0 CONCLUSION

This unit has concluded the course on research. What you have studied so far is not comprehensive enough to make you an expert in research? However, it will guide you to conduct your project research. You need to refer to text in research and statistics to complement what you have learnt here. Again your supervisor is ever ready to give your support where you need it.

5.0 SUMMARY

In this unit you have studied how to cite the materials which you have used or consulted in your research process. The different categories of materials and how to cite them have been highlighted. These include books, articles, government documents, periodicals and others. You have also learnt how to write a research proposal. You were told that the first three chapters of the orthodox research project report constitute the proposal. Again the language in cast in future tense. Ethnical issues in research have also been discussed. You can now start to undertake your research project process.

6.0 TUTOR MARKED ASSIGNMENT

Select a research project report from any library. Let this project be in your area of study. Review the literature and list the citations made in it look at the Bibliography or References and see if these citations are adequately and properly referenced.

7.0 REFERENCE / FURTHER READING

Ikekhua, T. I. and Yesufu J. T. (1995) Exposing Research Methods in Education. Study and reporting aid for students and beginning Researchers. Warri, Agbon and Botali / Okorare publishers‟ ltd.

IGNOU (2001) Research Methods for Distance Education. ES315 New Delhi India, STRIDE

Nkpa, N (1997). Educational Researcher for Modern Scholars. Enugu. Fourth Dimension Publishers.

ANSWERS TO SELF ASSESSMENT EXERCISES

EXERCISE 1

You should locate the items and do the exercise

EXERCISE 2

The components of a research proposal are

Chapter one – Introduction

Chapter two – Literature review

Chapter three - Methodology

Time schedule

Proposal budget

Supplementary pages (if any)

SMS 304: RESEARCH METHODOLOGY
COURSE GUIDE

NATIONAL OPEN UNIVERSITY OF NIGERIA

National Open University of Nigeria

Headquarters:
National Open University of Nigeria
14-16, Ahmadu Bello Way,
Victoria Island,
Lagos.

Abuja Annex Office:
245, Sammuel Adesujo Ademulegun Street.
Central Business District,
Opposite Arewa Suites,
Abuja.
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Introduction

SMS 304: RESEARCH METHODOLOGY

is a one semester, two credit unit course.

It is available to all Hotel and Catering Management, Tourism and Hospitality Management students in the school of Business Administration. The course consists of 15 study units, covering such general areas as the nature of research; skills of scientific investigation; problem identification in research; the typology of research methods; naturalistic inquiries and case study; population and sampling; statistical tools of analysis; Writing Research Reports and Proposals among other illuminating. It also covers Research Referencing, Proposal Contents and Ethnical Issues.

This course guide tells you briefly what the course is about, relevant textbooks to consult, and how you can work your way through these materials. It also contains some guidelines on your way through these materials. It also contains some guidelines on your tutor-marked assignments.

WHAT YOU WILL LEARN IN THIS COURSE

The major aim of **SMS 304: RESEARCH METHODOLOGY** is to introduce you to the field of research. The field research is often dynamic, challenging, and rewarding. It can also be frustrating and even disappointing. But it is never dull. By going through this course, you are subjecting yourself to be trained on how to conduct researches. Training takes different shapes. It depends on whether the project you are undertaking is for the award of degree of Bachelors, Masters or Doctoral in research methodology. Many of you who are taking this course or taking any Bachelors degree programme are not trained on how to conduct research. You may have been working in educational institutions or even outside the educational system, you may be working as a business consultant, a producer, a marketer, an advertiser, a tourism guide or an hotelier, you need to lave this training. If you want to conduct a research project in a scientific manner, you need training in research methods. This curse is meant to provide you with the theoretical background for year project.

It will help you to make the right choice of research designs, tools and techniques for your research. Therefore, training in research methodology is an integral purpose of research in this programme. But if you have had any training already in research, this course can still help to refine your skills.

This course gives an understanding of the primary functions and structural steps of the entire research process. This is because if the research project is carefully designed, genuinely conducted and co-ordinate, you derive a lot of value from the entire activity. This process is much of an intensive academic exercise, which gives you the process of scientific thinking and way of doing things. This scientific way thinking is a conventionally acceptable and recommended way of approaching problems in true life situation and the goal is to search for dependable and data supported solutions to some problems in real life situation. The goal of the research process therefore is to give you or equip you with the knowledge, philosophy, attitude and skill of approaching problem solving in the scientific way.

Course Objectives
In order to achieve the aims set out above, the course sets overall objectives. You will also realize that each course unit objectives are always includes at the beginning of each unit. It is advisable to read through their specific objectives before studying through the unit. The following are the broad objective of the course. By striving to meet these objectives, you should have achieved the aims of the course as a whole.

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

Describe the meaning of research

Explain the characteristics of research

Discuss the types of research

Explain the purpose of research

Discus scientific investigation

Explain facts and theories

Differentiate between hypothesis and theory

List the purpose of theory

Describe the levels of theorizing

List the chapters and sections constituting a research reports

Describe the chapters and sections of a research project report

Explain the differences between research proposal and report.

Explain research referencing

Write reference from variety of sources

List differences between research reports and

proposals Discuss ethnical issues in research

WORKING THROUGH THIS COURSE

It will be very essential that you thoroughly read the study units, consult the
Suggested texts and other relevant materials at you disposal. Most of the units contain self-assignment, which will be assessed by your tutor.

Course Materials
Major components of the course are:
Course Guide
Study Units

Assignment File
Presentation schedule

Study Units

There are 15 study units in this course. These are:

Module 1 ……

Unit 1: Conceptual Frame Work of Research

Unit 2.0: Skills of Scientific Investigation

Unit 3.0 Methods of Data Collection in Research – 1

Unit 4.0 Interviews and Observations

Unit 5.0 Problem Identification in Research

Module 2 ……

Unit 6.0 Steps in Research Agenda

Unit 7.0 The Typologies of The Research Methods I

Unit 8.0 Philosophical and Historical Research

Unit 9.0 Naturalistic Inquiry and Case Study

Unit 10.0 Descriptive Research

Module 3 ……

Unit 11.0 Experimental and Action Researches

Unit 12.0 Population and Sampling

Unit 13.0 Statistical Tools of Analysis

Unit 14.0 Writing Research Reports and Proposals.

Unit 15.0 Research Referencing, Proposal Contents and Ethnical Issues

Set Textbooks
There are no compulsory books for the course. However, you are encouraged to consult some of those listed for further reading at the end of each unit.

Assignment File
The assignment file will be made available to you. You will find all the details of the work you must submit to your tutor for marks. The marks you obtain for this assignment will count towards the final mark you will obtain for this course. Any further information on assignment will be found in the assignment file.

ASSESSMENT
Your performance in this course will be based on two major approaches. First, are the tutor-marked assignments (TMAs). The second method is through a written examination.

Tutor-Marked Assignments (TMAs)
With respect to TMAs, you are expected to apply the information, knowledge and technique gathered during the course. The assignments must be submitted to your tutor for formal assessment in accordance with the laid down rules.
The total score obtained in the TMAs will account for 50% of your overall course mark.

There are many TMAs in the course. You should submit any eight to your tutor for assessment. The highest five of the eight assessments will be counted and this credited to your overall course mark.

Final Examination and Grading
At the end of the course, you will need to sit for a final written examination for three hour‟s duration. This examination will consist of questions, which reflect the types of self-testing, practice exercise and TMAs you have previously encountered. You are advised to prepare adequately for the examination. Since the general board area of the course will be assessed.

Course Marking Scheme
The following table lays out how the actual course marking is broken down:

Assessment	Marks
Eight assignment submitted	Best 4 marks of the eight count @ 10% each = 40% of course marks.
Final examination	60% of overall course marks.
TOTAL	100% course marks

HOW TO GET THE MOST FROM THIS COURSE
The distance learning system of education is quite different from the traditional University system. Here, the study units replace the University Lecturer, thus conferring a unique advantage to you. For instance, you can read and work through specially designed study materials at your own pace, and at a time and place that suit you best. Hence, instead of listening to lecturer, all you need do is reading.

You should understand right from the on-set that the contents of the course are to be worked at, and understood step be step, and not to be read like a novel. The best way is to read a unit quickly in order to see the general run of the content and then to re-read it carefully, making sure that the content is understood step by step. You should be prepared at this stage to spend a very long time on some units that may look difficult. A paper and pencil is a necessary piece of equipment in your reading.

Tutors and Tutorials

Detailed information about the number of tutorial contact hours provided in support of this course will be communicated to you. You will also be notified of the dates, times, and location of these tutorials, together with the name and phone number of your tutor, as soon as you allocated to a tutorial group.

Your tutor will mark and comment on your assignments, keep a close watch on your progress and on any difficulties you might encounter, and provide assistance to you during the course. Please do not hesitate to contact your tutor by telephone or e-mail if you need help. The following might be circumstances in which you would find help necessary:

You do not understand any part of the study units.
You have difficulty with the self-tests or exercises.
You have a question or problem with an assignment or with the grading of an assignment.

You should endeavor to attend tutorial classes, since this is the only opportunity at your disposal to experience a physical and personal contact with your tutor, and to ask questions, which are promptly answered. Before attending tutorial classes, you are advised to thoroughly go through the study units, and then prepare a question list. This will afford you the opportunity of participating very actively in the discussions.

SUMMARY

Research is an activity directed towards the development of an organized body of scientific knowledge about the with which human beings are concerned. The goal is to discover general principles or events interpretations of behaviour, to explain, predict and control events in everyday life situations.