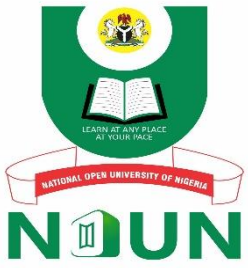

NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF PEACE STUDIES AND CONFLICT RESOLUTIUON

COURSE CODE: PCR872

COURSE TITLE: RESEARCH METHODS IN PEACE STUDIES AND CONFLICT RESOLUTION

COURSE GUIDE

PCR872
PEACE RESEARCH METHODS

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PCR 872 PEACE RESEARCH METHODS

COURSE COMPETENCIES **PAGE**

Introduction

Welcome to PCR872: PEACE RESEARCH METHODS

PCR 872 Research Methods in Peace and Conflict Resolution is a one Semester course. It will be available for you to take towards the core module of the Master of Science in Peace Studies and Conflict Resolution. This course is suitable for post graduate students seeking to understand and obtain the required skills necessary for carrying out research in conflict analysis and peace studies.

It is a three – unit course that has a minimum duration of one semester. It is suitable for the students of Peace Studies and Conflict Resolution. The course consists of twenty-five units and a Course Guide. The course has been designed to suit the prevailing research methods in peace studies and conflict resolution.

There are compulsory prerequisites for this course. The course guide tells you briefly what the course is all about, what you are expected to know in each unit, what course materials you need to use and how you can work your way through these materials. It also emphasizes the necessity for tutor– marked assignments. There are also periodic tutorial classes that are linked to this course.

The Course Guide tells you briefly what the course is all about, course materials to consult and how to get the optimum from them. It suggests some guidelines on the time needed in each study unit of the course. It also tailors your mind on your tutor-marked assignments.

You are advised to attend tutorial classes to discuss the problems with the course facilitators at the study centers.

Course Objectives

Several objectives can be delineated from this course. In addition, each unit has specific objectives. The unit objectives can be found at the beginning of a unit. You may want to refer to them during your study of the particular unit to check on the progress you are making. You should always look at the unit objectives after completing a unit. In this way, you can be sure that you have covered what is required of you in that unit. On successful completion of the course, you should be able to:

1. Understand the meaning of the Scientific Method in research
2. Be able to understand what a theory is, the nature of theories and the various parts of a theory
3. Understand the steps of research process
4. How to write research proposals
5. Be able to discuss the scope of theories
6. Define research and how to raise research questions
7. Be conversant with the Problem-Solving Approach
8. Understand the meanings of methodology
9. Know the usefulness of Literature Review in Social Research
10. Understand the time dimension in research
11. Understand the meaning and uses of qualitative data
12. Be familiar with Participant Observation and Focus Group Discussions
13. Understand quantitative Data Analysis, know qualitative data analysis
14. Discuss Content Analysis and the use of Secondary Sources of materials
15. Understand the use of quantitative data in research
16. Be familiar with the use of the Questionnaire and the Survey Method

Working through this Course

You are advised to read the study units, recommended textbooks and other relevant materials provided by NOUN to enable you complete this course. Each unit contains self-Assessment Exercises and at some points in the course, you are required to submit assignments for assessment purposes. At the end of the course, there is a final examination. The course should take you about twenty weeks to complete. You need to allocate your time in order to complete the course successfully and on time.

Course Materials

The major components of the course are:

Course Guide
Study Units
Text Books and References
Assignment File

References and Further Readings

Some textbooks have been recommended in the course. You are advised to consult them for further reading.

Presentation Schedule

Assessment

There are two aspects of the assessment in this course: Tutor-marked assignments and students self-assessment exercises. You are expected to apply knowledge acquired during the course as well as knowledge gained in these recommended textbooks for further reading. The Tutor-Marked Assignments must be submitted to your tutor for formal assessment in accordance with the deadlines stated in the presentation schedule and the assignment file. The work that you submit to your tutor for assessment will count for 30% of your total score.

How to get the Most from the Course

There is a self-assessment exercises at the end of every unit. You are required to attempt the assignments. You will be assessed on all of them but the best four performances will be used for assessment. Each of the four selected will come from the five areas covered in the course namely: Conceptualizing peace research methods, the agents of quantitative and qualitative methods. The assignments carry 10% each.

When you have completed each assignment, send it together with a (tutor marked assignment) form to your tutor. Make sure that each assignment reaches your tutor on or before the deadline. If, for any reason, you cannot complete your work on time, contact your tutor before the assignment is due to discuss the possibility of an extension. Extension will not be granted after the due date unless under exceptional circumstances.

Final Examination and Grading

The final examination for PCR 312: Peace research methods will be for 3 hours duration and will carry 70% of the total course grade. The examination will consist of questions which reflect the kind of the self-assessment exercises and the tutor-marked questions you have previously encountered. You should use the time between completing the last unit, and taking the examination to revise the entire course. You may find it useful to review your self-assessment exercises and tutor-marked assignments before the examination.

Course Marking Scheme

The following table lays out how the actual course marking is broken down.

ASSESSMENT	**MARKS**
Assignments 1-3	Three Assignments, which shall count as 30% of course marks.
Final Examination.	70% of overall course score
TOTAL	100%

How to Get the Most from This Course

In distance learning, the study units replace the lecturer. The advantage is that you can read and work through the study materials at your pace, time, and place that suit you best. Think of it as reading the lecture notes instead of listening to a lecturer. Just as a lecturer might give you in-class exercise, your study units provide exercises for you to do at appropriate times. Each of the study unit follows the same format. The first item is introduction to the subject matter of the unit and how a particular unit is integrated with other units and the course as a whole. Next is a set of learning objectives. These objectives, let you know what you should be able to do, by the time you have completed the unit. You should use these objectives to guide your study. When you have finished the unit, you should go back and check whether you have achieved the objective or not. If you make a habit of doing this, you will significantly improve your chances of passing the course. Self-assessment exercises are interspersed throughout the units and answers are within the unit contents. Working through these tests will help you to achieve the objectives of the units and prepare you for the assignments and the examination. You should tackle each self-assessment exercise as you come across it in the study units.

Facilitators/Tutors and Tutorials

There are 15 hours of tutorials provided in support of the course. You will 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 are allocated a tutorial group. Your tutor will mark and comment on your assignment, keep a close watch on your progress, and on difficulties you might encounter to enable him provide assistance to you during the course. You must send your tutor-marked assignments well before the due date. They will be marked by your tutor and returned to you as soon as possible. Do not hesitate to contact your tutor by telephone or e-mail if you need help. Contact your tutor if:

You do not understand any part of the assigned readings;
You have difficulty with the self-assessment exercise;
You have a question or a problem with an assignment with your tutor's comment or with the grading of an assignment.

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

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MODULE 1 Research Foundation

Peace Research Methods is very important course in which all the students are mandated to pass it. The reason is that the objective of the course will enhance the students to carry-out on the long essay (project) to embark upon. Therefore, in this module one five units will be examined as stated below:

Unit 1 Introduction to Research
Unit 2 Science and Research
Unit 3 Basic Foundation of Social Research
Unit 4 Methods of Social Research
Unit 5 Research Proposal and Research Project Report

UNIT 1

INTRODUCTION TO RESEARCH

CONTENTS

1.0 Introduction

The human beings, as social animals a with well-developed brains have been encountering various difficulties, problems and challenges from time immemorial in the cause of interacting with their immediate environment in order to survive, adjust, adapt and improve their diving conditions. In the course of surmounting the arrays of challenges confronting human existence, it thus becomes imperative to carry out a worthwhile investigation about the nature of the environment because to a large extent; human chance of survival is the product of the amount of knowledge acquired from the environment and the extent to which we can subdue it.

Social research is a process of producing knowledge-generating new knowledge or establishing the veracity of the existing ones about the social world. In order to achieve the

desired goals and objectives, find answers to pressing questions and profer solutions to existing problems, man can therefore adopt various methods, different styles, traditions or approaches to collecting data or information.

 **2.0 Intended Learning Outcomes (ILOs)**

At the end studying this unit, students should be able to:

1. Define or explain what research is all about.
2. Explain social research.
3. Differentiate between types of research.
4. Advance reasons for carrying out research.
5. Discuss different types of research studies.
6. Enumerate similarities and differences between the major research studies.

 **3.0 Main Content**

3.1 Meaning/Definition of Research

Research is an organized and systematic way of finding answers to questions.
Research is an attempt to investigate or examine a phenomenon, event or an object (etc) carefully with a view to improving understanding of the phenomenon or event.
It is a process of conducting a study or making an enquiry in order to unravel (or discover) new facts or confirm already established facts. It seeks to understand given situations like natural or social phenomena through observation or experimentation and to explain them. It is a method of thinking in an orderly sequence.
Is an organized study: a methodical investigation into a subject in order to discover facts, establish or revise a theory, or develop a plan of action based on the facts discovered.
Research is the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations principles, or theories, resulting in the prediction and possibly ultimate control of events. The major terms that are embedded in the above definitions could be further explained thus:

Systematic: Research is said to be systematic because there is a definite set of procedures and steps which must be followed. There exist certain things in the research process which are always carried out in order to get the most accurate results. Organized in the sense that there is a structure or method in going about carrying out research. It is a planned procedure, not a spontaneous one. It is focused and limited to a specific scope.

Finding Answers is the end of all research. It could be an answer to a hypothesis or even a simple question, research is considered successful when we find answers to no, but it is still an answer.

Questions are central to the research. If there is no question raised, then the answer is of no use. Research is therefore focused on relevant, useful and important questions. Without a question, research has no focus, purpose or drive.

3.2 Types of Research

There are various types of research. However, three (3) types are as follows: these include basic (or theoretical), applied and practical research which are distinguished below.
Basic Research: Is concerned with knowledge for the sake of theory. Its design is not controlled by the practical usefulness of the findings. Applied Research: This is concerned with showing how the findings can be applied or summarized to some types of teaching methodology. Practical Research: Practical research goes one step further and applies the findings of research to a specific "practical" teaching situation. Each of the three different types of research contributes to the other in helping revise and frame the research from category.

For example, practical research may be based on a theory that came from previously done basic research or a theory may be generated by the combination of the results from various practical research projects. The same bidirectional relationship exists between applied research and basic research or practical research.

There exist interrelationships among the three types of research.

According to Henrichsen et al (1997), research is like a plant that grows and grows and grows and grows… when it is grown it throws off seeds of all types (basic, applied and practical), which turn sprout and create more research projects. The process continues with all of the new plants throwing off the seed, creating additional, related research projects of various types… soon there is a body of basic, applied, and practical projects related to similar topics. And the process goes on and on… the importance of this fact is that in this ever-changing world there will forever be research projects and committed researchers will always be busy.

3.3 Importance of Research

Research is very vital to our day to day activities as well as to our everyday decision making. The research; therefore enables us to:

Solve or find answers the particular existing problems through investigation
Enhance knowledge of the social phenomenon
Determine the accuracy or otherwise of popular belief, by submitting them to systematic scrutiny
Generate new concepts and explanation
Modify (or refine) theory and methodology
Evaluate the findings of other research/studies
Other information and advice to policy (or decision) makers.
Improve the quality of social life.

 **Discussion**

1.What is research?
2. who is a researcher?
3. What is the relevance of research to humanity?

3.4 Characteristics of Research

Before a better understanding of the meaning of research could be achieved, we should first examine the various characteristics of research and the research process propounded by (Best, 1985; and Tuckman, 1978)

Research is directed toward the solution of a problem. It is concerned with finding the truth about an event or object.

Research involves a careful collection, organization and articulation of what is already known about the problems and what is yet to be known.
Research involves the quest for answers to unsolved problems that lead to a high degree of originality.

The research entails a logical and plausible explanation of the finding of the study or investigation.

Research is a structured process which follows a systematic order or rule of execution.

Research is based upon observable experience or empirical evidence; thus rejecting revelation and dogma as a method of establishing knowledge.

Research is a painstaking activity that demands a lot of courage and perseverance from the researcher.

Research is an expensive endeavour in terms of time, money resources and energy.

It demands accurate observation and description.

It demands a carefully and concisely recorded and reported procedure.

It is characterized by carefully designed procedures that apply rigorous analysis. It entails a careful statement of how the steps for data collection are followed; the subjects or objects studied; how the instruments were administered or the observations made and recorded, and how the data was analysed.

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

Research requires the operational definition of terms.

Research is objective and not based on beliefs

Research is factual, not impressionistic, not taking a strong stand but flexible according to evidence.

Research involves tests of hypotheses or answering questions.

Research requires a plan including isolation the isolation of the population, sample, variables, questions or hypotheses and test of data collection.

3.5 Types of Research Studies/Designs

Designing research involves deciding on a general approach as well as planning how various research elements will work together to achieve the desired goals, objectives and results. There exist many possible formats, methods or plans of carrying out research, which can be subsumed into two (2) major categories or classes namely the qualitative and quantitative research approaches. Both the qualitative and quantitative approaches to the classification of research activities classify all research studies into one of the following categories.

Qualitative Approach:
The qualitative approach involves the collection of extensive narrative data to gain insights into phenomena of interest; data analysis includes the coding of the data and production of a verbal synthesis (inductive process)

Historical research
Qualitative research

Quantitative Approach:
The quantitative approaches involve the collection of numerical data to explain, predict, and/or control phenomena of interest; data analysis is mainly statistical (deductive process)

Descriptive research
Correlational research
Causal-comparative research
Experimental research.

Qualitative Research Approaches

Historical Research and qualitative research are the two types of research classified as qualitative research approaches. Historical Research has involved the study of the relationships between events, persons, time and places with the intention to gain an understanding and explanation of past events.

Below are the examples of historical research studies mentioned by Gay

Factors leading to the development and growth of cooperative learning

Trends in reading instruction, 1940-1945

Qualitative Research is also referred to as ethnographic research. It is involved in the study of current events rather than events. It involves the collection of extensive narrative data (non-numerical data) on many variables over an extended period in a naturalistic setting. Participant observation, where the researcher lives with the subjects being observed is frequently used in qualitative research.

Gay also mentioned some of the following examples of qualitative studies

A case study of parental involvement at a magnet school
The teacher as researcher. Improving students writing skills
A multi-case study of students who excel despite a non-facilitating environment.

Quantitative Research Approaches

Descriptive Research involves collecting data to test hypotheses or answer questions regarding the subject of the study. In contrast with the qualitative approach, the data are numerical. The data are typically collected through a questionnaire, an interview, or observation.

In descriptive research, the investigator reports for one or more variables on the subjects of the study.

Examples of descriptive research studies
How would citizens of Nigeria vote in the 2001 election?
Would ethnic or religious factors be considered?
How do primary and secondary teachers spend their time after official closing hours?

Correlational Research:

This approach attempts to determine whether and to what degree or extent a relationship exists between two or more quantifiable (numerical) variables.

However, it is important to remember that just because there is a significant relationship between two variables, it does not follow that one variable causes the other. When two variables are correlated you can use the relationship to predict the value of one variable for a subject if you know the subject's value on the other variable. Correlation implies prediction but not causation. The investigator frequently uses correlational research.

The relationship between intelligence and self-esteem.
The relationship between anxiety and achievement.
The use of an aptitude test to predict success in an algebra course.

Causal-comparative Research

This research attempts to establish cause-effect relationships among the variables of the study. The attempts are to establish that the values of the independent variable have a significant effect on the dependent variable. This type of research usually involves group comparisons. The groups in the study make up the values of the independent variable, for example, gender (male versus female) preschool attendance versus no preschool attendance, of children with a working mother versus children without a working mother. These could be the independent variables for the sample studies listed below. However, in causal-comparative research the independent variable is not under the experimenters' control, that is, the experimenter can't randomly assign the subjects to a gender classification (male or female but has to take the values of the independent variable as they come. The dependent variable in a study is the outcome variable.

1. The effect of preschool attendance on social maturity at the end of the first grade.
2. The effect of having a working mother on school absenteeism.
3. The effect of sex (gender) on algebra achievement.

Experimental Research:

Like causal-Comparative research, it attempts to establish a cause-effect relationship among the groups of subjects that make up the independent variable of the study, but in the case of experimental research, the cause (the independent variable) is under the control of the experimenter. That is, the experimental can randomly assign subjects to the group that makes up the independent variable in the study. In the typical experimenter research design, the experimenter randomly assigns subjects to the groups or conditions that constitute the independent variable of the study and then measures the effect this group membership has on another variable. i.e. the
The dependent variable of the study.

-The comparative effectiveness of personalized instruction versus traditional instruction on computational skill.
-The effect of self-paced instruction on self-concept.
The effect of positive reinforcement on attitude toward school.

3.6 Comparison of Quantitative and Qualitative Research Approaches

What are the basic differences between quantitative and qualitative research methods? Quantitative and qualitative research methods differ primarily in:

Their analytical objectives
The types of data collection instruments they use
The forms of data they produce
The degree of flexibility built into the study design.

S/No	Areas of Differences	Quantitative Research Approaches	Qualitative Research Approaches
1	General framework	Seek to confirm hypotheses About phenomena instruments	Seek to explore phenomena instruments use more flexible,

		use a more rigid style of eliciting and categorizing responses to questions. Use highly structured methods such as questionnaires, survey and structured observation.	iterative style of eliciting and Categorizin g responses to questions. Use semi-structured methods such as in-depth interviews, focus groups and participant observation.
2	Analytical objectives	To quantify variation To predict a causal relationship To describe the characteristics of a Population	To describe variation To describe and explain relationship To describe group norms.
3	Question format	Close-ended	Open-ended
4	Data format	Numerical obtained by assigning numerical values to responses)	Textual (obtained from audiotapes, videotapes and field notes)
5	Flexibility in study Design	The study design is stable from beginning to end study design is subject to statistical assumption and conditions Participant responses do not influence or determine how and which questions researchers ask next.	Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions) Participant responses affect how and which questions researchers ask next. The study design is iteratin ive that is, data collection and research questions are adjusted according to what is learned.

The key difference between quantitative and qualitative methods is their flexibility. Generally, quantitative methods are fairly flexible. With quantitative methods such as surveys and questionnaires, for example, a researcher asks all participants identical questions in the same order. The response categories from which participants may choose are “close-ended” or fixed it allowing for meaningful comparison of responses across participants and study sites. However, it requires a thorough understanding of the important questions to ask, the best way to ask them and the range of possible responses.

Qualitative methods are typically more flexible – that is they allow greater spontaneity and adaptation of the interaction between the researcher and the study participant. For example, qualitative methods ask mostly “open-ended” questions that are not necessarily worded in the same way with each participant. With open-ended questions, participants are free to respond in their own words and these responses tend to be more complex than simply “yes” or “no”.

Also, in qualitative methods, the relationship between the researcher and the participant is often less formal than in quantitative research. Participants have the opportunity to respond more elaborately and in greater detail than is typically the case with quantitative methods. In turn, researchers have the opportunity to respond immediately to what participants say by tailoring subsequent questions, and questions to information the participant has provided. However, there exists a range of flexibility among methods used flexibility is not an indication of how scientifically rigorous methods is. The degree of flexibility reflects the kind of understanding of the problem that is being pursued using the method.

3.7 Triangulation

This is the process of combining both qualitative and quantitative research approaches in single studies. In reality, the degree to which quantitative and qualitative approaches are different has been exaggerated Bryman points out that "Most researchers rely primarily on a method associated with one of the two with a method associated with the other tradition:

Qualitative and quantitative data can be used to check the accuracy of the conclusion reached on the basis of each.
Qualitative research can be used to produce hypothesis which can then be checked using quantitative methods
The two approaches can be used together so that a more complete picture of the social group being studied is produced.
Qualitative research variables are statistically correlated

Examples

Participant observation, questionnaires and in-depth interviews can be used jointly for primary data
Interviews, observation and historical and contemporary documents can also be applied in a study of secondary data.

Bryman believed that both qualitative and quantitative research have their own advantages. Neither can produce totally valid and completely reliable data, but both can provide useful insights into social life. He argues that each has own place, and they can be most usefully combined.

Generally, quantitative data tends to produce rather static pictures, but it can allow researchers to examine and discover overall patterns and structures in society as a whole. Qualitative data is less useful for discovering overall patterns and structures, but it does allow a richer and deeper understanding of the process of change in social life.

4.0 Self-Assessment Exercise (s)

1. State the qualities of good research.

2. What is a research and of what significant importance is it to social or human life?

3. Compare and contrast qualitative and quantitative research approaches.

4. Briefly explain the various types of research known to you.

5.0 Conclusion

This unit simply does a brief overview of what research is all about and revealed the importance of the development and application of the critical and systematic methods of enquiry in proffering solutions or finding answers to perplexing questions.

Such that better understanding and advancement of knowledge could be accomplished through the application of the scientific method of investigating a social phenomenon, event, or social problems.

6.0 Summary

In this unit, several meanings or definitions of research were stated from different perspectives or views of scholars coupled with the explanation of different types of research. The importance and characteristics of research were also stated, while various types of research studies were explained and differences between quantitative and qualitative research approaches were itemized.

7.0 References/Further Reading

Ary, D., Jacobs, L.C., and Razavieh, A. (1990). Introduction to Research in Education. Philadelhia , P.A: Hold, Rinehart, and Winston, Inc.

Best, J.W., and Kalm, J. V. (1993). Research in Educatioon (7th ed.) san Francisco: Jossey – Bass Publishers.

Creswell, J. W. (1994). Research Design. Qualitative and Quantitative Approaches. Thousands Oaks, CA: Sage Publications.

Fraekel J.R and Wallen, N.E. (1996). How to Design and Evaluate Research in Education New York Mc Graw-Hill Inc.

Marriam, S.B. (1998). Qualitative Research and case study Applications in Education. San Francisco: Jossey-Bass publishers.

Nachmias, F and Nachmias, D (1996) Research Methods in Social Sciences 5th Edition New York, St. Martin Press.

Tuckman, B.W. (1972). Conducting Educational Research. Harcourt Brace Jovanovich Inc, New York, USA402 pd.

UNIT 2

SCIENCE AND RESEARCH

CONTENTS

1.0 Introduction

There is no any area of science that do not require research. It is the outcome of the research through the use of various variable that the researcher will be able to bring quantitative result. Therefore, in this unit, attention will be emphasis on the description of science and research. Students will be able to identify five sources of knowledge and the types of error in the human beings' inquiry. And lastly, characteristic of scientist methods in doing good research are the focus of this unit.

2.0 Intended Learning Outcomes (ILOs)

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

1. Describe the scientific approach to social research
2. Identify sources of knowledge
3. Explain the types of error in human inquiry

3.0 Main Content

Science is a familiar word commonly used by everyone yet it has different meanings to different people. Some people consider science as mathematics for others it is what coats and laboratories. Sometimes it is often confused with technology or equated with difficult college courses.

Science is a process of inquiry, a way of learning and knowing things about the world around us using logic, observation and theory. Science has some special characteristics. Scientific thinking makes sense (is logical) has a reference (observed evidence) and gives an explanation (item) for what we observed.

Science is sometimes characterized as logico-empirical. This ugly term carries an important message. The two pillars of science are (i) logic or rationality and (ii)

Observation. A scientific understanding of the world must make sense and correspond with what we observed.

The word research is made of two syllables re and search. Dictionaries define ‘re’ as a prefix meaning again and search as a verb meaning to look for something. Together, the syllables form a noun which means ’to look at again’. (Colliet et al 200 to Webster’s New International Dictionary defines research as a “careful or critical inquiry or examinations in seeking facts or principles, diligent investigation in order to ascertain something” Critical inquiry or examination and diligent investigation are the keywords in the definition. They imply a certain systematic procedure and certain logic appropriate to be followed in the search for facts or principles or for the purpose of ascertaining something. This method of research is known as the scientific method.

The term research used in connection with scientific exploration both in the field of the physical and social science implies, as the encyclopedia of a social science point out, the manipulation of things concept or symbols, for to generalize the extent, correct or verify knowledge, whether that knowledge aid in the construction of a theory or the practice of an art. (Offiongodon 1999)

 **Discussion**

1. What is science?
2. Explain the relevance of science to human exitance.

3.1 SOURCES OF GENERAL KNOWLEDGE

According to Rubin and Babbie (1997), there are two realities in the world we live in. part of what you know could be called your experiential reality (the things you know as a function of your direct experience). Another part of what we know is agreement reality that is, things you consider real because you've been told they are real and everyone else seems to agree they are real. The first is a product of your own experience; the second is a product of what people have told you. The problem is that both seem very real.
The question that borders my mind is how can you know what is real? People have grappled with the question for thousands of years.
For clarity of both experiential and agreement reality, for example, as a peace and conflict resolution expert, you participated in a peacemaking or peacebuilding activities, hence the incidents on the field are personal experiences while incidents that took place in the office will be an agreement reality because you were not there but it was reported to you. The following are sources of general knowledge.

Tradition: Each group of individuals in a society has a culture. Culture is defined as the values, beliefs, behaviour and material objective that constitute a people's way of life. We learn from others the ways of life. We equally accept what other people know and tell us. By doing this, we spare the enormous task of starting from scratch on the search for understanding knowledge is cumulative that is, it builds on itself and an inherited body of information, therefore, helping us obtain further information. For example, that encouragement and affirmation lead to cooperation between people, why we should disregard this and begin our experiments of finding out what leads to cooperation.

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

Authority. This mode of knowledge is sought by socially or politically looked upon people as knowing specially training, expertise and credentials. The mode of knowledge depends on the status of the person who discovered the truth. A person in a position of authority is likely, to have earned that authority by his or her experience and may therefore be able to offer us reliable knowledge. In Greek society, people look up to societies, Aristotle as authority.an In Nigeria, people like Professor Wole Soyinka, late Obafemi Awolowo, late Sultan of Sokoto etc are considered as authorities.

The problem with authority as a source of knowledge is that it depends on reputation rather than realities inquiry is also hindered when we depend on the authority of expertise speaking outside their realm of expertise. For example, consider the political or religious leader lacking in any medical science expertise who declares abortion medically dangerous.

Mystification. Here, it is the belief that knowledge to found in a supernatural source. People with this knowledge claim to have the power to receive and decode supernatural messages. These powers and this knowledge are not accessible to ordinary people. For instance, gods, prophets, and future tellers are examples of mystical knowledge. This type of knowledge depends on our irrational feeling by using rituals, ceremonies, emotionally loaded situations and strange-sounding language.

It is not a stable source of knowledge because confidence in mystical power can be distinguished sometimes, and desperation can make people believe in it.

Common sense. Neuman (1997) describes common sense as ordinary reasoning. It is regarded as a regular mode of problem-solving which are taken for granted. People tend to learn more after the facts. It is valuable in everyday life since it helps people to reach decisions and solve daily problems. It also helps communication between people in general, because it covers topics that everyone knows about.

Common sense is not a reliable source of knowledge because it contains a great deal of illogical reasoning and often originates in tradition.

Scientific knowledge or rational mode. It has to do with the systematic investigation of knowledge acquired through scientific inquiry. Scientific knowledge is based on a rationalistic mode of reasoning.

Rationalism is a school of thought or philosophy that holds that the totality of knowledge can be acquired by strict adherence to the forms and rules of logic. The assumption of Rationalism

A human mind can understand the word independent of observable phenomena
That forms of knowledge exist that are before our experiences.

Media Myths. Mass Media has turned the world into a global village. The mass media such as television films, newspapers, magazines and the internet have a powerful influence on knowledge. We have the opportunity to learn about the world and develop our concept of social reality according to what we they see, hear and read in the mass media.

 **Discussion**

1. List and explain sources of knowledge.

3.2 Errors in Human Inquiry

Rubbin and Babble (1997) list the following types of errors and the ways in which science provides safeguards against those errors.

Inaccurate Observation: The keystone of inquiry is observation. Before we understand the way, things work, we have to have something to understand. In other words, we need to know what before com explain the why. But people tend to be careless when it comes to observing everyday events. On the whole, however you and I are pretty sloppy even unconscious, observers of the flow of events in life. We fail observe things right in front of us and mistakenly observe things that aren't so.

In contrast to our ordinary inquires, scientific observation is a conscious activity. In science we observe events deliberately. Also, there are both simple and complex measurement devices to help prevent us making inaccurate observations.

Overgeneralization: When observer events or people, we reach conclusion or past general comments. Sometimes, we use few, similar events to arrive at a conclusion where we overgeneralized. There is tendency for us to overgeneralize especially underpressure to arrive at a conclusion. Yet it also occurs casually in the absence of pressure. Anytime we overgeneralize, it impedes or misdirects inquiry. For example, if a researcher conducted an inquiry on reasons for a student demonstration in the university. Then he concluded his inquiry by sampling only the Christian union on the campus. Scientists guard against overgeneralization by committing themselves in advance to a sufficiently large sample of observations. The replication of inquiry provides another safeguard. Replication means repeating a study, checking to see if the same results are obtained. If the same results are obtained, you can feel more confident about generalizing your findings. If, however, replication gives different results, it has helped prevent you from overgeneralizing and coming to an incorrect conclusions.

Selective observation:- Overgeneralization may lead to selective observation. Once the decision is made that events are following a particular pattern and you think you know why, you will tend to pay attention mainly to future situations that correspond with the pattern. You

tend to overlook the situations that conflict with the pattern, for example, In Nigeria some Ibo traders sell inferior and substandard goods. It will be wrong to assume that all Ibo traders are dishonest but then one will ignore the honest, enterprising, industrious and hard-working majority of Ibo traders.

Science guards against selective observation by using a research design which specifies the number and kind of observations we need before we can make a conclusion. Conclusions

are based on an analysis of all observations detailed in the research design not only on some selected observations. (Collins et al 2000).

Made up Information:- After you have reached a general conclusion, if there is a contradiction, what would you do? Suppose, for example, you had decided that all the Ibo traders were dishonest and then you came across one that is honest. What would you do? In our casual, day to day handling of such matters, we often make up information that would resolve the contradiction. May be the Ibo trader isn't brought up in Igbo land after all.

The scientist also engaged in ways of explaining away confusion like day to day inquiries. When our scientific observations and analyses don't turn out the way we expect, we often think up reasons to explain away the surprise.

Ego Involvement in Understanding

The search for regularities and generalized understanding is both personal and intellectual. Our understanding of events and conditions is often of special psychological significance to us. In countless ways, we link our understanding of how things are to the image of ourselves that we present to others. Because of this link, any disproof of this understanding tends to make us look gullible, stupid and general not okay.

Scientific norms guard ego involvement. For example, testing of hypothesis in a systematic manner, rigorous ways of collection of information, making the research work public in form of a report which also allows other scientists to evaluate the research etc thereby exposing any personal bias or ego involvement brought to work.

The premature closure of Inquiry

The listed errors above; overgeneralization, selection observation, matheiys information, and ego involvement in understanding lead to what is known as premature closure of inquiry. The danger of these brings a stop to attempts to under events and issues before that understanding is complete. For example, in society, the line of understanding of society has been a gradual process and up till today is a continuous process.

Science guards against the premature closure of inquiry by a though review of the literature on the topic being researched. The review reveals the complexity of a subject and presents a wide range of information. Which tends to prevent the researcher from ending his or her inquiry before he or she has thoroughly explored all options? At its base, science is an open-ended enterprise in which we constantly modified our conclusions. Experienced scientists expect established theories to be overturned eventually and new conclusions to be reached as research projects progress.

3.3 Characteristics of the Scientific Method

Collins el at 2000 in their book titled "Research in Social Sciences" discussed characteristics of the scientific method as follows.

1. **Empirical Inquiry**

The scientific method has its procedures such as observation and measurement. In research, the researcher chooses the subject or object of study, observes and measures it. In other words, the scientific method means that we work independently of external influence or personal position. We come to conclusions based on evidence which we can demonstrate to others and which they can also observe and measure.

2. **Language of Science**

In scientific inquiry, there are certain accepted languages being used. It has been become a convention to use certain terms (terminology) in explaining scientific inquiry. Scientific concepts such as theories and hypothesis, research design and data hypotheses analysis are the used as language of science. You make use of scientific language in your research work.

3. **Assumptions in Science**

Science is logical and rational. It has its own assumptions which it uses in explaining world realities. These assumptions are often hidden and they have it power to influence our understanding of reality. It is important to know and state your basic assumptions when you are investigating a topic because these assumptions will influence your research design, the type of measurement you use, your interpretation of findings and even the kind of questions you formulate in research.

4. **Perceptibility (Understandability**)

Perceptibility is a key in scientific research. It is only when scientific research is understandable than the impact can be felt. It means that only when it is understandable that it will be accepted and included in the body of knowledge. Some reliable theories based on empirical evidence such as Karl Marx's conflict theory were included in the body of theories because it is understandable.

Limitations

Scientific investigation is subjected to certain limitations. The following are the limitations of scientific studies.

The rights of people who are the subject of the study should be protected by research ethics

Time is a limitation in research work

Communication can be a limitation between the researcher and the scientific community A good scientific practice demands that we acknowledge the limitations of our investigation and that we make these limitations clear in our research report.

4.0 Self-Assessment Exercise (s)

1. Identify and discuss sources of knowledge.
2. Discuss the characteristic of scientific methods of enquiry.

5.0 Conclusion

The importance and relationship between research and science are numerous such that man can hardly survive in this present-day era without depending directly or indirectly on science. For instance, it should be realized that; we use research in solving problems and challenges confronting human beings or being encountered on a daily basis. In fact, we achieve rapid growth and development in almost all areas of human endeavours with the help of research and science.

6.0 Summary

In this unit, we have been able to explain the meaning of science and research and also identify and discuss various sources of knowledge. Characteristics of scientific methods of enquiry were also discussed coupled with different types of errors being faced or that could be encountered in human inquiry.

7.0 References/Further Reading

Babie .E (1995) : **The Practice of Social Research**, *California Wordsworth Publishing Company*
Collins et al (2000): **Research in the Social Sciences** *Pretoria, University of South Africa*

BASIC FOUNDATION OF SOCIAL RESEARCH

CONTENTS

1.0 Introduction

Social science research is made up of some straightforward crucial elements used in laying a compact foundation for research through various forms of terms/terminologies and concepts. It is very essential for you to have a clear knowledge and understanding of these concepts whenever you come in contact with them. In addition, having been exposed to the meaning of such concepts, would also go a long way in assisting you in using them appropriately and adequately in your research (project/thesis) study.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit, and relevant readings, you should be able to:

Enumerate common concepts of the term associated with social research.
Understand the meaning of those concepts.
Make use (apply) the concepts correctly in your work.
State differences in the use of those terms or concepts in social research.

3.0 Main Content

3.1 Meaning of Concepts

A concept is a representative representation of an abstract idea. It is a miniature "system of meaning" symbolized by a word, phrase or label that enables us to perceive a phenomenon in a certain way. It is a mental construct that represents some part of the world inevitably in a simplified form. It is a tool by which one can share meanings. Chin and Kramer (1999) define a concept as a "complex mental formulation of experience". Concepts are the major components of theory and convey the abstract ideas within a theory". They are abstractions used as building blocks for the development of hypothesis propositions and theories but concepts themselves do not explain, predict or state relationships. Concepts are vital to the development of social research. It is a useful tool used by researchers to visualize the inter-relationship between concepts. In peace studies and conflict resolution rape, war crimes, crime against humanity, abuse, infringement on fundamental human rights, killing, assault etc are concepts and when they came to mind, it means something based on experience. The experiential meaning who had just been subjected to child labour (conscripted to rebel force or guerilla warfare), a married lady (woman) being regularly beaten/assaulted by her husband or a lady who was raped during crisis/war. These definitions and associated metal images of the concept of pain incorporated different experiential and knowledge components… all with the same label, pain. Therefore, it is important to know the meaning of the concept for the person. In the case of the critique, it is important to know the meaning that the researcher gives to the concepts in a research study.

When a set of concepts are interrelated to describe and classify phenomena, the concepts are generally referred to as a conceptual framework, which might be referred to as a cluster of interrelated concepts for viewing a phenomenon and for describing and classifying its part. A conceptual definition is much like a dictionary definition, conveying the general meaning of the concept. However, the conceptual definition goes beyond the general language meaning found in the dictionary by defining the concept as rooted in the theoretical literature. The operational definition specifies how the concept will be measured, and what instruments will be used to capture the variables.

A concept is described by the chambers 20th-century dictionary as a general notion of an idea. Again, different disciplines have developed concepts on different phenomena. In research parlance a concept:

-Provides specificity and direction for construction to the guide development of a research study.
-Must be clear and defined.
-Should be defined generally and/or specifically within the context of the specific problem. It is expected that relationships should emerge a concept is assessed.

A concept that is operationalised or measurable is referred to as a variable.

Several variables may, however, be used to represent one concept. Concept operationalisation involves:

Identifying variables that represent concepts in a framework.
Identifying how the variables are to be measured (operational definition)
Ensuring that methods of measurement or observation are consistent with how the variable is conceptually defined.

A group of interrelated concepts that fit together because of their relevance to a common theme or matrix is known as a conceptual model.

3.2 Model

A model is a symbolic representation of a set of concepts, which is created to depict relationships.

A model in research is a symbolic representation of the interrelation exhibited by a phenomenon within a system or a process.

According to the Merriam Webster Dictionary, a model is being a miniature representation of something or an example for imitation or emulation etc. A model is narrower than a theory but broader than that a hypothesis (Rosnow and Resenthal 1996). The model is presented as a conceptual framework or a theory that explain a system or phenomena and allows predictions to be made without individuals or a process.

3.3 Variables

A variable is a measurable characteristic that varies or that can change or differ. It may change from group to group, person to person, from place to place or even within one person over time.

A variable is an event or condition that researcher observes or measure or plan to investigate and that is liable to variation (or change). (Rosnow and Rosenthal 1996). It is something which can change either quantitatively or qualitatively or a property that takes on different values. For example, age, sex, intelligence, wages/salary, religious affiliation etc.

There are six common variable types namely:

Dependent Variables:
It is defined as a variable that shows the effect of manipulation or introducing the independent variables. For example, if the independent variable is the use or non-use of violence or to agitate or demand ones group's or community's needs or righrightsom the government than the dependent variable might be the achievement or accomplishment of their desire or provision of their needs by the government. In other words, the variation in the dependent variable depends on the variation in the independent variable.

The dependent variable is the variable predicted to, whereas the independent variable is predicted from. It is also referred to as the criterion because it is the very thing with which the investigator/researcher is ultimately concerned. It is observed for variation as a result of variation in the independent variable. It predicting from X (the independent variables) to Y (the dependent variable), we can take any value of x we wish, while the value of y we predict is "dependent on" the value of x we have selected.

Independent Variables:
There are variables that may involve manipulating existing variables (e.g.; modifying existing methods of instruction) or introducing a new variable. (e.g. adopting a totally new method for some sections of a class) in the research setting. Whatever the case may be, the researcher expects that the independent variable(s) will have some effect on (or relationship with) the dependent variables.

It is that factor which is measured, manipulated or selected by the researcher to determine its relationship to an observed phenomenon. The independent variable is the variable that is manipulated or changed to cause a change in some other variable. It is referred to as independent because the research is interested only in how it affects another variable, not in what affects it.

Intervening Variables:
Refer to abstract processes that are not directly observable but that link the independent and dependent variables. In language learning and teaching, they are usually inside the subjects' heads, including various language learning processes which the researcher cannot observe. For example, if the use of a particular teaching technique is the independent variable and mastery of the objectives is the dependent variable, then the language learning processes used by the subjects are the intervening variables.

It is also described as that factor which theoretically affects the observed phenomenon, but cannot be seen, measured or manipulated; its effects is inferred from the effects of the independent and moderator variables on the observed phenomenon (dependent variable)

Moderator Variables:
These variables affect the relationship variables by modifying the effect of the intervening variable(s). Unlike extraneous variables, moderator variables are measured and taken into consideration Typical moderator variables in TESL and Language acquisition research.

Control variables:
They are variables that are not measured in a particular study that must be held constant, neutralized/balanced or eliminated, so they will not have a biasing effect on the other variables. Variable that have been controlled in this way are called control variables.

Control variables are those variables which are capable of moderating the relationship between the independent and the dependent variables, but which are not significant enough to be studied as moderator variables. The effect of the variables must be eliminated or neutralized to ensure that they do not pollute the relationship between the independent and dependent variables.

Extraneous Variables:
These are factors in the research environments which may have an effect on dependent variable(s) but which are not controlled. Extraneous variables are dangerous and may damage a study's validity, by making it impossible to know whether the effects were caused by the independent and moderator variables or some extraneous variables must at least be taken into consideration when interpreting results.

3.4 Theory

A theory can be referred to as an assumption, a conjecture, a hypothesis, a postulation, a principle, or a speculation. Different academic fields or disciplines have different theories, developed over time, to explain observations of different phenomena. There is a form of research that addresses the development of new concepts based on established or proven scientific merit which is referred to as Theoretical Research.

It adds to the body of knowledge from which practical applications can later be drawn. It is also important to note that 'the basic purpose of theory is to understand reality and the basic purpose of theoretical research is to produce theory'.

Theory is a set of interrelated concepts, which structures a systematic view of phenomena for the purpose of explaining or predicting. A theory is like a blueprint, a guide for modeling a structure. A blueprint depicts the elements of a structure and the relation of each element to the other, just as a theory depicts the concepts, which compose it and the relation of concepts with each other.

Chin and Kramer (1999) define a theory as an "expre ssion of knowledge… a creative ad rigorous structuring of idea that projects a tentative, purposeful, and systematic view of phenomena".

Marriam (1998) described theory as growing from speculation of qualitative data and of value in research only as it provides theoretical grounded explanations of phenomena observed is a holistic context. Theory is perceived from this perspective or point of view, as providing explanation, not in mathematical sense or as an analog model intended to predict future results, but rather in a contextual sense. Explanation and prediction are therefore viewed from a contextual perspective.

Kerlinger (1979) also provided a perspective of 'theory' appropriate for a quantitative researcher. He defined theory as 'a set of interrelated constructs (variables), definitions, and propositions that present a systematic view of

phenomena by specifying relations among variable, with the purpose of explaining natural phenomena'.

Ary, Jacobs and Rasavieh (1990) described theory derived in this manner as a model that as built upon a 'conceptual analog, generally of a physical or mathematical nature, which is used to suggest empirical research'.

Creswell (1994), speciated on Kerlinger's definition by noting that the relationships among variables are typically stated in terms of magnitude and direction. He called this a systematic view of theory. He metaphorically used rainbow to explain this meaning of theory, by explaining that theory provides a bridge between the independent and dependent variables or constructs in any given study. The bridge ties together the variables, this providing an 'overarching explanation for how and why one would expect the independent variable to explain or predict the dependent variable'

Creswell (1994), further posited that theories could be grouped into three types based on the degree of the theory's generality and specificity which are as follows:

Grand theories are used to explain major categories of phenomena and are more common in the natural sciences.
Middle – range theories which fall somewhere between n the working hypotheses of everyday life and grand theories
Substantive theories that offer explanations in a restricted setting and are limited in scope, often being expressed as propositions or hypotheses.

Characteristics of Theory

Ary et al (1990) also observed and stated four (4) criteria that a theory must meet. First and foremost, it must add to our understanding of observed phenomena by explaining them in the simplest form possible. This characteristic is referred to as the principle of parsimony. It should fit properly with observed facts and with established principles. It should be inherently testable and verifiable. Last but not the least, it should imply further investigations and predict new discoveries. In summary, a good theory must be:

Logical, relatively simply and generalizable;
Composed of concepts and propositions;
Able to interrelate concepts to create a specific way of looking at a particular phenomenon.
Capable of forming the basis for testable hypotheses;
Consistent with other validated theories, laws, and principles yet leave open unanswered questions for investigation; and
Contribute to and assist in increasing the general body of knowledge through research implemented to validate them.

Importance of Theory in Research

In as much as the fundamental purpose of research is to create theoretical explanations of reality. Theory therefore, provides the conceptual basis for all research.

Best and Kahn (1993) observed that theory establish a 'cause and effect relationship between variables with the purpose of explaining and predicting phenomena.

It enables researchers to generate hypotheses as a means of prescribing methodology and analysis.

3.5 Hypothesis

Kerlinger (1973) defined a hypothesis as a conjectural statement of the relation between two or more variables. A hypothesis states the researcher's expectations concerning the relationship between the variables in the research problem.
Best and Kahn (1993), defined a hypothesis as 'a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables'. This presumes a mathematical relationship among variables and provides that the ultimate goal of the research is to determine whether the hypothesis is supported by the data.

A hypothesis can also be defined as a tentative explanation for certain behaviour, phenomena or events that have occurred or will occur. It states the researchers' expectation concerning the relationship between the variables in the research problem; it is the most specific statement of a problem. It is a tentative answer to a question. It is an educated guess or hunch, generally based on prior research and (or theory, to the subject to the process of verification or disconfirmation. The researcher does not then set out to 'prove' his or her hypothesis, but rather collects data that either supports the hypothesis does not support it.

It is before data or information is gathered because it creates an unbiased investigation. It is formulated following the review literature since it is based on the implication of previous research. Some elements or relationships in a hypothesis are known or established facts and others are concepts of the researcher's imagination.

These hypotheses include facts (usually obtained through existing studies in the area) and transcend the known facts to give a plausible explanations to unknown conditions.

For example, if it was observed that the large number of students failed a particular PCR course in the E-examination conducted. If you hypothesize that they failed because of the technical problems or logistic itches with the computer, such a hypothesis would not a reveal reasonable explanation. A reasonable hypothesis might be that they failed because then were not facilitated properly or they did not devote much time to study their course materials or were unable to study because of the pressure from their places of work coupled with home/domestic challenges.

Characteristics of Hypotheses

It is important to have a lucid understanding of the features or characteristics of the hypothesis before we can formulate a good/high-quality hypotheses that will conform to certain general principles guiding our search for an answer/solution to a problem. They include the following according to best and Kahn (2006)

It should be reasonable.
It should have a direct bearing on the problems that answers are being sourced for.
It should be stated in such a way that it can be tested and found to be probably true or probably false.
It should state the relationship between or more variables.
It should be stated in the simplest possible terms.
It should state the relationship between or more variables.

Sources of Hypothesis

The following are the sources of research hypothesis that are also similar to those of research problems:

Personal experience: this has to do with the individual or researcher's wealth of knowledge attitudes and values as well as one's imagination helps in formulating a hypothesis and finding answers to research questions/problems
Literature Review: It enables intending researcher to know or to be familiar with previous studies conducted in the area he/she is delving into such that the information would provide ideas towards improving the quality of the hypothesis.
Theory: Theories relevant to the researcher's area of study could serve as the basis for generating a hypothesis or a theory-based hypothesis can be derived from theory-based problem.
Logic: In as much as logic is the art of reasoning by means of deductive or inductive methods, hypothesis therefore can be generated by either method if the problem being studied is to determine the relationship between X and Y.

Functions of Hypothesis

The use of hypothesis is research study (social) cannot be underestimated because of the immense derivation benefits which are as follows:

i) It gives the researcher a logical basis for the explanation of research results.
It enables the researcher to be focused by paying direct and serious attention to the research problems.
It promotes the advancement of knowledge through the collection of information objectively from one's environment that is or can be tested, confirmed and revalidated by further research or replication if studies.
Hypothesis enables a researcher to be objective, and also reduces bias because the researchers is not out to prove his/her hypothesis, but rather collects data which either support or not support the hypothesis.

It provides the framework for deciding on appropriate research design especially the tools and techniques for data collection and analysis.
It delimits and directs the search for evidence pertinent to the solution of the research problem(s)

3.6 Law

There are several definitions or meanings of the concept of law depending on the perspective or angle at which it is being viewed. But within this context, it is referred to as a hypothesis that is assumed to be a universally true and accepted.

A law has good predictive power, allowing a scientist (researcher) to model a physical system and predict what will happen under various conditions: A scientific law according to Lindbergh (1938) is a generalized and verifiable statement, within a measurable degree of accuracy, of how certain events occur under stated conditions. A law could also be said to be a group of verbal or mathematical symbols, designating an unlimited number of defined events in terms of a limited number or reactions so that the performance of the specific operations always yield predictable result within measurable limits.

4.0 Self-Assessment Exercise(s)

1. List and discuss any three (3) basic foundational terms of social research.

2. What is a theory?

3. Mention three (3) characteristics of theory and three (3) importance of theory to research.

4. Differentiate between law and theory.

5. Define hypothesis and enumerate four characteristics of hypothesis.

5.0 Conclusion

It is very important for a would be student researcher to have a deep knowledge of the above discussed basic terms in order to be able to carry out a research study with a robust outcome. And to be aware or conversant with basic terms that are relevant to the understanding of social research.

6.0 Summary

In this unit, you have been introduced to some basic terms in social research. You have learned about the meaning of a concept, variables, theory, hypothesis, law, and

model as well as the uniqueness of each term and their relevance to the research study.

7.0 References/Further Readings

Best, J.W. and Kahn, J.V. (2006). Research in Education. Baston, Pearson Educational Inc.

Fraenkel, J.R. and Wallen, W.E. (1996). How to Design and Evaluate Research in Education. New York, McGraw-Hill Inc.

Rosnow, R.L. and Rosenthal, R. (1996). Beginning Behavioural Research. A Conceptual Primer, New Jersey Prentice Hall.

UNIT 4

PROCESSES OR METHODS OF SOCIAL RESEARCH

CONTENTS

1.0 Introduction

This unit examine the procedure, process or method of research (project/thesis) layout which is an important aspect of academic work in which a researcher (student) is expected to display or show more initiative, originality and creativity by applying or putting into practice some of his/her past acquired knowledge. The research (project) procedure entails looking for a reasonable and researchable topic, designing a research, stating hypothesis, enumerating the research objectives, constructing instruments, collecting data, organizing data, analyzing data and making inferences.

Great care must therefore be taken to presenting in an acceptable form the results of an investigation which must not doubt have required an enormous outlay of time, energy and financial resources.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, students should be able to:

Explain the procedure of carrying out social research
Understand how to choose a researchable topic and formulate research problems or hypothesis
Develop the aims and objectives of the research
Identify the most appropriate research instrument(s) for the work and how to collect data.
Organize and analyse data and;
Interpret data, make the inferences, adequately and accurately, and write good recommendation and conclusion.

3.0 Main Content

3.1 Research Design

The design of the study refers to the plan, structure, and strategy the researcher or investigator (student) wants to adopt in order to obtain answers to research questions and probably test hypotheses formulated for the study.
Aworh et al (2006) observed that research design is different from design of conceptual framework. It is also not the same as experimental design; the latter may however be a subset of research design. Research design if the plan containing the structure an strategy of investigation that are conceived in order to obtain answers to research questions, and to control variance (Kerlinger, 1973). As the plan of research, it provides the general scheme to be followed in a research study. It entails an outline of what the investigator (researcher) will do, beginning from the statement of the hypothesis of the study to their operational implications and the analysis of data. A research design encompasses both the structure and strategy for conducting a study. As a structure, the research design provides a specific outline, scheme and paradigm of operation of the variables.

A typical research starts with reason and experience (observe of a particular problem). Scientists employ the criteria of logical validity and empirical validation to evaluate claims for knowledge. Research is cyclical process. It starts with a problem and ends with a tentative empirical generalization. The generalization ending one cycle is the beginning of the next cycle. The cyclic process continues indefinitely reflecting the progress of a scientific discipline (Nachmias and Nachmias 1996).

In some cases, diagrams are drawn that outline the variables and their relationship. As a strategy, the research design also provides more specifically, the methods to be used in gathering and analyzing data. In other words, it indicates how the research objectives will e accomplished and how the problems encountered in the research will be tackled. Invariably, the starting point of any research is the identification and articulation of the problem or question that the research is to address (Aworh et al., 2006)

3.2 Choosing a Research Topic

Students usually find it difficult choosing a research topic, a beginner is likely to select a topic that is not researchable or that is too broad in scope such that it cannot be accomplished within a short time. This may not be farfetched from their lack of proper understanding of the nature of research and systematic problem – solving activity. It could also be due to their enthusiastic but naive desire to quickly star a research (project).

Research topics come from either practical or intellectual curiosity (Selltiz et.al 1976). Topics of practical concern stem from day to day experiences. A topic that evolves from

practical concerns tend to be quite focused and specific. Intellectually motivated topics lead to broader more conceptual questions that deal with general rather than specific classes or phenomena. The researcher who chooses such a topic may end-up exploring areas in which very little is currently known (Merriam and Simpson 1984).

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

A researcher should be attuned to the multitude of sources from which idea can be generated such as current journals, class work, dissertation record booklet, newspaper, conversations, media events or research agenda. Keeping an ongoing list of tentative topics from various sources provides a starting point when the time comes to decide upon one topic.

Whatever the source of the research topic at least three criteria need to be applied to the final selection:

The interest of the researcher in the problem
The feasibility of actually carrying out the study; and
The significance of the problem itself.

The process of identifying a researchable problem begins with being interested in a particular topic or the area of interest is easy. The difficult step is to perceive a problem within the area of interest that is significantly approachable. Once a problem has been identified, it must be shaped in order to guide the study.

Shaping is done by delineating its relationship to theory and previous research by defining terms and concepts and by developing the research questions or hypothesis.

3.3 Research Project Layout

Part I. (The Preliminary Section)
The preliminary section of a research report comes before the actual body of the work and is paged in Roman numerals. The area in order of occurrence is as follows:

Title Page
Apart from presentation of the title on the front page, the title is repeated with elaborate information in the title page.

The title page comes after the fly leaf and is paged (1) in the preliminaries. The fly leaf is the leaf after the cover and has no print. The content on title cover are the title of the work, the author's name and his/her matriculation number the department and the institution and the date of completion of programme.

Approval and certification page
Either the Approval page or Certification page is used depending on the institution (university) requirement.

Acknowledgements
The acknowledgement usually contains an expression of appreciation to persons, bodies or organizations that gave unusual assistance to the researcher in course of carrying out the research (project) work.

It is usually reported in the third person singular.

Dedication
This is optional. It could be included in the candidate's (student's) wishes

Abstract
All project reports, dissertations and thesis require an abstract. An abstract is a brief summary of the content and purpose of the dissertation/thesis. The main purpose of an abstract is to help the reader to comprehend the content of the work quickly. The student should guide against the inclusion of any information that does not appear in the main body of the study. The abstract should, therefore, be very brief but self-contained and fully intelligible. A good abstract should be made up of the following components: (statement of problem (very brief) methodology, the findings and the conclusion.

Table of contents
It provides an outline of the content and sub-content areas of the report and the pages where they appear. The content should reveal the chapter titles as well as the major sub-headings within each chapter. Only major/headings within the titles should be included in order to avoid clustered or too long content. The preliminary pages are written in Roman numerals and the main body in Arabic.

Part 2 (the main Body)
Project/Thesis Layout
Chapter one. (Introduction)
Background of the study.

Study Area
Statement of the Problems
Objectives of study
Significance/Justification of the study
Research Questions
Research Hypothesis
Definition of Terms

Chapter Two/Literature Review
Conceptual Framework
Theoretical framework

Chapter Three (Research Methodology
Research Assumption

Research Design
Sample Design
Research Instrument

Chapter four (Data Presentation and Analyses

Chapter five (Discussion of findings)
(Recommendations and conclusion)

Chapter 1 Introduction

Background of the study

It is an introductory section of the whole work which describes the general intellectual or historical setting within which the investigation takes place. It reveals what really spurred the researcher into carrying out the study (that is, it provides insights into the ferment that informs the research). It is an indication of the source of the problem which skillfully begins to anticipate the problem and helps to establish that a problem exists.

Study Area

This section introduces the area where the research took place. It provides in-depth information such as geographical location, ethnic composition, socio-demographic characteristics, sociopolitical organization and economy of the area in which the researcher carried out his/her study.

Statement of problem

The statement of problem of a research work could either be interrogative or declarative in nature and should clearly indicate the issue being investigated. The most constant requirement of a good statement of problem is that it must be grief and to the point such that it reveals your mastery over the subject matter. The clarify of statement of problem will make both the conduct of the research and reading the completed product a pleasure rather than a chore, Guard against making this section of the report read either like a statement of objective or the literature review.

As you already know, research is a systematic and organized problem-solving activity. It is very important to take cognizance of this because your report of the research will have to be systematic also. In other words, all features of your study are oriented toward solving the problem(s) that the research set for itself, or providing answers to the questions that have agitated you the researcher. It is therefore customary to identify the nature of the problem under investigation in such a way that the problem's manifestations in the real world are obvious to practitioner and non-practitioner alike. You should bear in mind that

all disciplines homocentric in some way, meaning that they all place the human being at the center of their activity. This is true regardless of whether the science in question is "social", "natural", "physical", "environmental' or "pure".

Problem can be divided into two namely, the **general problem** and the **specific problem.** It should therefore be pointed out that this **general problem** is the real **problem** instigating the research, and so it must be stated prior to the statement of the specific problem which is largely the researcher's own problem so to speak.

Characteristics of Research problem.

A research problem must be empirically grounded such that data could be collected concerning that problem for analysis.
It must be clear and specifically articulated. It must not be ambiguous, that is landing itself to many interpretations.
The problem must be of interest to the researcher and also to likely arouse the curiosity of other researcher.
Research problem should be that which is likely to answer a specific problem or contribute to a body of knowledge in an area or combination of cogent areas.
It should be such that could be executed completed within the limit of available time and resources for the project
It must be a fresh topic or original as much as possible. But if it has been studied before, there must be justification for further studies.

Objective/Purpose of Study
Research objectives are like a bridge between statement of problem and how to resolve methodically, the problems identified. The objectives of research are usually three: the general, specific, and ultimate objectives.

The general objective is quite often a restatement of the project title, as a possible means of keeping it in view or a short statement of development goal being pursued by the researcher. It is sometimes deployed as a stylistic device for keeping the main object of the investigation in view for the mutual benefit of both the researcher and the reader.

The specific objectives are derived from the specific gaps indicated in the statement of problem. Specific objectives are more succinct in the activities to be pursued to address various aspects of the study or research. Smith and Morrow (1991:18) suggest that "in the specific objectives a quantitative statement should be made regarding the effect of an intervention that a study is designed to detect and the precision with which the effect will be measured". Certainly, these authors were speaki ng with special reference to field trials in epidemiology, but the character of specific objectives, which they draw attention to is fairly universal.

In general terms, the researcher may assess specific objectives by the acronym SMART, as follows:

Is the objective Specific and Simple?

Is the objective Measurable?
Is the objective Achievable?
Is the objective Researchable or Realistic?
Is the objective Time-bound?

It is important that the researcher answer "Yes" to each and every question when posed to each and every objective. A single "No" could lead to expensive frustration later on. In order to facilitate "Yes" answers, objectives usual ly start with the word "to…" This is what may be described as the "give-away 'to' and is a useful device for ensuring that your statement of problem does not stray into stating objectives. This is very familiar tendency among young researchers arising from an unclear distinction between the two categories.

The ultimate objective re-links the study with its policy-orientation by stating what influence its conclusions are likely to have on the general phenomenal problems.

Significance/Justification of the Study

Significance of study is also known or referred to as justification of study; his part of the report specifies the importance of the work. This may be in terms of its contribution to the existing state of theory, its policy implications, or nature of data it will supply and the prospects that exists for their use. The researcher should indicate the value or potential significance of the problem area and hypothesized findings to educational practices and theory. She/he should put up a argument on why the study is important. The argument should be based on philosophical as well as practical evidence. It addresses the problem under investigation by focusing on the Research Questions/Hypotheses and their possible answers or finding

Research Questions

Finding a research Question is probably the most important task in the research process because the question becomes the driving force behind the research – from beginning to end. Researcher questions are questions posed by the researchers, answers to which would lead to the solution of the problems. They are related to the purposes of the study in that they are purposes of the study transformed into questions. Immediately the purpose of the study has been established, they are turned into questions.

In stating research questions, the researcher must narrow the topic down to a more specific research question on which data can be collected. The topic should be refund into researchable questions when he/she can phrase the question in terms of the relationship between two questionably definable variables

Characteristics of a Good research question

It must be well grounded in the current knowledge base. The problem must have a basis in theory prior research or practice: unless the question is anchored in what is already known, we cannot judge how much it can add to the knowledge base.
The language of the research questions should be clear and unambiguous

- ❖ It must not be too broad or general (although you will focus it even more later on in the process).
- ❖ It shouldn't have already been answered by previous research (although replication with variation is certainly acceptable).
- ❖ It ought to be a question that needs to be answered (i.e., the answer will be useful to people).
- ❖ It must be a question that can be answered through empirical means.
- ❖ It determines what data to collect and how and where to collect them.
- ❖ They should always be related to the problem at hand and represent significance and critical issues in the study.

Hypothesis

Hypothesis is a focused statement which predicts an answers to research problems. They are stated in form of a relationship between independent and dependent variable is an empirical property that takes two or more variables. e.g. social class, age, sex, expectations. A dependent variable is that which the researcher wishes to explain while independent variable is that which is expected to explain change in the independent variable. It is either explanatory variable and also called predictor variable. Mathematically, dependent variable is on the left of an equation while independent variable is on the right:

Dependent Y = f (x) independent that is, changes in the value of x causes changes in the value of Y. Hypothesis is tentative because its true values can only be evaluated after empirical. The hypotheses that is rejected after an empirical text, gives way to an alternative hypothesis. Hypothesis that is accepted or failed to be rejected may be incorporated into scientific body of knowledge.

It is based on the findings of previous research (gained from your review of the literature) and perhaps your previous experience with the subject.

The alternate objective of deductive research is to decide whether to accept or reject the hypothesis as stated. When formulating research methods (subjects, data collection instruments etc), wise researchers are guided by their hypotheses. In this way, the hypotheses give direction and focus to the research.

Sometimes researchers choose to state their hypothesis in "null" form. This may seem to run counter to what the researchers really expect, but it is a caution way to operate. When (and only when) this null hypothesis is disproved or falsified the researcher may them accept a logically "alternate" hypothesis.

For example a null hypothesis (H_0) may be stated thus:

Ho: most conflicts in Nigeria are not religious and ethnic based.

There may not be any need to state an alternative hypothesis (H_A) thus:
Most conflicts in Nigeria are religious and ethnic based.

This is because from the Null hypothesis can be implied the Alternative hypothesis. This could be likened to a criminal proceeding in the law court where a person accused of a crime is not found guilty, then it is concluded that the accused is innocent.

The sources of hypothesis are theories, observation, intuition, literature, previous findings.

Characteristics of Effective Hypothesis

- ❖ it must be conceptually clear
- ❖ it must be specific
- ❖ it must be testable
- ❖ it must state expected relationship between variables
- ❖ it must be consistent with the existing body of knowledge.

For example:
There is no significance difference between the rate of kidnapping before the federal government amnesty and after the amnesty

Definition of Terms
These are brief explanations or definitions of terms used in a research study in order to guide against or avoid any ambiguity.

Chapter 2 Literature Review

Literature Review is a survey of important articles, books and other source pertaining to your research topic. This review of the professional literature contextualizes, or frame, your research and will also give readers the necessary background to understand your research. The main purpose of literature review is to charity some fundamental concepts involved in the study, to find out what other scholar or professionals have gaps to be filled up.

Literature Review must be distinguished from “liter ature over view”. The latter may be summary or uncritical presentation, of all that has been done in the field before your investigation. A review, however, has an obligation to be critical, to view again. Here the statement of problem resurfaces in its importance. The literature to be review may be evaluated in terms of the specific problems already identified. The review may be organized either thematically or chronologically, or in a style that combines both. The thematic approach groups key phenomena together and attempts to link them in a logical manner that can withstand epistemological scrutiny. One major advantage of this is that the literature review then constitutes a review of part works as they relate to our objectives of study! The thematic approach used in this way is therefore effective and promotes the internal cohesion and consistency of your work. The chronological method on the other hand, has to do with building up the review of literature in terms of the **historical development** of an idea or a theme.

In a review of the literature, you do not merely summarize the research findings that other have reported but you must ensure that you evaluate and comment on each study's worth and validity. If you discover that some published research is not valid or runs counter to your hypothesis, you may critique it in your review and not just ignore it, but took a way your research will overcome the flaws and even better. Studies that are most relevant and most important should be chosen with proper consideration, given to your research question. Therefore, the review should be concluded with a statement of your hypothesis, or focused research question. It is only when this is accomplished that you can now proceed to part three (chapter three) of your research, in which you explain the methods you will use in achieving your desired goals and objective of the study.

Functions of literature Review

- ❖ It helps to introduce the researcher to varieties of works done in the area of study and the current state of knowledge that are very relevant or jamaine to the study.
- ❖ It facilitates identification of problems, refinement of ideas, specification of research procedure, clarity of measurement and understanding of results.
- ❖ It reveals to consume or beneficiary of research new, important, believable and useful findings or information on their discipline.
- ❖ It promotes justification and motivation of additional information/investigation or replication of a research.
- ❖ It allows or enable researcher to delve into new area or investigate new research with the knowledge acquired from previous work and structure the review so as to extend knowledge.
- ❖ It enhances theoretical linkage when one is familiar with and builds on the past research work
- ❖ Carefully executed literature review facilitates arriving at a complex analytic understanding of a research area.
- ❖ It gives room accuracy in citation, completeness in references and detailed technical information essential for preparation of academic work.

Useful Information Required in Writing a Literature Review

1) Read generally for an overview of the problem area before defining the topic precisely.
2) Define the limits of the review as too broad a search will overwhelm you with material (information) while a too narrow topic might make you overlook related work or not find enough material.
3) Through indexes and abstracts, locate a reasonable number of sources and begin reading those sources.

4) Establish criteria for selecting materials that will be included in the review
5) Continue searching until the resources are saturated and you feel you are an expert on the topic
6) Copy the material to be reviewed and carefully obtain full bibliographic data.
7) Arrange the materials reviewed categorically.
8) Structure the review into three parts: an introductory section, the body of the review and a concluding section.
9) Each paragraph should be organized around a topic.
10) When some authors made the same point, they should be usually grouped together in a single reference.
11) Definitions of all important technical terms should be explicitly provided.
12) Use transitional terms and phrases (e.g. however, indeed, in consequence) within a paragraph to help readers understand the organization of the paragraph.
13) Follow a particular manual style for citing references carefully and consistently.
14) Direct quotations should be used sparingly because they break the flow of the presentation. They should be used only for presenting definitions and presentation of important points made by notable individuals and clarifying differences of opinion in the literature when seeing the differences.

Conceptual and Theoretical Framework

The theory has been defined as an indispensable guide for good research. It is also explained as a set of inter-related abstract propositions about human affairs and the social world that explain their regularities and relationship between things (Brewer 2000, Dens Combe 1998).

The terms ‘conceptual framework’ and ‘theoretical framework’ are often used interchangeably. A conceptual framework can be regarded as the adoption of a set of broad ideas and principles, taken from relevant fields of enquiry and used as a basis for the rational study/explanation of a phenomenon. The conceptual framework could be likened to ‘a road map’ for planning a research study as well as ‘a compass’ for monitoring the direction of the work and conceptualizing the overall goals of the research. When clearly articulated, it assists the researcher in making meaning of subsequent findings (Reichel and Ramey, 1987; Guba and Lincoln, 1989).

A broad conceptual framework serves as a tool for designing studies and analyzing research findings. It also forms part of the agenda for negotiation to be scrutinized and tested reviewed and reformed as a result of the investigation (Guba and Lincoln, 1989). The conceptual framework often becomes the heart of the study as the research gains momentum. It

increasingly scaffolds, strengthens and keeps the research on. It also provides reference points to the literature, and assists and provides a structured approach to communicating research findings.

Since conceptual frameworks are based on assumptions which are themselves, based on ideas. Scholar, therefore, needs to build upon her own experiences and the works of other researchers in the relevant research area by concultivating literature if he/she wants to develop a tangible conceptual framework. It should provide clear links from the literature to the research goals and questions, serve as as basis for formulating the research design, provide reference points for discussion of literature, methodology and analysis of data, and contribute to the trustworthiness of the study (Goetz and Le Compte, 1984).

Theoretical framework, on the other hand, can be described as a collection of interrelated concepts, like a theory but not necessarily so well worked out. It is also referred to as an explanatory device which explains either graphical or in narrative form the main things to be studied – the key factors, constructs or variables - and the presumed relationship among them. It is an efficient mechanism for drawing together and summarizing accumulated facts…which makes the body of accumulated knowledge more accessible and useful both
to practitioners who seek to implement findings and to researchers who seek to extend the knowledge base. A theoretical framework is the use of relevant existing theories as a platform for investigating and /or explaining a phenomenon under study. The theoretical framework of a study is really the researcher's preconceived conceptual perspective. It is 'the lens' through which the researcher views the world. The researcher's disciplinary orientation leads to the topics that will be studied and the questions that will be asked (Merriam, 1998). A theoretical framework guides the whole research, determining what things to be measured, and what statistical relationships to look for.

Theoretical framework and conceptual framework are synonymous terms t a large extent. A conceptual framework can be regarded as a systematic ordering of ideas about the phenomena being investigated, while a theoretical framework could be seen as a systematic account of the relations among a set of variables (Kerlinger, 1979). Both the theoretical framework and conceptual framework are methods of focusing on research design and analysis procedures as well as providing 'structure and meaning to the interpretation of findings' (Warmbrod, 1986).

Chapter 3 Methodology

The design and method section of the research supply the logic, procedures and processes for acquisition of data and processing of information. It is a system of explicit rules and procedures upon which research is based and against claims and knowledge is evaluated. It is an avenue where you explain to your reader how you will (or did) carry out your research. You should describe the subjects, the instruments to be used or used, the condition under which the tests will be (or were) given, how the test will be (were) scored, how the results will be (or was) analysed, it. This section should be very explicit such that others could replicate all the important points of your research. Make sure you are honest and forthright in this section by reporting or acknowledging any problems or challenges with validity so that others can take them into account when they interpret it (and avoid them if they try to replicate it). The methodology entails the following:

Design of study

Study Area
Study population
Sample and sampling Technique
Instrument for data collection
Validity of the instrument
Reliability of the instrument
Administration of the instrument
Scoring of the instrument
Methods of Data Analysis

Study Design:
Refer to the plan, structure, and strategy the researcher wants to adopt in finding answers to research questions and probably test the hypothesis formulated for the study. For examples, survey, experimental, descriptive, observational, quasi-experimental, ex-post-facto, historical, correlational causal-comparative, evaluative and so on.

Study Area:
The researcher might have to describe briefly the area where the study was (is to be) conducted. It might also be necessary to justify the use of the area for the study. The justification should be such that would enhance the validity and reliability of the study. The map of the area could also be provided by the researcher/investigator in the appendix.

Study Population:
A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. The population of study addresses the question: who will be or were the subject of the study that will provide accurate and reliable information for the study? It is very important for the researcher to identify the population of his/her study and state clearly the subjects that he/she collected or will collect data from.

Sample of the Study:
A sample is referred to as the proportion of a population selected for observation and analysis with a view to making inferences about the population. In selecting a sample, the researcher must ensure that she is not biased, so the sample should be large and representative of the population in order to help the researcher make valid generalizations of the finding. The researcher must also clearly state the sampling technique(s) he/she has employed or will be employed.

Methods of Data Collection:
The researcher is expected to specify the method or instrument used or that will be used for data collection. In as much as each and every research requires a research instrument in collecting, recording and measuring data, effort must be geared toward avoiding faulty research instruments for data collection. This is so; because data is required to provide answers to research questions or test hypothesis. It is advisable to describe the instrument(s) one used or will use for data collection and to arrange sections according to research questions.

Validation of Instrument

The instrument designed for data collection should be validated in order to ensure that it measures what it is designed to measure. After the validation of the instrument, it should be pilot-tested on a similar but smaller sample in order to find out how the respondents will react to the instrument. The researcher must report how he/she validated and pilot-tested the instrument.

Reliability of Instrument

The researcher must report in detail how he established the reliability of the instrument. The reliability of an instrument or a test is the degree to which a test or an instrument is consistent in measuring whatever it purports to measure that is; the degree at which the test or the instrument measures the same thing time after time and term after item. The index of reliability is usually expressed as a coefficient reflecting the extent to which a test is free of error variance.

Administration of Instrument

The researcher is expected to describe briefly how the instrument will be administered to the respondents whether personally or by mail. The researcher should state the number of copies distributed or administered and the number returned in the case of the questionnaire. The instrument could also be an interview (face-to-face or telephone), mail, observation or any other research instrument.

Scoring of the Instrument:

The section has to do with how that collected data will be organized such that the frequencies of the responses are worked out and the percentages calculated. The section could be integrated into the next chapter of the research study (method of data analysis). The researcher should indicate the rating where rating scales are used. e.g. Likert scale.

Chapter 4 Data Analysis

The researcher should state or specify the statistical tools she employed or will employ for data analysis. According to Shamoo and Resnic (2003), various analytical procedures "provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data he/she must ensure that appropriate statistical tools are employed in order to get valid results. There are two types of statistics at disposal of the researcher for data analysis – the descriptive statistics and the inferential statistics. If the researcher is concerned with answering research question he/she should use descriptive statistics such as percentages/proportions, mode, mean, median standard deviation and several procedures to graphically illustrate the composition of a group such as charts, bar graphs, histograms and frequency polygons. On the other hand, if the researcher is concerned with testing hypothesis, he/she should use inferential statistics such as chi-square (x^2), analysis of variance (ANOVA), analysis of covariance and t-test. The choice of the type of data collected.

The results of data analysed should be or are presented in tables, figures, graphs, and charts to charity the results of the study. The data should also be presented according to the research questions and hypothesis.

Chapter 5 Discussion of Findings Recommendations and Conclusion

This section of the research project has to do with the discussion the of findings of the study, the recommendations based on the findings, the conclusion drawn from the study, the implications of the study, and suggestions for further research.

Discussion of Findings

This is the section that reveals the product of your research efforts that requires good communication skills. Good communication skills are very important in any research report because excellently executed research may be marred by poor presentation, while a 'well packaged' 'smartly' presented but poorly executed research work may likely escape the hammer much easier than a well-executed research, poorly presented. Therefore the results and discussion of research output should be lucidly presented. The researcher should analytically discuss the major findings of the study in accordance with the research questions and hypothesis. Discussion of findings entails making appropriate or emphasizing some pertinent features and factual information in relation to the study, making appropriate references to the tables and systematically and objectively linking the findings with other findings and theory.

Recommendations

The researcher should endeavor to make recommendations based on the findings of the study. The recommendations should start with an opening statement based on the findings of the study, the following recommendations are made. They should be itemized using they will be beneficial to the individuals, groups or the society at large.

Limitations of the Study:

This has to do with shortcomings observed or associated with the study, which could emanate from the procedure adopted in carrying out the study in terms of method of data collection and analysis, a sample of the study being either non-random or purposive method of data analysis etc. the researcher should therefore state clearly the challenges or problems encountered in the course of carrying out the study and then explain how the problems could be eradicated or reduced to the barest minimal. Lack of funds could also be a challenge.

Suggestions for Further Study/Research

At the tail end of a study, the researcher normally makes some suggestions on how to improve on the study briefly and then concludes.

4.0 Self-Assessment Exercise(s)

1. what importance is a literature review to the research study?
2. Why do we carry out research work?

5.0 Conclusion

A brief overview of the process of making a social inquiry or research was intensively discussed with the major aim of being able to accomplish the stated or outlined objectives and to test the enumerated hypothesis. Efforts should therefore be geared toward ensuring validity and reliability of the research study by following the stipulated conventional methods and standards of social science inquiry.

6.0 Summary

In this unit, methods of social science research were discussed starting from the research design, choosing of research topic, stating of research project layout (the preliminary section) to the main body of the research work (Thesis/project layout) which is usually and mostly in five chapters or six. The chapter one is the introduction, followed by literature review chapter two, comprising conceptual framework and theoretical framework which be could be splited into two at times. Chapter three (research methodology), chapter four (data presentation and discussion of findings, and chapter five (summary, recommendations and conclusion).

7.0 References/Further Readings

American Psychological Association (APA), 2005. publication manual of the American Psychological Association. Washington DC: American Psychological Association.

Henrichsen L.T. Smith and David S. Baller 1997. Training the Research Beast. Research methods in TESL and Language Acquisition.

Kerlinger F.N. (1973). Research Design: Meaning purpose and Principles. In: Foundations of Behavioural Research. London: Hort, Reinhart and Winston, Inc.

Patten, M.L. (2005). Proposing Empirical Research: A guide to the Fundamentals.

Glendale, C.A.: Pyrcjak Publishing.

Best, J.W., and Kahn, J. V. (1993). Research in education (7th ed,). San Francisco: Jossey – Bass Publishers.

Guba. E. G., & Lincoln, Y.S. (1989). Fourth Generation Evaluation. Sage publication.
Marshall, Peter (1997). Research Methods. Plymouth: how to books.

Camp, W. G. (2001). Formulating and Evaluating Theoretical frameworks for career and Technical Education Research Journal of vocational education research. 26 (1).

Creswell, J. W. (1994). Research design: qualitative and quantitative approaches. Thousand oaks, CA: Sage Publications.

Brown, Robert (1963). Explanation of Social Science Chicago: Aldine Publishing Company.

Marriam, S. B. (1998). Qualitative research and case study Applications in Education. San Francisco: Jossey – Bass Publishers.

Reichel, M., and Ramey, M.A. (eds). (1987). Conceptual frameworks for Bibliographic education: Theory to Unlimited Inc.

UNIT 5

RESEARCH PROPOSAL AND RESEARCH PROJECT REPORT

1.0 Introduction

In academic parlance all over the world, before a student could be awarded a degree, master or Doctor of Philosophy certificate, he or she is expected to write a project/thesis. Before the commencement of the thesis proper, such a student would be expected to write and submit a project/research proposal to the assumed supervisor or department.

In addition, a research proposal could also be written and submitted by researchers to a finding agency or financial source outside their regular income. In this case, any researcher hoping to get such funding must present a grant proposal on which basis the grant may be awarded. After a researcher completes a project or a significant phase of a large project, he or she is expected to communicate the findings to others through a research report.

2.0 Intended Learning Outcomes (ILOs)

At the end of this unit and relevant readings, students should be able to:

1. Explain what the research proposal is.
2. Enumerate and discuss components of a research proposal.
3. Discuss research project report.

3.0 Main Content

3.1 Research Proposal

A research proposal is an account of what a researcher intends to do and how he intends to do it.
It is a document that presents a plan for a project to reviewers or sponsors for evaluation.

It can be a supervised project submitted to instructors as part of an educational degree (e.g., a degree project/thesis, a master's thesis or PhD dissertation), or it can be a research project proposal to a funding agency. Its purpose is to convince reviewers that the researcher is capable of successfully conducting the proposed research project. Reviewers have more confidence that a planned project will be successfully completed if the proposal is well written and organized, and if the researcher demonstrates careful planning.

A proposal helps the researcher to have a proper perspective on what is involved in executing a particular study. It is possible for the researcher to visualize, ahead of time, the major difficulties, the workability of some techniques, the cost and several other things involved in the study.

1.0 Components of a Research Proposal

A research proposal usually consists of the sections immediately after the title of the project:

1.0 Introduction: It is divided into the following sub-headings

1.1 Background of the Study

1.2 Statement of the Problem

1.3 Purpose of the Study

1.4 Significance of the Study

1.5 Research Question and/or Hypothesis

1.6 Scope of Delimitation

1.7 Assumption (if any)

1.8 Definition of Terms (if any)

2.0 Review of Literature

This entails sitting off the previous works of other scholars or researchers that are related, relevant, or similar, or that are germane to the subject matter.

3.0 Research Methodology

3.1 Research Design

3.2 Area of Study

3.3 Population

3.4 Sample and Sampling Technique

3.5 Instrument for Data Collection

3.6 Validation of Instrument

3.7 Reliability of Instrument

3.8 Method of Data Collection

3.9 Proposed Method of Data Analysis

3.10 Detailed Budget (if the proposal is to be submitted for a grant)

3.11 Bibliography/References

It should always be remembered that in writing a proposal, it is important) that you communicate the methods and findings of a research project to others.

In writing a proposal, it is important to remember that since the actual work is yet to be executed, the tense should be futuristic.

3.2 RESEARCH PROJECT REPORT

The research project report is usually presented following a particular format. The format varies from place to place and from discipline to discipline. The format presented in this chapter is the one considered to be widely used in this discipline. Essentially, a research project report comprises three major sections as follows:

(a) The Preliminaries (b) The Main Body (c) The Appendix

1.1 The Preliminaries

This is made up of:

The Title Page
Approval Page
Acknowledgement

Table of Contents
List of Tables
List of Figures
The Abstract

The Title Page - carries information on the project, the programme,(degree, diploma or certificate) for which the project is being undertaken, the department and the university/institution to which the report is being presented, the particulars of the student submitting the project, the month and year the project is submitted.

The Approval Page - makes provision for the signatures of the supervisor, the internal examiner, the external examiner, the head of the department and dean of the faculty.

The Acknowledgement - is used to express gratitude and indebtedness to individuals, institutions or organisations that provided one form of assistance or the other during the execution of the work.

In **The Table of Contents,** the various elements, chapters or parts of the report and the pages where they appear are listed. Only the first pages are indicated.

The List of Tables and Figures - follows after the table of contents.

The Abstract is a very short account of the work. This short account gives an idea of the purpose of the work, a brief description of the methodology and the major findings of the study.

1.2. The Main Body of the Report

This section embodies the major report of the project. The materials of this section are usually arranged in five chapters as follows:

Chapter 1: Introduction

This chapter is arranged under sub-sections as given below.

1.1 Background to the problem: Under this subsection, the researcher traces the conditions and factors necessitating the study. Here, the researcher presents all materials which will help his reader understand the development of the problem under investigation. The essence is to provide the necessary background information that will show the reader the conditions, circumstances and factors that have given rise to the problem under investigation.

1.2 Statement of the problem: Having traced the development of the problem in the proceeding subsection, the problem is now formulated and defined in concise and precise terms. The statement of the problem can be stated in either a declarative

or an interrogative form. In whichever form the problem is stated the important thing is that it should be short (not exceeding half a quarto-sized page) and unambiguous.

1.3 Purpose of the study: This refers to what will be accomplished in the study. It represents a statement of the objectives of the study. This can be written as a general statement of what the researcher intends to accomplish which is then broken down into specific statements of objectives. In doing this it is important to strike a balance, between specificity and generality. In other words, the objectives should not be too specific to result in a long and unmanageable list of specific objectives nor too general as not to sufficiently guide action. The effort is always made to avoid preambles or any materials that do not directly relate to the purpose of the study. Such materials are unnecessary and could bore the reader of the report.

1.4 Significance of the study: This can also be called the rationale or the importance of the study. It has to do with the major contributions the researcher hopes the work will make either to the theory or the practice of his field. This subsection is concerned with the usefulness of the findings of the study to mankind either in a theoretical or practical field. This provides the justification or rationale for undertaking the investigation. Indeed, this is a very important subsection of any project report since it tries to establish whether or not the work is of some value.

1.5 Research questions and/or hypotheses: Research questions refer to the major questions to which the researcher seeks to provide answers in the course of the investigation, while hypotheses refer to intelligent guesses or hunches that the researcher formulates to guide his search for the solution to the problem.

1.6 Scope (or delimitation): Scope (or delimitation) deals with the extent of the problem the researcher is able to tackle in the present study having regard to his competence, interest, available time and resources. It involves delineating properly the boundaries of the study what will be covered and what will not be covered in the study in question. It is a way of trying to bring the problem into proper and sharp focus. In a sense, the researcher is trying to "cut the much he can chew" out of the problem. The rule, of course, is biting neither too much nor too little. If the scope is narrowly defined, it may result in a trivial study while, if it is too broad, it may result in an unmanageable study.

1.7 Assumptions (if any): These are those conditions that must be met or satisfied for the results of the study to be valid. Usually, these are not subjected to an empirical test but must be plausible enough to be considered tenable. One should not posit conditions that are hardly tenable as assumptions in any study. Assumptions need not be made in all studies. There are some studies which may not necessarily require assumptions. For such studies, this subsection becomes unnecessary.

1.8 Definition of terms: In this subsection, terms or concepts whose meanings are not obvious in the context of the study are defined or explained. These include terms or concepts whose meanings are not ordinarily known or which have been used in a specialised sense in the study (i.e. different from the ordinary sense). The definitions given to such terms are usually operational and not the dictionary definitions. Operational definitions refer to the specialized sense in which those terms were used in the study that is different from their usual meanings. Where no such terms exist, this subsection is usually left out. As a matter of fact, the recent trend is not to make specific provisions for this subsection anywhere in the write-up but to define any terms anywhere they occur first in the body of the report.

Chapter 2: Review of Literature

This chapter embodies the review of all literature pertaining to the research theme usually organized under relevant sub-headings.

Chapter 3: Research Methodology

This chapter comprises the following sub-sections:

3.1 Design: This relates to the general approach adopted in executing the study. What is required here is for the researcher to specify the type of design followed in the study.

3.2 Area of study: The area of the study refers to the geographical location covered by the study which is usually stated in terms of the country, state, education, political or administrative zone, local government area, etc as the case may be.

3.3 Population: Here, the researcher specifies the aggregate of items or persons from whom data pertinent to the study were collected.

3.4 Sample and sampling procedure: The sample (i.e. that portion of the population from which data were actually collected) is defined here as well as how it was obtained including the sampling technique used.

3.5 Instrument for data collection: This involves a description of the instrument(s) used in collecting the data. Such a description should include how the instrument was developed and the major features of the instrument.

3.6 Validation of the instrument: This describes the procedures adopted in ensuring that the instrument used has measured what it was designed to measure. It is very important to establish and report one form of validity or the other for the instrument. This enhances the strength of the work.

3.7 Reliability of the instrument: Reliability concerns the consistency with which an instrument measures whatever it measures. The method used in establishing that your instrument possesses this quality of reliability, and the evidence in that respect, should be reported.

3.8 Method of data collection: Here, the researcher reports the steps taken to collect the pertinent data. This entails saying whether the data were collected by the researcher himself or with the help of field assistants or by mail, etc.

3.9 Method of data analysis: In this subsection, the researcher reports the statistical techniques or tools employed in analyzing the data.

Chapter 4: Results

This chapter embodies the results or findings of the study. These are usually presented in tables, figures and charts. The calculations involved in the analyses are not presented here. Only the summaries of such analyses in the form of tables, figures and charts are presented in this chapter. Each table or figure should have a number and title. The number should be in Arabic numeral and not in Roman numeral, for tables, the number and title should appear on the top of the table while for figures, the number and title should appear below the figure.

It is usually advisable to present the results according to the research questions or hypotheses to which they relate.

Chapter 5: Discussion, Conclusion, Implications, Recommendations and Summary

This chapter which is the last chapter comprises:

5.1 Discussion of the findings: Here, the researcher tries to advance possible interpretations and explanations to his findings and tries to relate these to the findings of previous works.

5.2 Conclusion: The major findings that emerged from the study should constitute the conclusion.

5.3 Implications of the findings: These relate to what the findings suggest either in terms of theory or practice. In other words, implications of the findings relate to specific uses (either in the theoretical or the practical sphere) to which the findings can be put.

5.4 Recommendations: These are suggested actions which could be taken in the light of findings to bring about improvements in the system or in the discipline.

5.5 Suggestions for further studies: It is said that solving one problem gives rise to other problems, it is therefore expected that the researcher should state those problems that have arisen out of the one he has investigated for other people to investigate.

5.6 Limitations: These are those short-comings in the design and execution of the project which would affect the generalisability of the findings.

5.7 Summary: Lastly, the researcher provides a summary of the entire work i.e. a brief account of the entire report.

Chapter 6: Bibliography

The bibliography is considered part of the main body of the report. It is a list of the sources which were made use of in preparing the study. The difference between bibliography and a reference is that whereas a bibliography consists of a listing of all sources that proved useful in the execution of the study, a reference is a list of sources that were actually cited in the work. For students' project reports, it is common to use bibliography while for research articles, reference is used. Detailed treatment of how to prepare a bibliography or a reference list has been given in Chapter 3.

11.4 Appendix

This is the last part of a research project report. It consists of all materials that are related to the report and which may be referred to for greater details but which are not suitable for inclusion in the main body of the report. Such materials include the instruments used, calculations, raw data, letters of introduction, etc.

The research report is more than a summary of findings; it is a record of the research process.

A researcher should not wait until the research is done before thinking about the report; s/he thinks ahead of the report and keeps records carefully while conducting the research. Apart from the findings, the report includes the reasons for initiating the project, a description of the projects steps, a presentation of data, a discussion of how the data relate to the research question or topic.

There are almost as many reasons for writing a report as there are for doing research. The basic reason for writing a report is to tell others what you, the researcher, did, and what you discovered. Other reasons for writing a report are to fulfill a class or job assignment, to meet an obligation to an organization that paid for the research, to persuade a professional group about specific aspects of a problem, or to tell the general public about findings.

4.0 Self-Assessment Exercise(s)

1. What is a research proposal?
2. Why do we write a research proposal?
3. What are some advantages of a research report?
4. Why are many qualitative research reports longer than those reporting quantitative research?
5. Explain briefly the various elements in a research proposal.

5.0 Conclusion

This unit reveals that writing a proposal is similar to writing a research report and involves careful planning and investigation before doing research. In the discussion or report of a researcher, a researcher talks about what he sees in the data and gives the reader a concise, unambiguous interpretation of its meaning.

6.0 Summary

In this unit, you learned about the meaning of a research proposal and to write or prepared an academic research proposal. We also learned the challenges of writing a research report and how best a researcher can write a lucid, comprehensive, educative and informative research report through a careful planning and investigation before doing research.

7.0 References/Further Readings

Creswell, J.W. & Tashakkori, A. (2007). Developing Publishable Mixed Methods Manuscripts. Journal of Mixed Methods Research 2(1):107-111

Rabson, C. (2002). Real World Research. Oxford: Blackwell Publishing.

MODULE 2

DATA AND DATA COLLECTION INSTRUMENTS

The sub-topics to discuss in this module are stated below:

Unit 1	**Meaning and Components of Data**
Unit 2	**Questionnaire as a Research Tool**
Unit 3	**Interview as a Research Tool**
Unit 4	**Focus Group Discussion (FGD)**
Unit 5	**Observation and Indirect Research Tools**

UNIT 1

MEANING AND COMPONENTS OF DATA

CONTENTS

1.0 Introduction

Whenever a researcher has been able to identify research problem(s), he or she is then to look for appropriate means/ways of providing answers or solutions to the generated questions or identified problems. In as much as the researcher problem provides a unique challenge to the researcher and different problems often call for carefully selected measurement devices or tools which are used for data collection while conducting research.

Whatever is the case, a researcher must possess considerable knowledge, skills and proper understanding of the instrument to be used such that it should adequately measure the variables, concepts or phenomena being studied. Operationally, measurement should generate the required data for the research effort because data collection is a crucial stage in the

planning and implementation of a study. If the data collection has been biased, superficial or incomplete, data analysis becomes difficult and the research report will be of poor quality.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define and explain various types of data
State characteristics of data
Discuss data collection procedure or plan
Understand bias in data and enumerate how to get good data
List importance of pilot study.

3.0 Main Content

3.1 Meaning/Definition of Data

-Data are the representation of reality that shows the results of measuring properties or processes.
-Data are information in the form of numbers, text, and images used as a basis for making calculations, drawing conclusions or making inferences
-Data systematically collected information about our objects or subjects of the study (people, object, event phenomena) and about the settings in which they occur.
-Data refers to facts, ideals or knowledge that are useful in answering research problem(s).

There are two main sources of data namely: primary source and secondary source

-Primary Source of Data: Are those information, facts and figures relation to the population (subject or Object event) under study or being investigated. For example, census figures or data collected during population census/head count.

Advantages of Primary data

The exact information needed is obtained
Terms are carefully defined as far as humanly possible by the researcher
Misunderstanding is usually avoided.

-The secondary source of data: There are information, facts and figures generated from a third party that has already been formally documented. That is, the researcher is not directly or physically involved as at the time the information or data was been originally collected. For example, data collected from Archives, Government Agencies, Non-Governmental Agencies etc. by a researcher.

The disadvantage of secondary date

Such data must be used with caution because it may not give the exact type of information required or need or the data might have become obsolete.

3.2 Types of Data

The following are the four types of data identified in Steven's scales of measurement.

Nominal Data

Nominal means "name-bearing". The nominal scale places things into named categories. These things are assigned to groups according to their common or

shared elements. For example, women who are different in many ways could be assigned to the same category based on their shared gender. Note: the different categories are not ordered in any "more or less" sense. They are just different from each other.

Ordinal Data

The ordinal scale places things in order. Ordinal data show a particular item's position relative to other items, such as "First, second, third etc." The ordinal scale doesn't specify the distance between each item. It just puts them in order. For example, in a playground foot race where no one has a watch, the participants will know their actual times. They will know who came first, second, or third.

Interval data

The interval scale uses equal-sized units of measurement (points, minutes, etc) and therefore, shows the distances, or intervals, between subjects' performances. In the foot rate for example, if the runner the first runner crossed the finish line, they might discover that the second-place finisher was only two counts behind the winner while the third-place finisher was ten counts behind. Interval data show this difference in distance. Ordinal data would not. It is important to remember that with interval (as opposed to ratio) data, the intervals start from an arbitrary point, not absolute zero. Therefore, a student who scores a 60 on a grammar test could not be said to know thrice as much grammar as a student who scored 30. Also, the person who scored a 0 on this test would be said to know no grammar at all.

Ratio Data

The ratio scale is like the interval scale. It employs equal intervals. However, the ratio scale begins at a true zero point. That point represents an absolute lack of quality begin measured. Because of this characteristic, additional mathematical functions are possible with ratio data that are not possible with other types of data.

Data Collection Techniques:

These are designed procedures to systematically collect information about our objects of study (people, objects, phenomena) and about the settings in which they occur. The two (2) basic methods for data collection are:

A controlled experiment (Experimental studies); and

A survey (Observational studies)

3.3 Characteristics of Good Data Collection

Attributability: We should be able to trace good data to their source, e.g. by study number, sample number and parameter. Unique identification of data pertaining to an individual study helps to prevent data mix-up.

Originality: Data should not be recorded on a scrap of paper for transcription into a final form because raw data constitute the first recording of the observation.

Promptness: data should be recorded or documented immediately after the operation is completed because of the fait that memory may fail or become inaccurate, which may lead to data loss or faulty records. Recording after work/job should not be acceptable.

Accuracy: The researcher should ensure that the raw data have to be a true or correct representation of the (subjects, object or phenomena) observed and accuracy is totally or absolutely central to the integrity of the study.

Legibility: Collected and collated data must be clear such that it can be read easily because data/records that are difficult to decipher may raise doubts.

Indelibility: In order to guide against or prevent deliberate alteration or tampering with data, waterproof and indelible ink should be used. If any changes to raw data become inevitable, persons responsible for the change should sign and date the change.

Storability: In as much as the collected data represent the value (in time, resources and economic potential) of the research carried out, the collation, administration and physical placement of the storage facility. Access to the storage should be limited to authorized personnel and the facility must protect records from physical damage, interference and loss.

3.4 Data Collection Procedure or Plan

A well-planned data collection procedure is required by any researcher immediately after he/she has identified the research problem so that:

One will have a clear overview of what tasks have to be carried out, who should execute them, and the line lane (duration) of the tasks;
Researchers should be able to organize both human and material resources for data collection in the most efficient way; and
He or she can minimize errors and delays which may result from the lack of planning (for example, the population not being available or data forms being misplaced).

Stages of Data Collection Process

The three main stages in the data collection process are:

Permission to proceed
Data collection

Data handling

Stage1. Permission to proceed

Consent must be obtained from the relevant authorities, individuals and the community in which the project is to be carried out. In the case of a student, he or she must get the letter of introduction from the departmental head to the place research is to be conducted. It should also be known that on no condition should a student go to the field without proper scrutiny and approval of the research instrument9s) by the assigned supervisor.

Stage2. Data Collection

In the course of collecting our data, we have to consider: Logistics and quality control when allocating tasks for data collection, it is recommended that you list them first. Then you may identify who could best implement each of the tasks.

Who will collect what data?
How long will it take to collect the data for each component of the study?
In what sequence should data be collected?
When should the data be collected?

Stage 3. Data Handling

Data collected from the field should be carefully handled and checked for completeness and accuracy. A clear procedure should be developed for handling and storing them. One of the major methods of data handling is archiving which involves data collectors/researcher keeping perhaps on CD, all the non-ephemeral material relating to their efforts to acquire information. Obvious components of such a record include:

Data collection instrument
Raw data
Metadata recording the what, where when and other identifiers of all variables
Variable names and their interpretations, and lables corresponding to values of categorical variables
Query programs used to extract analysis files from the database
Log files defining the analysis and reports.

3.5 Bias in Data/Information Collection

Bias in information collection or data gathering is referred to as a distortion in the collected data such that it does not represent reality. Possible sources of bias during data collection include:

Detective Instruments, such as:
Questionnaires with:

Fixed or closed questions on topics about which little is known (often asking the wrong things')
Open-ended questions without guidelines on how to ask (or to answer) them
Vaguely phrased questions
Leading questions' that cause the respondent to believe one answer would be preferred over another; or
Questions placed in a piece of illogical equipment that are not standardized

These sources of bias can be prevented by carefully planning the data collection process and by pre-testing the data collection tools.

Observer Bias
Observer bias can easily occur when conducting observations or utilizing loosely structured group or individual interviews. There is the tendency or a risk that the data collector will only see or hear things in which she/he is interested or will miss information that is critical to the research.

Observation protocols and guidelines for conducting loosely structured interviews should be prepared, and training and practice should be provided to data collectors in using both these tools. Moreover, it is highly recommended that data collectors work in pairs when using flexible research techniques and discuss and interpret the data immediately after collecting it. Another possibility – commonly used by anthropologists – is using a tape recorder and transcribing the tape word by word.

Effect of the interview on the Informant

This factor can arise in all interview situations. The informant might not believe the intention of the interview and avoid or dodge certain questions or give misleading answers. For example: in a survey on the influence of parents on behaviour children's character or personality formation, you ask secondary school students: Does your father sometimes beat your mother? Many will probably deny that he does, even it is true.

Such bias can be reduced by adequately introducing the purpose of the study to informants by phrasing questions on sensitive issues in a positive way, taking sufficient time for the interview and by assuring informants that the data collected will be confidential.

Information Bias

Respondents or informants might fail to give their correct home address or contact address if the formation has to do with terminal and infectious diseases like HIV/AIDS. Information bias could be due to gaps in people's memory; this is called memory or recall bias. Being aware of the potential biases to a certain extent, can reduce or prevent them and then reduced to likely threats it can battle the validity and reliability of your study.

3.6 How to get Good or High-Quality Data

Prepare a fieldwork manual for the research team showing a comprehensive guideline on sampling procedures, purpose of study, procedures of study code process/method of collecting data and to record data.

Ensure that you select your research assistants with care such that they will come from the same educational background, are knowledgeable about the topic, are familiar with the local conditions and be based.

Large out the pre-test research instruments and research procedure with all the research team and assistants

Research assistants should be properly catered for and not be subjected to undue stress.

Supervisor should be appointed to oversee the activities of the research assistants with a well-stated guideline for supervisory tasks.

Methods should be devised to assure the quality of data collected by all members of the research team.

3.7 Use of Pilot Study

This is a major approach to ensure quality in research. A pre-test or pilot study referred to a small-scale trial of particular research components. It is the process of carrying out a preliminary study, going through the entire research procedure with a small sample.

Why do we carry out a pre-test or pilot study?

A pilot study or pre-test serves as a trial run that allows us to identify potential problems that may arise or a researcher can encounter in the proposed study. The pre-test and (or pilot study enables us, if necessary, to revise the methods and logistics of data collection before embarking on the actual fieldwork. In consequence, a good deal of time, effort and money can be saved at the end. Also, pre-test is simpler and less time-consuming and costly than conducting an entire pilot study.

Areas of Research Methodology that can be Evaluated during Pre-testing.

Reactions of the respondents to the research procedures can be observed in the pre-test to determine availability of study population, acceptability of the methods used to get in touch with the study population, acceptability of the questions asked by the subjects/respondents and their willingness to answer the questions and collaborate with the study

The data-collection tools can be pre-tested to determine the ability of the tools to collect required information, and their reliability.

Sampling procedures can be checked to determine whether guideline for sample selection is obeyed and to ascertain how much time is needed.

Staffing and activities of the research team can be checked to determine:

The success of the training organized for research team.
The outputting of each member of the staff
Level of the research teamwork
adequacy of the logistic support provided
reliability of the result when instruments are used
whether staff supervision is adequate

Procedures for data processing and analysis can be evaluated during the pre-test. Items that can be assessed include:

appropriateness of data master sheets and dummy tables and the ease of use
effectiveness of statistical procedures (if used); and
clarity and ease with which the collected data can be interpreted.

The proposed work plan and budget for research activities can be assessed during the pre-test. Issues that can be evaluated include:

Appropriateness of the amount of time allowed for the different activities of planning, implementation, supervision, coordination and administration
Accuracy of the scheduling of the various activities.

When Pre-test is Appropriate

Pre-test can be carried out under these conditions tools, either during the workshop, or, it that is impossible, immediately thereafter in the actual field situation.

Pre-testing the data collection and data analysis process 1-2 weeks before starting the fieldwork with the whole research team (including research assistants, if required) so that you have time to make revisions.

Survey: An survey is a research process in which new information is collected from a sample drawn from a population, with the purpose of making inferences about the population in an objective way as possible.

It also refers to one, or some combination of two procedure(s) used in the collection of data. Various survey techniques include; questionnaire, interview, observation, focus group discussion, using available information, projective techniques etc.

4.0 Self-Assessment Exercise(s)

1. What is a data? List and explain briefly different types of data?
2. Enumerate qualities of a good data.
3. What do you understand by the concept bias in data collection?
4. What importance is the use of pilot study in a research study?

5.0 Conclusion

Data are usually collected from the field and organized before they are prepared for analysis. Researcher usually organize data into charts or table or summarise them with statistical measure and then use statistical analysis to it test hypothesis and answer research questions.

6.0 Summary

In this unit, you learned about the meaning of data, types of data and various characteristics of a good data collection. You also learned about data collection procedure and bias in data collection. How to get good or high-quality data was discussed while importance of the use of pilot study in a research study was also explained in the unit.

7.0 References/Further Readings

Akuzuilo E. O. (1993): Research Methodology and statistics for beginning research students. Akwa: Nuel centi (Nig) Publisher.

Lumley J.S.P. and W. Benjamin (1993): Research: some ground Rules. Oxford New York Tokyo, Oxford University Press

National Academy of Science (1995): On being A Scientist: Responsible conduct in Research. National Academy Press.

Statistical services centre, the University of reading, UK (2000): Guidelines for Planning effective Surveys.

UNIT 2

QUESTIONNAIRE AS RESEARCH TOOL

CONTENTS

1.0 Introduction

Questionnaire is one of the major types of survey method of data collection in which the researcher gathers introduction about identified problem(s), issue, or phenomenon by asking specific groups of people (sample population) carefully drafted questions. When a researcher has completed the arrangements for sample selection; he or she then immediately designs the procedure for collecting information (gathering data) from the subjects or respondents. Thus, a questionnaire like other survey methods relies heavily on the responses (to questions) obtained from subjects contacted in the field.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

- Define questionnaire.
- State merits and demerits of types of questionnaire.
- Draw questionnaire research flow chart.
- Enumerate qualities of a good questionnaire.
- List advantages and disadvantages of questionnaire.

3.0 Main Content

3.1 Definition/Meaning of Questionnaire

A questionnaire is a survey method of data collection in which information is obtained in research through the written responses of subjects to pre-arranged questions.

It is a form of or represents a form of carefully selected ordered questions and statements presented to elicit the data required to test the hypothesis relevant to providing answers to the questions raised in the research problem.

A questionnaire is a form designed for the collection of data from individuals who serve as respondents in a research effort.

A questionnaire is a printed document that contains instructions, questions and statements that are complied with to obtain answers (information) from the respondents.

In a questionnaire, each question item is included to serve a specific purpose, standardization of observation and responses are ensured. Questionnaires may be presented to respondents in two ways. They may be mailed or posted such that the researcher is quite detached from the filling of the form and this is referred to as (a mailed questionnaire). On the other hand, a questionnaire may be administered directly by the researcher or field research assistant trained and appointed to assist in gathering information (i.e. to collect data). Under this condition, there is face-to-face contact, with the respondent.

A Questionnaire often contains questions or items i.e., statements on a research problem which requires that the individuals indicate their opinions, attitudes and feelings about an issue. The item(s) may be one or more. There may also be 40 or more items depending on the purpose and nature of the study. There are two (2) major types of questionnaires. These are closed (fixed response and open-end questionnaires.

3.1.1 Types of Questionnaire

Close (fixed-Response) Questionnaire

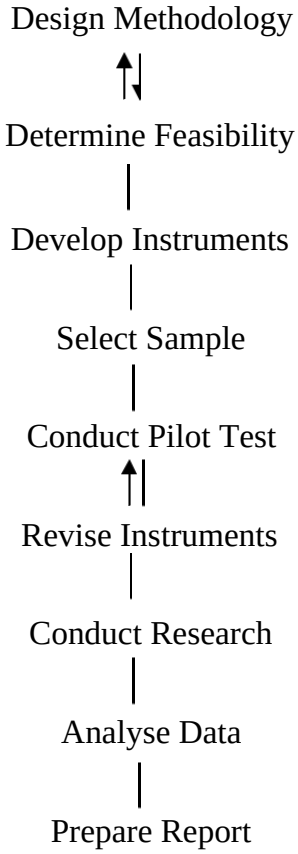
In this type of questionnaire, the respondent is provided with some options from which he/she is expected to select the one that represents his or her opinions, feelings, attitude or tracts. A good example is a questionnaire item asking for the respondent's sex and offering the male and female options. The respondent has to pick one of the two options.

Open-End Questionnaire

This type of questionnaire contains items or questions in which the respondent is free to present his/her responses in whichever way she/he wants. She/he is not restricted to any pre-determined response by the researcher. This type of questionnaire permits the respondent to provide enough information. It is however not easy to analyse and synthesize the collected data

3.3 Questionnaire Research Flow Chart

The questionnaire research design proceeds in an orderly and specific manner. Each item in the flow chart depends upon the successful completion of all the previous items. Therefore, it is important not to skip a single step. It should be noticed that are two feedback loops in the flow chart to allow revisions to the methodology and instruments.



3.2 Merits and Demerits of types of Questionnaires

Merits of Close (Fixed Response) Questionnaire

It is easier and quicker for respondents to answer
The Answers of different respondents are easier to compare
Answers are easier to code and statistically analyse respondents
The respondents are more likely to answer about sensitive topics
Less articulate or less literate respondents are not at a disadvantage
Replication is easier.

Demerits of Close Questionnaire

They can suggest ideas that the respondent would not otherwise have.
Respondents without knowledge or opinion can answer anyway
Respondents may be frustrated because their designed answer is not among the options provided or is not a choice
It may be confusing of many response choices are offered.
Misinterpretation of a question can go unnoticed

Distinction between respondents' answers may be blurred
Clerical mistakes or marking the wrong responses is possible
They may force respondents to give simplistic responses to complex issues.
They force people to make choice they would not make in the real world.

Merits of Open-End Questionnaire

An unlimited number of possible answers are permitted
Respondents can answer in detail and can qualify and clarify responses
Unanticipated findings can be discovered
They permit adequate answers to complex issues
They permit creativity, self-expression, and richness of detail
They reveal a respondent's logic, thinking process and frame of reference.

Demerits of Open-End Questionnaire

Different respondents give different degrees of detail in their answers.
Responses may be irrelevant or buried in useless detail.
Comparisons and statistical analysis become very difficult.
Coding of responses is difficult
Articulate and highly literate respondents have an advantage.
Questions may be two general for respondents who lose direction
Questions may be two general for respondents who lose direction.
Responses are written verbatim, which difficult for interviewers
A greater amount of respondents time; thought and efforts can be intimidated by questions
Answer takes up a lot of space in the questionnaire.

3.4 Qualities of a Good Question

As we have good questions so also we have bad questions that can prevent a researcher from accomplishing the goals and objectives of a research question(s). the qualities of a good question are as follows:

Evoke the Truth
Questions must be non-threatening. When a respondent is concerned about the consequences of answering a question in a particular manner, there is a good possibility that the answer will not be truthful. An anonymous questionnaires that contains no identifying information is more likely to contain sensitive items, be sure to clearly state your policy on confidentiality.

Ask for an Answer on only one Dimension
A survey's major purpose is to find out information. Therefore, a question that asks for a response on more than one dimension will not provide the information you are seeking. For example, a researcher investigating a new food snack asks "Do you like the texture and flavour of the snack?" if respondentnt answers "No", then the researcher will not know if the respondent dislikes the texture or the flavour, or both. Another questionnaire asks, "Were you satisfied with the quality of our food and service?" Again, if the respondent answers "No" there is no way to know whether

the quality if the food, service, or both were unsatisfactory. A good question asks for only one "bit" of information.

Can Accommodate all Possible Answers
Multiple choice items are the most popular type of survey questions because they are generally the easiest for a respondent to answer and the easiest to analyse. Asking a question that does not accommodate all possible response can confuse and frustrate the respondent

For example, consider the question:
What brand of computer do you own?

IBM Pc
Apple

Clearly, there are many problems with this question.
What of the respondent doesn't own a microcomputer?
What if he owns a different brand of computer? What
if he owns both IBM PC and an Apple?

There are two ways t correct this kind of problem.
The first way is to make each response a separate dichotomous item on the questionnaire.
For example: do you own an IBM PC? (Circle: yes or no) Do you own an Apple computer? (Circle: Yes or No)

Another way to correct the problem is to add the necessary response categories and allow multiple responses.

This is the preferable method because it provides more information than the previous method.

What brand of computer do you own? (Check all that apply)
Do not own a computer
IBM PC
Apple
other

Has Mutually Exclusion Options
good question leaves no ambiguity in the mind of the respondent. There should be only one correct or appropriate choice for the respondent to make.

An atypical example is:
Where did you grow up?

Country
Farm
City

A respondent who grew up on a farm in the country would not know whether to select choice A or B. This question would not provide meaningful information. Worse than that, it could frustrate the respondent and the questionnaire might find its way to the trash.

Produce Variability of Responses

When a question produces no variability in responses, we are left with considerable uncertainty about why we asked the question and what we learned from the information. If a question does not produce variability in responses it will not be possible to perform any statistical analysis on the item. For example

What do you think about this report?
- It's the worst report I've read
- It's somewhere between the worse and best
- It's the best report I've read.

Since almost all responses would be choice B, very little information is learned.

Design your questions so they are sensitive to differences between respondents. As another example:

Are you against drug abuse? (Circle: "Yes" or "No"). Again, there would be very little variability in responses and we would be left wondering why we asked the question in the first place.

Follows comfortably from the previous questions

Writing a questionnaire is similar to writing anything else. The transition between questions should be smooth. Grouping questions that are similar will make the questionnaire easier to complete and the respondent will feel more comfortable. Questionnaires that jump from one unrelated topic to another feel disjointed and are not likely to produce high response rates.

Does not presuppose a certain state of Affairs

Among the most subtle mistake in questionnaire design are questions that make an unwarranted an assumption. An example of this type of mistake is:

Are you satisfied with your current auto insurance? (Yes or No)
This question will present a problem for someone who does not currently have auto insurance. Write your questions so they apply to everyone. This often means simply adding an additional response category.

Are you satisfied with your current auto insurance?
- Yes
- No
- Don't have auto insurance

Does not simply a desired Answer

The wording of a question is extremely important. We are striving for object in our survey and therefore, must be careful not to lead the respondent into giving the answer we would like to receive. Lending questions are usually easily spotted because they use negative phraseology. For examples:
Would you like to receive our free brochure?
Don't you think the nation Assembly is spending too much money?

Does not use Emotionally loaded or Vaguely defined words

Both beginners' ad experienced researcher usually overlook this area. Quantifying objectives (e.g., most, least, majority) are frequently used in questions. We should bear it in mind or understand that these adjectives may connote different meanings (things) to different people.

Does not use Unfamiliar Words or Abbreviations

You have to take into cognizance who your audience (respondents) are and therefore avoid using uncommon words or compound sentences. Write short sentences and only use abbreviations if you are absolutely sure that every single respondent will understand their full meanings. Use of abbreviation might be okay if all the respondents belong to the same field. For example: what was your AGI last you? The question might be appropriate if all the respondents are accountant

Is not dependent on Response to previous Questions Branching in the written questionnaires should be avoided, but can be used as an effective probing technique in telephone and face-to-face interviews. It should not be used in the questionnaire because it sometimes confuses respondents. An example of branching is:

Do you currently have a life insurance policy? (Yes or No) if no, go to question 3.

How much is your annual life insurance premium?-These questions could easily be rewritten as one question that applies to everyone:
How much is your annual life insurance premium?

Do not ask the respondent to order or rank a series of more than five items. Questions asking respondents to rank items by importance should be avoided. This becomes increasingly difficult as the number of items increases; and the answers become less reliable. This becomes especially problematic when asking respondents to assign a percentage to a series of items. In order to successfully complete this task, the respondent must mentally continue to re-adjust his answers until they total one hundred. Limiting the number of items to five will make it easier for the respondent to answer.

Advantages of Questionnaire

The responses are gathered in a standardized way, so questionnaire are more objective, certainly more so than interview.

Generally, it is relatively quick to collect information using a questionnaire. However, in some situations, they can take a long time not only to design but also to apply and analyse.

Potentially information can be collected from a large portion of a group, but the so-called potential is not often realized, as the returns from questionnaires are usually low when compared with the number distributed or administered.

Questionnaires responses are expected to remain anonymous and confidential hence they can be used to investigate some personal or sensitive topics.

Disadvantages of Questionnaires

Participants or respondents may forget important issues because questionnaires like many evaluation methods occur or take place after the event.

Questionnaires are standardized so it is not possible to explain any points in the questionnaire that respondents might misinterpret

Open-ended questions can generate a large amount of data that can take a long time to process and analyse. This can be limited by limiting the space available to the respondents so that their responses are concise.

Respondent may answer superficially especially if the questionnaire takes a long time to complete. Asking to many questions should therefore be avoided.

Subjects may not be willing to answer the questions. They might not wish to reveal the information or might think that they will not benefit from responding.

4.0 Self-Assessment Exercise (s)

1. What is the difference between structured and unstructured questionnaires?
2. State one condition under which you would prefer to use each format.
3. Explain the steps you would take the ensure the construction of a good questionnaire.
4. State the advantages and limitations of administering the questionnaire by mail.
5. What steps would you take to ensure a good percentage return of your questionnaire administered?

5.0 Conclusion

Although, questionnaires come in many difference forms from factual to opinion based, from tick boxes to free test responses. To get reliable and valid responses, in cost effective way, it

is imperative to be clear about the aim if the questionnaire and how the responses will help you improve and contribute to knowledge (academic) for the betterment of our society.

6.0 Summary

In this unit, questionnaire was defined, various types of questionnaires explained and merits and demerit of each and every one of them stated. The diagram of questionnaire research flow chart was displayed, while qualities of a good question were elaborately explained and advantage and disadvantages of questionnaires were also well stated for our consumption.

7.0 References/Further Reading

Lumley, J. S.P and W. Benjamin (19894): Research: some ground Rules, Oxford New York Tokyo, Oxford University Press.

National Academy of Science (1995): On Being A Scientist: Responsible conduct in Research National Academy Press.

Nworgu, B.G. (1991): Educational Research: Basic Issues and methodology, Ibadan: Wisdom Publishers Limited, P. 81-111.

Statistical Services Centre, the University of Reading, UK (2000): Guidelines for Planning Effective Surveys

Wiersma, W. (1994): Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305.

Moser, C.A. and Kalton, G. (1979): Survey Methods in social Investigation. Gower Publishing company, Aldershot, England.

Gilbert, N. (1993): Researching social life. Sage publications, London.

Openheim, A. N (1992) Questionnaire Design Interviewing and Attitude Measurement Pinter, London.

Wilson, N and McClean, S. (1994) Questionnaire Design: A Practical Introduction. University of Ulster.

UNIT 3 INTERVIEWS AS RESEARCH TOOL

CONTENTS

1.0 Introduction

An interview is one of the research instruments (i.e. most widely used method) for gathering information (data) in social sciences. It is one of the two major types of survey methods which make use of a schedule known as the interview schedule. The schedule refers to a set of questions which are asked and filled in by the researcher or an interviewer in a face-to-face situation with another person (subject, respondent or interviewee).

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings you should be able to:

Define interview survey technique
Classify and explain classes of interview
Enumerate and explain types of interview methods
State measures promoting good quality of data
Discuss guidelines for effective use of data.

3.0 Main Content

3.1 Definition/Meaning of Interview

An interview is a data collection technique that involves oral questioning of respondents, either individually or as a group.
This is a face-to-face interaction in which one person – the interviewer asks another person

The interviewee questions are germane to a study and for which oral responses are anticipated and provided.

Interview is a data collection method, that uses personal contact and interaction between an interviewer and an interviewee (respondent) such personal contact takes place either in a face-to-face situation or via telephone.
The interview is a face-to-face interpersonal role situation in which one person, the interviewer asks a person being interviewed, the respondent interviewee questions designed to obtain answers or extract information pertinent to the research problem.

The interview technique enables the researcher to collect first-hand information about the interview's knowledge, values attitudes, experiences, beliefs and preferences. Answers to the questions posed during the interview can be recorded by writing them down (either during the interview or immediately after the interview) or tape-recording the responses, or by making use of both. The interview schedules should be designed in dine with or on the basis of the objectives of the study.

The interview could take the form of non-directive and focused interview methods. In non-directive interviews the respondent is allowed to talk freely and comprehensively on a particular issue or topic, with the interviewer listening attentively and interjecting with occasional pleasantries, encouraging words and cogent questions that can bring out the required answers to fill in the gaps and bring the interview to a logical conclusion. On the other hand, the focused interview entails the respondent is asked to focus his attention on a particular event or experience. The interviewer then asks the already prepared appropriate questions. The discussion is usually limited to the pre-determined and relevant issues while the respondent is encouraged to express himself freely.

3.2 Classification of Interview

The interview as a piece of information-seeking tool can be classified into two namely: structure and unstructured interview.

Structured Interview
In a structured interview, both the wording of the questions and the order in which they are asked remain the same in every case. (That is, the structured interview is rigidly standardized and very formal). The same sets of questions are prepared for all the respondents, who are made to choose from a list of alternative responses provided by the interviewer. The structured technique is more scientific than the unstructured interview because the standardized approach gives room for scientific generalizations to be made from the gathered data. The only disadvantage pertinent to approval is its rigid nature may deter a researcher from probing insufficient length and depth.

Unstructured Interview
The respondents in this approach are encouraged to express their feelings or freely, while the interviewer makes occasionally modifications to the questions to suit the respondent or occasion. The beauty or major merit of this technique is that it is possible

to exceed the initial questions as a result of new unanticipated clues unveiled through the discussion. A major setback (demerit) identified with this

method is that it is rarely used for testing hypotheses because the collected data is difficult to quantify.

3.3 Types of Interview

There are many different types of interviews used in getting information which are as follows:

Traditional Face-to-Face Interview

Face-to-face is the most commonly used method of gathering information (data) in research. It takes place between two parties (that is interviewer and interviewee (respondent or subject). The interviewer usually maintains a one-on-one discussion with the interviewee, he maintains eye contact, listens and records or writes) down the answer(s) once a question has been asked. It is used to collect answers, views, opinion, beliefs, thought, ideas, notions, knowledge etc. The major problem of the face-to-face interview is bias. Bias can occur when an interviewer shows approval (or disapproval) of responses. Lack of anonymity could also result in dishonest responses especially if the topic being discussed is of personal or sensitive nature.

The Panel Interview

This is another type of interview method of data gathering in which we have more than one interviewers trying to collect data (information) from an interviewee or a respondent by asking various questions and the interviewee taking his/her time in responding to questions being asked one after the other. The interviewee usually has primary eye contact with the panel member who asked the question. The panel interview method enables the interviewer to study changes in behavours, attitudes and emotion of the interviewee as well as to ascertain the level of intelligence, knowledge, experience and understanding.

Telephone Interview

It is a useful and fast (if not the fastest) method of gathering information (data) from a relatively large sample (respondents or interviewees) who live most especially far away from the researcher or interviewer. The interviewer follows a prepared script that is essentially the same as a written questionnaire. However, the telephone survey is less expensive, time effective and allows the opportunity for some opinion probing. It also has certain limitations especially when the interviewer is unknown to the respondent, she/he is limited by possible non-response, uncooperativeness and reluctance to answer posed question(s).

In-Depth Interview

It is also referred to as intensive interview, unstructured, conversational interviews, ethnographic interview and focused interview. It is quite different from face-to-face interview conducted in a survey. The main aim of this interview is to obtain detailed information that might not be possible in other types of interview. It delves into the reasons behind the answers, opinions, views, or emotions given into a survey. It is most useful in field research.

Case Interview

This is a form of interview method, in which a researcher or interviewer may ask or expect the interviewee to demonstrate his/her problem-solving skills. The interviewer outlines a situation or provides a case study and asks the respondent to formulate a plan that can be used to deal with or solve the problem. Although, the subject might not be expected to display how she/he can real-life situation. A lucid and loud response would enable the interviewer to have a full understanding of the interviewee's thought process.

Before allowing an interviewee to provide answers or possible solutions to a case interview question, she/he should be allowed to ask questions for charity and informational purposes in order to be able to analyse and dissect the case study. This is the only interview for which it is acceptable, even encouraged, to bring a pad of paper and pencil/pen. Most interviewers will allow their respondents to take notes and jot down thoughts as they work through the case.

3.4 Measures that Promote Good Quality of Data

Prepare a fieldwork manual for the research team as a whole, including:

guidelines on sampling procedures and what to do if respondents are not available or refuse to co-operate.

A clear explanation of the purpose and procedures of the study should be used to introduce each interview, and

Instruction sheets on how to ask certain questions and how to record the answer.

Select your research assistants, it is required with care. Choose assistants that are:

from the same educational level

knowledgeable about the topic and local conditions

not the object of study themselves; and

not biased concerning the topic (for example health staff are usually not the best possible interviewers for a study on alternative health practices).

Train Research Assistants carefully in all topics covered in the fieldwork manual as well as in interview techniques and make sure that all members of the research team master interview techniques such as:

asking questions in a neutral manner

not showing by words or expression what answers one expects

not showing agreement, disagreement or surprise; and

recording the answers precisely as they are provided, without setting or interpreting them.

Pre-test research instruments and research procedures with the whole research team, including research assistants.

Take care that research assistants are not placed under too much stress (requiring too many interviews a day; paying per interview instead of per day).

Arrange for ongoing supervision of research assistants. If, in the case of a larger survey, special supervisors have to be appointed, the guidelines should be developed for supervisory tasks.

Devise methods to assure the quality of data collected by all members of the research team. For example, quality can be assured by:

requiring interviewers to check whether the questionnaire is filled in completely before finishing each interview
asking the supervisor to check at the end of each day during the data collection period whether the recorded information makes sense; and
having the researchers review the data during the data analysis stage to check whether the data are complete and consistent.

3.5 Guidelines for Effective use of Interview

The interviewer must create a congenial atmosphere of mutual respect, trust and understanding she/he does this by:
giving the respondent the feeling that the experience she/he will gain from the interview will be pleasant and satisfying;
impressing on the respondent that the interviewer is reliable, responsible and trustworthy; and
convincing the respondent that the interview is important and his/her contributions are valuable and worthwhile.

A brief assertion of the understanding and interest which is communicated to a respondent with comments such as “I see” “yes” uh-huh”, from the interviewer as he listens to the respondent.

An expectant pause. The simplest way to suggest to the respondent to say more maybe pausing and wearing an expectant look or a nod of the head. This should not be used too frequently as it is likely to embarrass the respondent.

Repeat the question when the respondent appears not to have clearly understood it.

A neutral question or comment as a direct bid for more information. “Can you tell me more on that? Can you substantiate that statement?”

Administration of Interview Schedule and Questionnaire

Once the researcher has decided on who his/her study population would be for the research study and the survey method to be used which could either be (questionnaire or interview schedule). The researcher success or failure then depends on the following:

Self-presentation (appearance), do not overdress, underdress, be moderate, decent, and cute.
Knock at the door if there is a door or bell ring if available.
Greet appropriately and introduce yourself briefly
Do not call yourself an investigator
Be received or properly welcomed first before asking questions.
Display self-confidence and belief in your study
Make the respondent flattered
Treat your respondent with respect and courtesy
Be time conscious
Do not be over-sensitive when respondents want to open up.
Thank the respondent for participation.
Probe the respondent for additional information.
Make accurate records with the side note
Information collected with either of the instrument should be properly kept for onward collation and analysis.

Merits and demerits of Interview

Merits

Interviews are flexible especially unstructured interviews hence researcher is provided with detailed and fresh information the researcher may not have predicted or anticipated.

Unclear question(s) can be easily clarified because the interview involves dialogue between the interviewer and interviewee.

Many respondents are always willing to talk than fill or answering questionnaires

The interviewww is a two in one method because as the researcher is conducting the interview, he/she also has the opportunity if observe the respondent, especially through non-verbal communication (e.g. facial expression) can be observed and noticed.

Demerit

The major identified weakness of the interview method is interview bias. The interviewer is flexible to vary his approach to fit the occasion and in so doing he/she projects her/his own personality unto the situation and this influences the responses received.

Its rigid nature may not enable a researcher to probe in sufficient length and depth (most especially the structured interview.

It is difficult to quantity the collected data hence; it is rarely used for testing hypothesis (i.e. unstructured interview).

4.0 Self-Assessment Exercise(s)

1. List and briefly discuss two classes of Interview
2. What are the differences between interviews and questionnaires?
3. Enumerate the types of interviews you are familiar with
4. State measures that facilitate good quality of data
5. How could data be effectively utilized in research?

5.0 Conclusion

In as much as interview involves eliciting information from the respondents through some verbal interaction between the subject and the researcher. A great deal of skill in communication is required in using this type of technique. It is therefore become very important for the interviewer (researcher) to gather required skills needed in asking the right questions and must know how to get the needed information from the respondents.

6.0 Summary

In this unit, you learned about the meaning of interviews and the classification of the interview as one of the important research tools. You also learned about different types of interviews used in gathering information (data) and measures promoting good quality of data. You also saw that interviewing, especially face-to-face interview, can be difficult and that was the reason the why guidelines for effective use of interview was discussed. Merits and demerits of interview were not also left undiscussed in the unit.

7.0 References/Further Readings

Kerlinger, F.N. (1992). Foundations of Behaviour research, Florida USA: Harcourt Brace College Publishers, P.391-434

Nworgu, B.G. (1991) Educational research: Basic Issues and Methodology, Ibadan: Wisdom Publishers Limited. P.81-111.

Wiersma, W. 1994. Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305

UNIT 4

FOCUS GROUP DISCUSSION (FGD)

CONTENTS

1.0 Introduction

Focus group Discussion is one of the research tools/instruments used for data collection in a research study. It is geared toward gaining knowledge about a particular topic, event, object or phenomenon, by interviewing a group of people directly affected by the issue and allowing the respondents to talk freely and spontaneously with the aid of or by using a discussion guide. That lists the main topic theme to be covered in the session.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

-Define or explain focus Group Discussion
-State appropriate and inappropriate times for FGD.
-Discuss process(es) of conducting FGD
-Explain guidelines for conducting FGD
-Enumerate how to write FGD report.
-List differences between FGD and Surveys.

3.0 Main Content

3.1 Focus Group Discussion (FGD)

This is a technique of data collection-based on group discussion. It involves assembling a handful of people or a small group of participants to constitute groups (usually six to twelve),

under the guidance of a moderator, to discuss or talk about some topical issues of social research interest or which are thought to be of special importance to the respondents themselves and to the investigation.

Focus Group Discussion (FGD) is a rapid assessment, semi-structured data gathering method in which a purposively selected set of participants gather to discuss issues and concerns based on a list of key themes drawn up by the researcher/facilitator (Kumar 1987).

The Focus group discussion has become extremely popular because it provides a fast way to learn from the target audience (Debus 1988).

The groups should not be too few or too many in number, but just enough to ensure effective discussion on the problem by the people. Participants are selected from specific target groups whose ideas and experiences are germane to the study. The groups should be homogenous (i.e. group participants should be in-depth, i.e. touching on various aspects of the issue (or problem) under study. For discussions to be effective and productive, the investigator, researcher or facilitator must have substantial skill in group dynamics and motivation and must be capable of leading a discussion to reduce the amount of time spent on irrelevant matters. Below are brief pointers regarding the "why" and "how" of a focus group.

When is a focus group Appropriate?

Focus groups are appropriate when you want to:

- Explore the depth and nuances of opinion regarding an issue
- Understand differences in perspectives
- Understand what factors influence opinion regarding an issue
- Understand what factors influence opinions or behaviour
- Test materials or products
- Test reactions to actual or proposed services
- Design a large study or understand its results
- Capture opinions and perspectives of a program's target audience
- Learn about participants by observing their interactions.

Focus Group is not appropriate when you:

- Need to ask participants for sensitive information.
- Need statistical information about an entire population.
- Are working with emotionally or politically charged groups.
- Can't ensure confidentiality.
- Want people to come to a consensus.
- Do not have the skills to analyse the data

A focus group is run by a facilitator who guides the discussion through a number of pre-set topics.

3.2 Focus Group Discussion Guide

To keep the session on track while allowing respondents to talk freely and spontaneously, the facilitator uses a discussion guide that lists the main topic or theme to be covered in the session. It serves as a road map that guides the facilitator in covering the list of topics and keeping the discussion on track. The number of items in the guide is generally kept to a minimum to leave enough time for in-depth discussion. It should focus only on relevant research issues. The sequence of topics in the guide usually moves from general to specific.

Asking Questions during Focus Groups:

The quality of the questions in a focus group can make a large difference in the kind of information obtained. Krueger (1988) gives some tips on how to handle open-ended and dichotomous questions in these discussions: open-ended questions are considered to be most appropriate because they are aimed at stimulating discussion by allowing participants to answer from different angles. As the possible responses are not preconceived, open-ended questions give the participants opportunities to express their thoughts and feeling based on their specific situations. Krueger warns that some questions may appear to be open-ended but are really closed-ended because they include phrases such as “satisfied” “to what extent”, or “how much”.

Dichotomous questions are ones that can be answered by a ‘yes” or “no” or other similar two-alternative items. As yes-no questions are dead-ends, they usually do not trigger the desired group discussion. They also tend to elicit vague responses that do not lead to an understanding of the key issues being discussed (Movlton and Roberts 1994)

3.3 How to Conduct a focus Group Discussion

Facilitator: In selecting a person to moderate a focus group, such individual should posses the following important qualities:

Familiarity with the discussion topic
Ability to speak the language spoken in the area
Cultural sensitivity, including not acting as a judge, a teacher, does not looking down on respondents, not agreeing or disagreeing with what is said, and putting words in the participants mouth
Genuine interest in people
Sensitivity to men and women
Politeness
Empathy
Respect for participants.

Steps in conducting the session

It is important that the facilitator should obtain the background information of participants such as age and other pertinent information before the focus group discussion begins. The topic of FGD usually determines the type of information that will be collected. Once this is done, this sequence of steps is carried out:

After a brief introduction, the purpose and scope of the discussion are explained
Participants are asked to give their names and short background information about them-selves
The discussion is structured around the key themes using the probe questions prepared in advance
During the discussion, all participants are given the opportunity to participate.
Use a variety of moderating tactics to facilitate the group. Among these tactics that the moderator can use include:

Stimulate the participants to talk to each other, not necessarily to the moderator
Encourage shy participants to speak
Discourage dominant participants through verbal and non-verbal cues. The following may be used when the situation permits:
Call on other participants
Politely intervene by saying, "maybe we can discuss that in another occasion…
Look in another direction
Take advantage of a pause and suggest that the subject can be discussed in detail another session.
Pay close attention to what is said in order to encourage that behaviour in other participants
Use in-depth probing without leading the participants.

3.4 Guidelines in Conducting Focus Discussion (FGD)

The FGD is an opportunity for the research team to listen and learn, and not to lecture or provide team members' interpretation of the local biophysical and social system.

The team members agree on various task assignments including:
a) Facilitator/interpreter, b) rapporteur, c) logistic in-charge
Each team member must have a copy of the FGD guide. The list of themes to be discussed may be written on the board to serve as guide for FGD participants' on the scope and progress of the discussion
Familiarize yourself with local terminologies/names to avoid misunderstanding of what farmers say
Keep an open mind and listen more. Do not push your own agenda (e.g. a new variety you have developed which you think will solve farmers' problems)
Avoid questions that yield yes or no answers.

Avoid leading questions. Examples: Don't you think that variety x is an excellent variety?
Be sensitive to local norms and customs.
Remember that farmers' time is valuable to them. Strive to complete the FGD within the time period that you mentioned to participants
Don't forget to thank participants and local leaders after the conduct of the FGD.

Logistical Arrangement for FGD

Invitations – participants are contacted in advance, at least one to two weeks before the session. A letter of invitation may be sent to each participant, taking into consideration the prevailing practices in the area. Participants are also reminded about the focus group discussion one day before the session:

Group Composition – The choice participants depend on the topic of the focus group. Often, the people who are included are those knowledgeable about the topic but at the same time, it is also wise to gather the views of certain groups in the target population. The optimal number of participants is 8-10. If a group is too small, one person in the group may dominate it; if it is too big, then it may be difficult to control. Group members should be representatives of the intended target population.

Transportation – to ensure attendance, transportation is usually arranged for the participants from their residence to the focus group venue. In rural area, where farm families may reside in distant villages, participants could be asked to converge at a central location to facilitate pick-up.

Venue – Focus group discussion can be conducted in a place where 8-10 persons can be seated and assured of some privacy. In the rural areas, the most readily available sites are school buildings, health and community centers and churches. An appropriate venue is a neutral place that is free from distractions and where participants can talk openly.

Seating Arrangements – A semicircular seating arran gement facilitates interaction among participants because it allows them to freely see and hear each other.

Timing – The timing of the meeting should be convenient to all participants. While waiting for other participants to arrive the focus group discussion team can use the time to break the ice by getting information about their backgrounds. To minimize boredom; focus group discussions are generally not stretched beyond two hours.

Name tags – it is best to remember the names of the participants. Often, a seating arrangement will facilitate identifying each one. If the culture permits, providing nametags to participate is useful because it enables facilitators to call on those who may be too shy to express their opinions.

Recording – A trained rapporteur should capture the discussion in writing and note the participants' nonverbal expressions. Situations may occur where the discussion needs to be take-recorded but facilitators should weigh the advantages and disadvantages.

Refreshment after the sessions is a small gesture of appreciation to the participants for having taken off their work to participate.

3.5 Writing the FGD Report

After conducting the focus group discussion, the key findings are explicitly described, analysed and comprehensively written up in a report. Debus (1988) suggests the following useful guidelines for analyzing data:

Develop a plan for analysis consisting of:

Background of the research

Objectives\methods\discussion details

Focus group discussion guide

Analyse the content of the group discussion by

Reviewing the notes from the focus group

Listening again to the cassettes from the session (if tape recorded)

Grouping research finding according to key themes

Identifying the different positions that emerged under each key theme

Summarizing each of the different positions and assess the extent to which each position was held by participants

Pulling out verbatim phrases that represent each position.

Synthesize the group discussion by:

Reviewing the notes of each discussion made by the moderator

Identifying the recurrent ideas that came out during the discussion

Interpreting these recurrent ideas based upon other finding that emerged in the groups.

Bad FGDs

Overly strict concern with scientific need to record proceedings

Negative Hawthorne Effects in evidence

Participant are usually self-conscious

There is a tendency to play or speak to the gallery

Stiff formal and fairly lifeless.

Good FGDs

Refreshments are available

Obviously engaging and lasted till date

Occurring in conditions of high comfort level by participants

A cosy and circular sitting arrangement

What to do when you need more information.

Whenever the participants are not providing or supplying enough information required by the researcher, the following probes should be tried or applied:

Would you explain further?
Would you give me an example of what you mean?
Would you say more?
Tell us more
Is there anything else?
Please describe what you mean
I don't understand
Does anyone see it differently?
Had anyone had a different experience/

3.6 Differences between Focus Groups and Surveys

Focus Group	Survey
Provide depth over breadth	Provide breadth over depth
Use small samples and the findings cannot be generalized	Require large samples and are more readily generalized
Enable the agency to ask a variety of questions and explore the answers as they arise	Are standardized but answers in-depth
Generate rich, complex ideas and are difficult to analyse	Can be relatively simple to analyse but yield less rich data

4.0 Self-Assessment Exercise(s)

1. Identify things to avoid or what to avoid in order to have a successful focus group discussion.
2. What is focus group discussion? State when FGD is appropriate and not appropriate respectively.
3. Briefly explain how to conduct a good focus ground discussion
4. Discuss how to write FGD report.

5.0 Conclusion

In this unit, you learned about focus group discussion. Focus Group Discussion is one of the research instruments or tools widely used for social research enquiry because it provides a fast way of learning directly from target audience. It also allows subjects the opportunity of talking freely and spontaneously and the researcher to get detailed information from the target audience.

6.0 Summary

The concept focus group discussion was defined and appropriate and inappropriate period of make use of the concept were also stated in this unit. You also learned about focus group discussion guide, how to conduct a focus group discussion coupled with guidelines in conduction of focus group discussion. How to write FGD report was also stated and comparism between focus groups and survey were itemized.

7.0 References/Further Readings

Debus, M. (1988). A handbook for excellence in focus group research. Healthcom Project special Report Series. Washington, D.C.: Porter/Novelli.

Krueger, R.A. (1988). Focus groups. A practical guide for applied research. Newburg park, Califonia, U.S.A: Sage Publications, Inc.

Kumar, k. (1987). Conducting Focus group interviews in developing countries. A.I.D. program Design and Evaluating Methodology Report No. 8. Washington D.C.: U.S. Agency for International Development:

Moulton, j. and Robert, A.H. (1993). Adapting the tools to the field: Training in the use of focus groups. In: Seidel, R.E. (ed.) Notes from the field: Communication for child survival. Washington. D.C.: Academy for Educational Development.

ETR Associates at http://www.etr.org/FFN/FGcourse/FocusGroupCourse.html

UNIT 5 OBSERVATION AND INDIRECT RESEARCH TOOLS

CONTENTS

1.0 Introduction

Observation is probably the most widely used method of securing or collecting data or information in the descriptive research method. It entails both direct and indirect observation of the phenomenon to be described, over a period of time. The complexity of phenomenon makes descriptive research important in the social sciences and therefore makes it necessary for research to give a true picture of a situation or a population under study by being physically present to study, monitor, observe and report the trend of event or activities on the filed precisely, objectively and accurately for the purpose of the research and future reference and review.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Explain observation
State importance of preliminary steps to be taken during observation
Mention and briefly discuss different types of observation
Discuss indirect methods of data collection
Explain filed studies, mapping and scaling.

3.0 Main Content

3.1 Definition/Meaning of Observation

Observation is the basic method of getting information about the world.

Observation is a technique that involves systematically selecting, watching and recording the behaviour and characteristics of the living beings, objects or phenomena.

Observation is an approach that entails watching individuals, events or situations in a systematic manner with a view to obtaining information about the specific nature of such individuals, events or situations.

It is a systematic method of data collection.

The concise Oxford Dictionary defines observation as "accurate watching and nothing of phenomena as they occur in nature with regard to cause and effect or mutual relations"

The main purpose of observation is to collate and synthesize information about and describe the behaviour of certain individuals or trends of events precisely as they occurred. Observation gives room for the collection of first-hand information from the subject or field. it could also be the major method of gathering information (data) in situations (and on phenomena), which other methods of data collection might not be useful.

Observation may be made personally or mechanically. Both methods are widely used in survey research, but most observers is of the personal type. CCTV is a typical example of a mechanical observation device or instrument used in the observation of activities of people within a given environment (that is CCTV camera being used as a security and safety monitoring device for both motorists and pedestrians on the major roads) most especially in the western societies and public places in Nigeria. Observation can give additional, more accurate information on the behaviour of people than interview or questionnaire. To gather data by direct observation, the researcher must first of all decide what to observe, select the process of observation and then decide on the particular group or the actual sample size to be observed.

3.1.1 Important Preliminary Steps to be Taken

When using Direct Observation

The aspect of behaviour, issue, events or phenomenon to be observed must be selected.
The behaviours, evens, issues or phenomena falling within the chosen category must be clear by defined.
The people that a researcher might want to use in carrying out the observation must be properly trained in order to achieve the objective(s) of the research.
A system or instrument that with be used for quantifying observation must be developed.
Detailed procedures for recording the observation must b developed.

3.1.2 Types of Observation

There are different methods/types of observation, and these include:

Participant Observation
This is a form of observation method where the researcher identifies with the group or situation being studied. That is, the observer poses as a member of the group being studies or he may also be a genuine member of the group.

For examples, in the study of some societies and culture, a sociologist or on anthropologist (as researchers) live in the society for some time or decide to become a member of a group in order to study the group through close observation. Also a criminologist who pretends to be a prisoner and stays in the prison in order to observe and get first-hand information.

Non-participant Observation
The observer watches the situation, event, people, group, or phenomenon, openly at concealed, but does not participate. Here, the researcher does not identify with the group (or society) and does not take part in its activities. In this case, the researcher remains an outsider.

For example, wildlife studies in which the researcher stays inside the wild to observe the animal activities.

However, observation whether participant or non-participant could be in any form of the following:

Structured or Unstructured
Observation is said to be structured when the researcher selects (or controls) what to observe e.g. as in the use of check list. It is unstructured when there is no control that is non-selective.
Concealed or not concealed
Observation is concealed when the researcher and his/her intentions are not known to those being studied. When the researcher as well as his/her intentions is known, the approach is described as not concealed.

3.1.3 Disadvantages of Participant Observation

The risk with participant observation is that the role adopted by the observer will restrict his understanding of the situation. This is what Relay (1963) calls the biased view-point effect.
The success of the participant observer approach depends on his/her skill and personality.
Apart from the problem of objectivity, there is also difficulty of distinguishing between observation and inference.
Finally, participant observation has been seen as a somewhat individual method. One cannot expect it to yield identical picture if another uses the method.

Instruments used in Observation

The instruments used in observation are checklist and rating scale. A checklist contains the attributes of items which the researcher wants to observe and a provision for showing whether or not the attributes are present.

3.2 Indirect Methods of Data Collection

It has been ascertained that there are some research problems that might touch on issues that are controversial or sensitive. Consequently, such subjects might be reluctant or unable to discuss such topics/issues or give out information. Even, observational method might not be feasible for some problems. Methods are therefore devised to collect information on such problems are referred to as indirect methods. The methods are indirect because instead of making direct observation or asking direct questions on the problem under investigation. The researcher might draw inferences from other activities involving the subject. There exists many ways of accomplishing this; which include the following:

1) **Projective Techniques**

These are techniques of collecting data on peoples' perception and response to the world through the individual organization of events or situations. For example:

Thematic Apperception Test (TAT) that is widely used in psychology where a subject's manipulation of objects, pictures (Visual or verbal stimulus) is interpreted in terms of the subject perception, emotions, attitude and feelings about the world. It is not the object or the picture that is of importance to the researcher as the underlying feelings or characteristics, of the subject manifested in the handling and comments about the object or picture.

Another projective technique include play techniques which involves the manipulation of dolls or other play objects; psycho-drama and socio-drama which involves acting out roles

The third is verbal techniques such as sentence completion. That is presentation of a hypothetical question or an incomplete sentence or case-study to an informant (story with a gap). A researcher may ask the informant to complete in writing sentence such as:

The major trouble (problem) with Nigeria is ……
If I were to be tested positive for HIV, I would ….
If my wife were to propose that I use condoms, I would….
If I were to discover that my neighbour had Tuberculosis, I would…

These sentences could be completed in different ways by different respondents or subjects. The variations would be a manifestation of the differences in the characteristics, feelings, attitudes, emotions (etc) of the subjects about the questions asked.

Such techniques however, should be handled with great care, most especially if such researcher or one is not sufficiently trained or grounded in using techniques. The only beauty or benefit of the techniques is that they can easily be combined with semi-structured interviews or written questionnaires. They are also very useful in FGDs to get people's opinion/view on sensitive issues.

Physical Traces: At times inferences could be made about events by simple observation of "traces" for example the extent of f looding or erosion, tsunami, hurricane, conflagration, foot marks, finger prints, wear and tear of an object, Forensic material etc. This method is indirect because the researcher, expert or disaster management team were not (or could not have been) present at the time of the incident. It is also indirect because the observations made have implications or clues for understanding (or interpreting the problem or phenomenon under study.

Content Analysis: This involves analysis of the content of written communication as a manifestation of the characteristics and feelings of the "writer(s)". Dairies, letters, minutes of meetings, Newspaper articles, editorials (etc) can reveal much. If the content is carefully studied and systematically analysed, it could lead to making useful inferences and conclusions, about the personality behind the communicative act, the time political climate and the effect (etc) of the communication.

Statistical Record: Statistical records constitute secondary sources of data for the researcher. To some extent, they also form part of the indirect method, since the researcher is removed from direct contact with the subject/phenomenon being studied. Conflict statistics, labour statistics, health statistics, educational records, police statistics (on crime, accident etc), statistical abstracts and other documentary sources like archival records and government publications (e.g. Gasette) are useful sources of data for the researcher.

However, great caution should be exercised generally in the cause of handing indirect methods of data collection, and secondary sources of information.

3.3 Field Study

Most social science researchers entail some elements of fieldwork by which the researcher establishes contact with the population (society, community or group) being studied. Although, many of the above discussed various methods of data collection involve some aspects of the field-studies could be restricted to Anthropology and/or Ethnographic field-studies which involve a detailed study of the life of a community or group. It usually involves some degree of participation by the researcher in the life of the community. A lot of revelations were discovered about different societies, groups of people and/or cultures through field- studies by sociologists, Anthropologists and Ethnographers. As applicable to other methods the researcher adopting field-studies approach, has to choose what to observe (study), since there are several areas or aspects of a community's, group's of society's life that could be examined in field-studies.

3.4 Mapping and Scaling

3.4.1 Mapping

Mapping is a valuable technique for visually displaying relationships and resources. It gives researchers a good overview of the physical situation and may help to highlight

relationships hither to unrecognized. Mapping a community or study area is also very useful and often indispensable as a pre-stage to sampling.

3.4.2 Scaling

This is a technique that allows researchers through their respondents to categorise certain variables that they would not be able to rank themselves.

Mapping and scaling may be used as participatory techniques in rapid appraisals or situation analyses.

4.0 Self-Assessmnet Exercise(s)

1. Distinguish between participant and non-participant observation.
2. What is observation? State three limitations and two advantages of observation.
3. Briefly explain the steps you would take in ensuring the reliability of data collected from observation.
4. List and explain three (3) indirect methods of data collection.

5.0 Conclusion

In the course of conducting observation on an event, issue or phenomenon, researcher should try as much as possible not to interfere with the setting in which the observation is taking place. He/she should make a list of the relevant aspects of the situation to be observed, and may also ignore the first, two or three observations; in order to allow the group being observed returns to its normal way of life and to overcome the influence of the presence of the observer. In the case of indirect methods, effort should be geared toward getting information from a reliable, primary, sound competent source(s).

6.0 Summary

Under this unit, you have learned about the meaning of observation, types of observation, as well as their advantages and disadvantages. We also discussed several indirect methods of data collection over which the researcher lacks control over, and substantial knowledge of the data collection process. These could be a potential source of errors and means that the researcher needs to be especially vigilant and cautious.

7.0 References/Further Readings

Lumley, J. S.P and W. Benjamin (19894): Research: some ground Rules, Oxford New York Tokyo, Oxford University Press.

National Academy of Science (1995): On Being A Scientist: Responsible conduct in Research National Academy Press.

Nworgu, B.G. (1991): Educational Research: Basic Issues and methodology, Ibadan: Wisdom Publishers Limited, P. 81-111.

Statistical Services Centre, the University of Reading, UK (2000): Guidelines for Planning Effective Surveys

Wiersma, W. (1994): Research Methods in Education: An Introduction, Boston: Allyn and Bacon, P.272-305.

Moser, C.A. and Kalton, G. (1979): Survey Methods in social Investigation. Gower Publishing company, Aldershot, England.

Gilbert, N. (1993): Researching social life. Sage publications, London.

Openheim, A. N (1992) Questionnaire Design Interviewing and Attitude Measurement Pinter, London.

Wilson, N and McClean, S. (1994) Questionnaire Design: A Practical Introduction. University of Ulster.

MODULE 3

SOURCES OF RESEARCH DATA / INFORMATION

Introduction:

In module three five units will be explained profoundly. Therefore; the units are listed below:

Unit 1 Library and Research
Unit 2 Use of Internet Resource for Research Purpose
Unit 3 Research Ethics
Unit 4 Referencing Styles in Academics Works I
Unit 5 Referencing Styles in Academic Works 2

UNIT 1 LIBRARY AND RESEARCH

CONTENTS

1.0 Introduction

The importance of the library to research cannot be under-estimated. It could be said to be the backbone of the foundation of any genuine, reliable, valid and dependable research study/work anywhere and anytime. There was a body of research supporting the view that school/institution libraries can have a positive impact on academic achievement, particularly at the tertiary level. Types of researches have also revealed that many students are not "information literate". That is, they do not understand or know how to locate relevant

information sources they encounter that can teach them valuable research skills and improve the quality of their research works.

Therefore, before any student can write or embark on a good and reliable research study, she/he must go to the library and make use of several available and relevant materials people have already written many overviews that outline important facts on the subject matter and as well provide a concise list of recommended readings.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant references, you should be able to:

Define library
Explain library classification
Discuss cataloguing
Discuss indirect methods of data collection
Explain filed studies, mapping and scaling.

3.0 Main Content

3.1 Meaning/Definition of Library

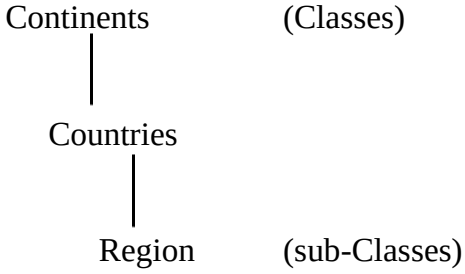
A library is a place where knowledge in whatever form print, electronic, tapes etc is deposited. Or A library is the storehouse of knowledge and wisdom which have accumulated since the beginning of time. A library is primarily set up to acquire, organize, store and make accessible to the users, within the quickest possible time all forms of information materials which they require.

Materials in the library are often organized to allow easy access to these information/materials.

The systematic acquisition, organization and dissemination of books, not mere labels distinguish a library from either a reading room, study, or a storehouse of books. The wide variety of materials find in any library demands a highly organized and involved system of classification. However, a researcher is not expected to attain the proficiency of a librarian, but facility in the use of the library and its materials is the key to research studies. Although, the researcher might have to consult a professional librarian occasionally, is order to locate unusual material, it is absolutely necessary that she/he be able to locate the more common sources quickly and efficiently, and be able to extract the information contained therein with dispatch and accuracy.

One of the ways materials are organized in the library is called “classification”. Classification ordinarily involves the grouping together of those items which have certain characteristics in common, and the separation of these from others which do not posses them. Classification therefore, can be defined as the process of grouping things concepts or ideas based on common characteristics. Classification also displays or shows the relationship between things and between classes of helpful sequence.

For example: Books can be grouped by making use of their colours; red one side, blue books on the other side, journals can be arranged according to their plates of origin or continents). You can god further by dividing them into smaller groups or sub-classes, e.g. countries of origin. By using territory, the collection could be divided into:



3.2 Library Classification:

A library classification is the systematic arrangement of human knowledge recorded in various documents deposited in the library. For example, books, serials, tapes, films, microfilms, photographs, maps, computer diskettes, CD-Rom, external disks etc. library classification entails assigning each item to a specific class which in most systems is sub-divided by subject e.g., economics, education, agriculture, social sciences are distinct subjects that should be placed in different classes. Library classification aims at arranging the documents in a helpful sequence on the shelves and providing subject analysis of the content. For example, social sciences materials or peace and conflict studies materials could be kept together depending on the types of social sciences. Sociology will be kept together, psychology separately and economics separately from political science and geography. Books are generally arranged by symbol notations the shelves. Notations consist of early recognized signs or symbols used to identify the various classes and subclasses. It could be in form of numbers, alphabet (pure notation) [30] or KN pure notation) it could be mixed (K46).

The library and information centres do classify documents by grouping those with the same or related subject content together and assigning to them symbols or class-marks. The symbol or class-mark assigned identifies a document as a member of a specific group or class. This aids the library or information centre in organizing and retrieving materials.

3.3 Contribution of Ranganathan to library classification

The role of Dr. R. L. Ranganathan to classification practice in librarianship is of great outstanding through his five laws of library science and principle of decreasing concreteness in classification of a subject popularly known as PMEST.

5 Laws of Library Science

Ranganathan stated that:

> Books are for use: This therefore means all books acquired should be exposed to users for long period of time instead of keeping them for reference purpose only.

Every user his book
Every book its user
These two principles give preference library environment. Book should be classified and placed in such a way that users will be able to find them based on their understanding of the subject of the book. This is usually influenced by the environment and the understanding and background of the users, which give Rom for alternative placements.
Do not waste time of the library user: once a book is wrongly classified, it will take a longer time to find since it will be separated on the library shelves from other related materials. The library is a growing organism, which connotes that there should be constant acquisitions and preservation of materials in libraries. There should be constant

classification of library materials as they are brought. Classification and cataloguing should be continued in a library (whenever the need arises.

PMEST

This is an acronym which stands for the following:

P = stands for personality which represents the most important/concrete element in a subject.

M = represent matter
E = stands for Energy
S = space and;
T = time.

3.3 Cataloguing:

Is the process of producing a catalogue. Cataloguing like classification is a list of all the items (i.e. books, journals, photographs, micrograms, CD-Rom etc) in a library.

Cataloguing describes a book, pointing out its subject content which ultimately places the book in a subject class.

Chan (1994) defined a library catalog as a kind of bibliographic file which consists of a set of records that provides data about the items in the collection. It differs from bibliography or a periodical index in that all its records pertain to items in one or more libraries and carry information on where the items can be found.

The data on each catalog include:

A bibliographic description giving the identification, publication and physical characteristics of the document.
A call number (consisting of classification number based on the subjects content and a book number based on the author, the title pr both that indicates the location of the items in the collection.

There are many multiple access files which offer many ways to retrieve a particular record by author, title, subject and other characteristics in library catalogs.

Primary forms for library catalogue.
There are different forms of primary library catalogue which include:

The card catalogue
The book catalogue
The microform catalogue
The computer-accessed catalogue
Online catalogue

Card Catalogue: This is a type of catalogue, in which cataloging entries are recorded on 3 by 5 cards, with one entry per card or set of cards. Each entry could be revised, inserted, or deleted without affecting other entries. A card catalogue lists a library's book holdings. Each card will provide you with a call number that will enable you to locate the desired volume on the shelves. The call number resides in its upper left corner.

As a rule, every book held by the library will be represented by several cards filled at different places, with each presenting an essentially identical description of the book. The only difference will be on the top line, which determines where the card will be filed, one will be under the name of the author, another under the title of the work and one or more will appear under subject headings assigned to correspond to the content of the books. Some libraries have catalogues in which all the three types of cards (author, title and subject) are interfiled in an alphabetical order or sequence, A-2, near the bottoms of its cards are what are called training which are records of the secondary headings (or added entries) under which the record is filed.

Online Catalogue:

A library with an online catalogue is the type in which user can retrieve catalogue records directly from a computer database, by means of monitor. The records of an online catalogue may be stored in mainframe or a mini-computer connected with a public-access terminal. In either case, users are literarily online to the data base. The CD-Rom (compact disk-read only memory) is another type of online catalogue in which data-base is periodically copied into compact disks, which can be accessed through stand-alone microcomputer.

Cataloguing facets

Descriptive cataloguing: This gives the physical and other bibliographic details of the book (series, illustrations, ISBN, dimension, etc).
Author/Title Headings: This gives the author/title of the book. The tool in descriptive cataloguing is the Anglo-American cataloguing Rules (AACR II 1988, amended version of AACR II 1978)
Subject Cataloguing: This points out the subject(s) treated by the book. A book on "crafts making" may have dwelt on distinct subjects like weaving, carpentry, black-smith and painting. In subject cataloguing, headings are assigned to all major subject contents of the book to facilitate easy access to it by readers with differing interests.

The subject cataloguing tools most popular with Nigerian libraries are the Sear's list of subject Headings and the Library of congress subject Headings.

The most popular classification schemes:

Dewey Decimal Classification – DDC (very popular wi th special, school and public libraries in Nigeria).

Universal Decimal Classification – UDC (used at pre sent, mainly by some research libraries).

Library of Congress Classification – LC (popularly used by academic libraries all over the world). LC is used with a Cutter Table.

3.5 Electronic Library

An electronic Library is a library where information is stored electronically online as well as in CD-ROMs and DVDs. The major carrier of e-library is the internet. The data may or may not be unique in an electronic format i.e. some if not much of it is duplicated in print. Library access , as well as offsite use, is made easier by inexpensive hardware and software.

Access to e-library is via an Internet service provider (ISP) in many big libraries. Also, at home one can access an e-library with the help of modern being provided by many of our communication companies in Nigeria which could a daily, weekly or monthly sub-scriptions depending on individual financial capacity. With the floodgates opened, there are now billions of pages of data on the net. The internet is totally open and interactive in nature, but without built, editor, publishers, censors or even fitters. With a mouse click, you can wander or enter any library of your choice and no one is there to stop, caution, or direct you.

3.6 Search Engines

In many computer searches, a password(s), surname and sometimes authorization code(s) may be required but you can gain access to full-text items. Passwords may be allocated automatically by the library, your department, or authorized IT, officer or staff. Search engines store very large numbers of database, looking for sources which mention your keywords/index terms/phrases which provide access to thousands of websites.

Researcher can use any of the required or needed information on the internet:

Goggle (http://www.goggle.com)
Yahoo – (http://www.yahoo.com)
Alta vista – (httpIww.altavista.com)
Meta crawler (http:/wwIww,matacrawler.com)

3.6.1 Guide for searching for information on the internet

Allocate enough time for yourself
Be optimistic that you will find exactly or similar things you are looking for.
Be prepared
Know your search engine
Document any useful information found.
Don’t underestimate the information or website

Avoid spam
Networking – endeavour to get relevant information from our colleagues

Referencing – always acknowledge the source of information you get from the internet
Patience and persistence. The two are key works for internet searching.

3.7 Benefits of Library to Research

It enables students/researchers to develop a suitable topic for research, using the library reference collection and other sources of background information.
Library allows researcher/students be select and use the most appropriate library catalogued, article databases and printed indexes, and internet search tools to locate relevant and timely materials.
It gives students the opportunity to distinguish between popular and scholarly sources and detect signs of bias, whether the material is in printed form or on the internet

It teaches students valuable research skills and improves the quality of his/her paper(s).

Student learns the difference between "surfing the Net" and carrying our substantive research.
It enables the students to give an appropriate quotes and cite sources in a way that gives proper credit to cited scholars and avoids plagiarism.
It exposes students to techniques for evaluating websites and proper citing of online material.

3.8 Library Registration and uses Procedures:

Each and every library is set up for a group of people. National, state or public libraries are open to everybody, while other libraries try as much as possible to restrict their user registration to the groups of people for whom the libraries were established. However, all libraries have regulations stipulating who is guiding the conduct of activities in libraries.

Potential library users are required to register before being permitted to use the library. Every library design registration forms and cards to suit its peculiar situations. Essential to every registration form is the identity of the potential user, (name, residential address, occupation etc). The provision of space for a guarantor is also very important. Acceptable guarantors are those who hold responsible public posts, have reasonable business establishments. In academic libraries, heads of departments, deans of faculties, etc. are the guarantors acceptable for the registration of every potential library user (student). The official stamp and signature of the guarantor are required on the registration card before a potential user is registration in most libraries is from of charge and expires or lapses at the end of each year while in most higher institutions, registration expires at the end of completing the course of study. In the case of the former, a library user is therefore required to renew his or her registration annually. A library user is therefore required to renew his/her registration annually. Many libraries require the passport photograph of potential users for registration. This is done in order to ensure that the library is dealing with the right user all the time, especially in lending transactions. A library user may be permitted to delegate someone to return books borrowed by him/her to the library but not permitted to elongate someone to borrow books for him.

After registration, a potential user is given a library ticket (identity card) called a borrower's ticket. This entitles the user to borrow a given number of books as stipulated in the library's regulations. Users are eligible to borrow 2 to 7 books depending on which library and the user–book ratio. A fee it usually charged for a replacement ticket, if a user loses his/her lending ticket issued to him/her. This defers users from being unnecessarily careless with lending tickets issued to them.

Overdue:
A library book is said to be overdue if a borrower fails to return it on the date stipulated on the book card and date due slip. Every library has a circulation or loan policy stipulating the number of books each category of user is entitled to borrow and for how long. The loan period is most Nigerian libraries range from two weeks to one month (in well developed academic libraries).

Usually, in most libraries, an overdue notice or letter is sent to a user who has failed to return the library book loaned to him/her on time in order to remind such a defaulting borrower that the library book in his/her possession is due for return. Every library usually fixed overdue fines for defaulting users.

4.0 Self-Assessment Exercise(s)

1. What is classification and what is the significant/importance to the library administration?
2. Define cataloguing and briefly explain some of its components.

5.0 Conclusion

In as much as the library is the storehouse of knowledge, it is therefore imperative for any student or researcher to be familiar with the facilities and materials available in the library and how best he/she can utilize them to his/her advantage. Proficiency in the use of the library for the review of the literature and theoretical framework is a function of the ability to locate sources directly, to browse through multiple sources and to call relevant materials and to interpret and organize them for the research work or thesis.

6.0 Summary

In this unit, the meaning of library was extensively discussed together with library classification and cataloguing for a proper understanding of the basic rudiment of library operations. An electronic library was also explained while various search engines were mentioned and guides for searching information on the internet itemized. Benefits of library to research were not left out while library registration and uses procedures were both discussed

in order to familiarize the student or reader with the processes of registering with both public and private libraries as a prospective user.

7.0 References/Further Readings

Chan, L. M. (1994) Cataloguing and Classification: An Introduction USA, McGraw-Hill, Inc.

Katz, W. A. (2002) Introduction to Reference work. Basic Information services, New York, McGraw-Hill Inc.

Kumar, K. (1981) The Theory of Classification 2nd Rev. Edu. Gbazelbad, India: Vi/ca Publishing House 538p.

Nwalo, K. V. and Ohaegbu G. A. (1997) Classification Centres 54p (Manuscript)

Mann, T. (1987) A Guide to Library Research Methods, New York, Oxford University Press.

UNIT 2 USE OF INTERNET RESOURCES FOR RESEARCH PURPOSES

CONTENTS

1.0 Introduction

In this present era of research study, whether the intent of the researcher is to conduct descriptive or inferential types of research, he or she must engage in some sort of interaction with the computer. This interaction or relationship could be structured in many ways depending on the degree of depth at which the researcher wants the relationship or involvement with the computer to be.

However, the internet is a very useful tool for research and it is free for all in most cases. But without a proper clear understanding of the components and the use of the computers, there is no way by which the researcher can have access to the process or procedure of information loading and retrieval from the internet. Getting high-quality web materials could also be very tasking compared to getting information from printed school books and journals.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings you should be able to:

Define or explain what the internet is all about
Enumerate and discuss various types of information on the internet
Understand basic internet tools
Explain how to find information on the internet

3.0 Main Content

3.1 Meaning/Definition of Internet

The internet is made up of many thousands of smaller networks that are linked together to form a global network of computers. While the internet is a local network of computers.

These networks use (Transmission control protocol/internet protocol), which are a set of rules that allow computers that are connected to a network to the internet with each other or one another, whether they are windows – based, mackintoshes, UNIX machine or running on any other operating system. Any network can join the internet as long as it uses the internet protocol. The Wider Area Network (LAN) is a network spanning an area farther than 5 kilometers or less. The LAN has several advantages-such as: it reduces bandwidth consumption and is fast. It is tailored towards local needs and is used for library catalogues.

3.1.1 Internet Services

The services being provided by the internet can be divided into two broad areas namely:

Communication and Information

Communication: The internet serves as a medium of communication by providing service either by sending a message to a family member, or colleague in another office, or contacting or linking a thousand other researchers around the world working in a particular subject area or similar or same field.

Information: The Internet provides an ever-increasing quantity and range of information in a number of different formats. It is also possible to make available personal information (research papers, announcement, organizational and so on) to a worldwide audience by using the internet; we should also be aware of the fact that as internet tools become more powerful, there an increasing overlap in these services and the distinction between services that provide access to information and those that allow communication is becoming blurred.

3.2 Types of Information Resources Available on the Internet

Access to information resources on many subjects are made available or provided on the internet in various formats which include:

Documents: Many different document formats are available such as: plain text (ASCII), word-processed presentation and so on.

News: News on various topics ranging from academic to trivial issues can be obtained from a variety of sources. Electronic versions of a number of newspapers provide national and international news daily. For example, the guardian, Nigeria

Tribune, the Sun, Compass, the nation and weekly magazines such as The News, Tell, Newswatch etc. can be accessed on line.

Library catalogues: The library catalogues of many universities are available over the internet at both national and international levels as (OPACs) online Public Access Catalogues.

Software: Several thousands of free software applications can be obtained from large software achieves such as public domain software and commercial software as well as trial versions of commercial software available for free download.

Graphics, audio and video files: Multimedia information in many forms or versions are being made available in large numbers day in day out as a result innovation and development in information technology.

Directory Services: Although, no complete directory is available on the internet but a number of directory services are available for example, yahoo (www.yahoo.com) is one of the most popular internet directory services. Staff directory are also provided by some organizations containing job titles, telephone numbers and e-mail addresses on their websites.

Databases: A number of useful databases (both full text and abstracts) can be accessed via the internet.

Books and Journals: Several books as well as journals are available in electronic forms on the internet for quick and easy access for prospective subscribers.

Blogs: A new feature that is gaining increasing popularity is the "blog weblog". Blog is an abbreviated version of weblog, which is a term used to describe web sites that maintain an ongoing chronicle of information. A blog is a frequently updated, personal website featuring diary type commentary and links to articles or other web sites. Blogs range from the personal to the political, and can focus on one narrow subject or a whole range of subjects. Many blogs focus on a particular topic, such as web designs, politics, sports, conflict, economics or mobile technology. Some are more eclectic, presenting links to all manner of other sites. Others are more like personal journals, presenting the author's daily li fe and thoughts.

Junks: These are forms of information made available on the internet which a lot of it can false or misleading. Therefore, internet users have to carefully evaluate or screen whatever information they obtain over the internet before they access or open them as some information might even be virus which could be harmful or dangerous to their systems (computers)

3.3 Basic Internet Tools

Telnet: Telnet allows a user to connects to a remote computer across the internet network such that the capabilities or services hosted on the remote computer can be accessed and used via a local computer. In order to satisfy security requirements, the services are subject to a number of restrictions.

File Transfer: It is also referred to as File Transfer Protocol (FTP), and the facility allows files to be moved from one computer to another. The files could be in form of documents, software, graphics etc. like Telnet. ETP is sometimes subject to some security restrictions.

Electronic Mail (E-mail): Electronic mail or e-mail is the oldest and most widespread application of the internet. E-mail combines the speed and convenience of fax machines

with the information of the telephone. It is extremely cost-effective and allows messages to be sent between computers unlike the traditional postal system 'snail mail'. Each and every e-mail user has his/her own e-mail address. For example.

Personal e-mail address peace@yahoo.com or peace@hotmail.com

Educational Institution e-mail address:

apeace@nou.edu.ng or Ado.Jhon@ui.edu.ng US president e-mail address: President@whitehouse.gov

The second example is a commercial site, indicated by 'co' before the country code. The last example is the US president's e-mail address: it should be noted that there is no country code since the e-mail was invented in the USA. US e-mail addresses usually omit a country code. The contents of most e-mail are just plain text, however, many mailers (e-mail software) allow users to send attachments which could work-processed documents, graphics or other files. When sending an attachment you should be sure that the recipient's e-mail software can cope with it when it arrives. A number of organizations offer free e-mail accounts e.g. Yahoomail (http://mail.yahoo.com), Hotmail (www.hotmail.com) and so on.

Mailing lists: A mailing list or discussion list is an extension of the e-mail (commonly called (a listserv). This facility gives room for subject-based group communication. By joining a list, a user will receive all emails sent to the list and can in turn send one message to a special address and have it distributed to all other list members. Lists can be local, national and international. They can have thousands or half-a-dozen of members. The lists can be in various forms ranging from academic and research-oriented or cultural and recreational. They used for a wide range of purposes such as informal discussions, dissemination of information, surveys and questionnaire, and locating colleagues with similar interests. While many lists are public and open for anyone to joint, others are private and closed. National groups often use mailing lists to supplement their meetings and even hold electronic meetings which are run over a specific number of days by a chairperson using an agenda.

Newsgroups: The Newsgroup (also known as News or use-net News) is another group communication forum that has been in existence and use for several years in the Newsgroup. Like mailing lists, Newsgroups are subject-based and there are thousands in existence. Unlike mailing lists, newsgroups are like electronic bulletin boards. Messages to a group (known as postings) are stored on a computer sever

and users have to access this computer in order to read them. Group participants can use the group to make an announcement, ask for answers to problems, air opinions and so on. Many newsgroups are international and are very verbose with hundreds of posting everyday.

Newsgroups are organized into hierarchies based on prefixes. For example, all the science-based groups such as sci-environment are grouped together under the "sci" prefix. Although, messages to a group look like e-mail messages, the sender does not use e-mail software to contribute. A special piece of software called a newsreader is required. An institution or organization that receives a large number of newsgroups can have storage problems if postings to the group are kept indefinitely. Most institutions normally store Newsgroups for a limited time before deleting them.

The World Wide Web

The World Wide Web (www or Web for short) is currently the most widely used internet service. It is the nearest approach so far to an integrated interface to the many networking tools that are available on the internet. The web is fairly unique among internet services because its protocols allow for a web server to send information of many different types (text, sound, and graphics) as well as offer access to other internet services. In addition to documents, the web provides access to Telnet sessions, ETP archives, Usenet News archives, database searching, name searching and so on. It also combines several Internet protocols including e-mail, Usenet news, ETP and Telnet. The flexibility also contributed to the success and popularity of the web.

The World Wide Web is based on a client-server architecture and uses the concept of hypertext or text with links that can be followed electronically to other documents, files, sounds, images, or even programs. The main advantage of power of hypertext lies in its ability to link different pieces of information in simple ways at exactly the spot at which you thought of the connection. In this sense, hypertext links are like footnotes, except that they are easier to follow and can be any length. A link might be to another page on the same document or to another document or file located on another computer anywhere in the world. A document might include many links to other documents held on many different servers. Words or phrases in the document that are linked to further information will be highlighted to denote their "hypertext" status. Selecting any one of those linked words will enable one to view the related document wherever it is. Unlike the other main information retrieval tools, www allows a user to view formatted documents as well as graphics on their computer screen. WWW clients (software for navigating the web) are known as browsers. There are browsers for most platforms ranging from plain, line-oriented browsers to ones with a sophisticated graphical interface such as Netscape Navigator or Internet Explorer. Web protocols not only allow for more interactive, multimedia presentations of information, the typical web browser can also after its users access to other internet resources, making a web browser perhaps a user's most valuable Internet application.

The hyper-text mark-up language or HTML is the primary language used in formatting documents for display on the web. HTML is a relatively simple set of codes that converts or turns ordinary text into hypertext when viewed by a web browser. One good thing about the system is that it is neither compulsory nor necessary that it must be viewed on the same system that created it. This means that, n HTML file created on a Macintosh computer will look just about the same when viewed on IBM. Another beauty of it is that all links will function in exactly the same way. The ability to move a single file between more than 30 different types of computer systems and have it work the same way in all of them is referred to as **portability.**

In addition, the World Wide Web is made up of millions of web pages, with each being 'served' by a browser (when requested) one page at a time. A web page is generally a single HTML document which might include text, graphics, sound files, and hypertext links. Each HTML is a single web page regardless of the length of the document or the amount of information included. HTML
Document names will end with the extension ".htm' or "hHTML diagram pg.
159 The client's Architecture

Web site: This is a collection of Web pages under the control of a particular person, organization or group. A website generally offers a certain amount of organization of its internal information. A browser usually starts with an index or default page and then uses hypertext links to access more detailed information. Another page within the Website may offer links to other interesting sites on the web or just about anything else.

Uniform Resource Locator: Uniform Resource Locators (URLs) is used by the World Wide Web to represent links to services and resources within HTML documents. A URL identifies particular internet resources, for example a web page, an FTP server, a library catalogue, an image or text file, etc. URLs represent a standardized addressing scheme for internet resources and help users locate these resources by indicating exactly where they are. Every resource available via the World Wide Web has a unique URL and it is possible to represent nearly any file or service on the Internet with a URL.

Example of URL:

http:www.hcc.hawaii.edu/directory/book.htmc connects an HTTP server and retrieves an HTML file.
http://www.eff.org/directory/-Displays a directory's contents
ftp://www.xerox.com/pub/file.txt-Opens and FTP connection to www.xerox.com and retrieves a text file.
telnet://www.hcc.hawaii.edu:1234- telnets to www.hcc.hawaii.eduat port 1234.

The first part of the URL (before the two slashes) specifies the method of access. The second is typically the address of the computer where the data or service is located. Further parts may specify the names of files, the port to connect to, or the text to search for in a database. A URL is always a single unbroken line with no spaces. Sites that run World Wide Web servers are typically named with www at the beginning of the network address. Also, most web browsers allow the user to specify a URL and connect to that document or service. When selecting hypertext in an HTML document, the user is actually sending a request to open a URL. In this way, hyperlinks can be made not only to other texts and media but also to other network services.

3.4 How to Find Information on the Internet

In this present day era, that the whole world is now a global village with the advent of science and information technology, information or events occurring in thousands of kilometers away are now being made readily available in every parts of the world even homes within a twinkle of an eye. The internet has become one of the most important sources of information on almost any topic under the sun. It has been described severally as an 'information treasure trove', an 'information superhighway', and as an 'Infobahn'. The internet cannot be likened to a library that all its available items are identified and can be retrieved by a single catalogue. There exist many millions of files available over the internet and this poses serious problems to someone trying to locate particular information using the internet. However, one can conduct a successful search on the internet by making use of a number of strategies.

One of the most efficient ways of conducting a search on the internet is to use the world wide web because it includes most internet services, it offers access to a great deal of what is available on the internet.

The following basic ways of accessing the information on the internet are identified and listed by Cohn (2005)

Join a discussion group (mailing list) or Usenet newsgroup. A good web-based directory used to Usenet newsgroups is Telnet, located at http://tile.net/.

Go directly to a site if you have the address. This is done by typing the URL of the website directly into the address bar of your browser window and clinking 'Go' on the browser toolbar or pressing the 'Enter' key on your computer keyboard.

Browse the www. This is an interesting, though haphazard, way of finding desired material on the internet. By starting from one homepage, a searcher can follow links to information and other sites on the internet. A home page is the starting or index page of a website. Creators of homepages usually provide links to other site on the web. A good starting point is the home page of any organization in your subject area of interest.

Explore subject directory. A large number of organizations and individual are creating directories to catalogue portions of the internet. These directories are organized by subject and consist of links to internet resources relating to these subjects. Most directories provide a search capability that allows a user to query the directory's database on his/her area or topic of interest.

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There are two (2) basic types of directories:

Academic and professional directories are often created and maintained by subject experts to support the needs of professionals and researchers and directories contained in commercial competing for traffic. Examples are:

Academic -

Commercial - yahoo! (www.yahoo.com)

Explore the deep Web: The 'deep' or invisible web refers to content that is stored in databases accessible on the web but usually not available via search engines. In other words, this content is 'invisible' to search engines. This is because spiders (search engine software) cannot or will not enter into databases and extract content from them as they can from static web pages. In the past these databases were few and were referred to as a specialty database subject specific databases, and so on. The best way to access information on the invisible web is to search the databases themselves. Invisible-web.net (www.invisible-web.net) is a small side that lists databases on the web. It is a directory of high-quality databases especially useful to researchers.

Topics covered by databases in the invisible web range scholarly recourse to commercial entities. Very currently dynamically changing information is likely to be stored in databases, including News, job listing, available airline flights and so on. Many search engines sites and commercial portals feature deep web content as part of their package of services. This phenomenon is referred to as 'converging content' for example, you can visit Alfa Vista and look up news, Maps, jobs, auctions, items for purchase, etc, all of which fall outside the purview of a spider – gathered index. All Google also integrates searches of PDF and Microsoft office files into its general; service

Conduct a search using a web search engine. Search engines are the tools that provide subject access to websites. There are many search engines available but all of them search differently and none of them search the entire World Wide Web.

Tips on conducting searches

Read the directions on each search site. The technique for formulating a search depends of the search engine you are using. There are a wide variety of options available among the different search engines

Check your Spellings

If your result are not satisfactory, respect the two sear engines work from the same index.

Try search engines that allow you to search multiple search engines simultaneously (Mera search engines). Be aware that you will lose access to advance every option since not all engines off them.

If you have too many results or results that are not relevant try the following:

Add concept words. Some search engines allow you to search again within existing results. Try this option at Google (www.google.com)

Use vocabulary that is specific to your topic; avoid words with general concepts

Link appropriate terms with the Boolean AND so that each term is required to appear in the record.

If one of your search terms is a phrase enclose it within quotations e.g. global warming.

Use the Boolean Not to keep out records containing terms you do not want.

If you have too few results:

Drop the least important concept(s) to broaden your subject.

Use more general vocabulary

Add alternate terms or spellings for individual concepts and connect with the Boolean OR

Try the option available on some engines to find related lists. Google, Meta Mission (http://metamission.com) and Profusion (www.profusion.com) are among the engines that offer this feature.

4.0 Self-Assessment Exercise(s)

1. What is Internet? Explain two (2) major services being provided by the Internet.

2. Enumerate types of information resources available on the internet

3. List and explain five (5) basic internet tools

4. Of what importance is the internet to a student and a researcher?

5.0 Conclusion

As earlier discussed, materials on the internet are of various quality. While some are carefully researched, and written are of high standards or qualities, others are of low standards frivolous, or even vulgar. Therefore, any intending researcher or a student should endeavour to examine the genuineness, the source of information, the scope of information and the identity and qualification of the author before such information is adopted and used for academic work.

6.0 Summary

In this unit, you learned about internet types of information resources on the internet and how a student or researcher can source information on the internet for the writing of term papers, assignments, journal articles, theses, books, research studies and so on. We also discussed various basic internet tools through which information are available and could be transferred from one point to the other as quickly as possible.

7.0 References/Further Readings

Cohen, Laura (2002) Conducting Research on the Internet. Available online: http://library.albany.edu/internet/reseach.html.accessed....

Harris, Robert (1997). Evaluating Internet Research sources. Available online: http://www.virtualsalt.coln/evalu8it.htm.accessed.....(date)

UNIT 3 RESEARCH ETHICS

1.0 Introduction

In the course of carrying out a research study, a researcher is expected to follow some fundamental moral values and procedures to safe guide the conduct of research, such that all studies would be conceived, designed, and implemented according to the highest stipulated standards. This requires that the design and methods of the proposed study should be reliable and valid such that they will be practically feasible, answer scientific questions, follow accepted principles, off a plausible data analysis plan, and balance risks against benefits.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and the relevant readings, you should be able to:

Define or explain research ethics\give an account of historical background research ethics
Explain basic principles of ethics in social research
Enumerate importance of ethics in research

3.0 Main Content

3.1 Definition/Meaning of Research Ethics

Ethics means the best of practice or connotes what is morally right and what is not. It also means fundamental moral values shared by researchers which tend to analyse what action is good or bad.

According to Cambridge international Dictionary, ethics has to do with or relates to moral action and conduct, i.e. what is professionally right. It is about conforming to professional standards. Ethics is defined according to Webster's Encyclopedia of dictionaries, as relating to morals or moral principles and the philosophy which treats human character and conduct, of distinguishing between right and, wrong and moral duty and obligations to the

community. It also defined ethical as "conforming to the standards of conduct of a given profession or group".

A research study may achieve one of the following objectives: breaking new grounds, further, breakthrough thus advancing knowledge beyond an existing breakthrough, and re-emphasizing or re-assertion an existing breakthrough. The utility of the third objective lies in the justification or acceptance of an existing conclusion in respect of the earlier breakthrough. It is essential to be conscious of the fact that certain characteristics or features are common to all research efforts.

These characteristics include:

Originality
Usage of acceptable research methodology and in the case f the use of new methods, justification for it and its acceptance for further research.
Usefulness: it must be a useful product of human effort and it must be legal.

In the process of carrying out a research study, the researcher is permitted, indeed expected to consult existing literature on the subject matter of the research. The sources of consultation, the existing literature, or research effort must however be stated clearly. The underlying reason for this is that an existing research effort or literature may ginger up thought and may ultimately produce further breakthrough.

It is also permitted to consult existing literature in order to give validity to one's effort.
The researcher is allowed to do this as long as it is written the permissive extent of the law.

3.2 Fundamental Research Ethics Principles

The three basic or core principles that are particularly relevant to the ethics of research involving human subjects, originally articulated in the Belmont Report, form the universally accepted basis for research ethics are as follows:

Respect for a person
Beneficence
Justice

Respect for Persons:

This is based on informed consent. It requires that human subjects be clearly informed of the risks, benefits, and alternatives relating to their involvement in the research. It also involves voluntariness and the freedom to withdraw. Or

It requires a commitment to ensuring the autonomy of research participants, and where autonomy may be diminished, to protect people from the exploitation of their vulnerability. The dignity of all research participants must be respected. Adherence to

thus principle ensures that people will not be used simply as a means to achieve research objectives.

Beneficence:

Beneficence is concerned with benefiting maximally and minimizing harm. It is also concerned with eliminating unnecessary risk and placing emphasis on safety. In fact, it is advisable to e.g. avoid human subjects if possible; risks to subjects require justification. In addition, there should be a high likelihood of significant benefits to others. Subjects should freely volunteer and there should be no brutal or inhumane treatment.

On the other hand, we can also say beneficence requires a commitment to minimizing the risk associated with research, including psychological and social risks and maximizing the benefits that accrue to research participants. Researchers must articulate specific ways this will be achieved.

Responsibilities of the Human Subject:

The Human subject must insist on:

A clear understanding of the study and his/her rights:
That the exercise or study is a research project;
The purpose of the study;
Expected experiences of participation
Length of participation
Compensation of any;
Risks/injury if any as in investigator's responsibilities; and
How participation benefits hum her or others.

Justice

This requires a commitment to ensuring a fair distribution of the risks and benefits resulting from research. Those who take on the burdens of research participation should share in the benefits of the knowledge gained. Or, to put it another way, the people who are expected to benefit from the knowledge should be the ones who are asked to participate.

Alternatively, justice means that there should be fair procedures for recruitment and subjects should not be selected because of their vulnerability. Also, the benefits of research should be fairly distributed.

In addition to these established principles, some bioethicists have suggested that a fourth principle, respect for communities, should be added. Respect for communities "confers on the researcher an obligation to respect the values and interests of the community in research and, wherever possible, to protect the community from harm". It is believed that this principle is in fact, fundamental for research when community-wife knowledge, values, and relationships are critical to research success and may in turn be affected by the research process or its outcomes.

3.3 Historical Background of Ethics in Research

The origin of ethics in research is dated back to the end of the Second World War. It was during the Nuremberg Trial after the war that the public became aware of the infamous research conducted in the Concentration Camps by German physicians which often ended with the death of the research subjects and did not meet even the most rudimentary concepts of medical or research ethics of the time (Best and Kabin 2006).

The experience of the medical experiments led to the convenience of the Nuremberg tribunal following the defeat of the Nazis. The Nazi legal defense focused on research practices in Allied countries and there were many convictions and some executions. Some escaped like Josef Mengele and some were not found guilty like Kurt Blome. The tribunal issued the Nuremberg Code in 1946 which was the first ethical code written governing Human subjects' research with emphasis on informed consent, free choice, minimizing harm, and minimizing benefits.

Another example of research that was carried out which ignored both medical and research ethics was the well-known Tuskegee Syphilis study (Jones 1993). Also, in 1932, a study was carried out on the long effects of syphilis where 399
African – American men with syphilis were denied treatment regarding racism and ethical misconduct.

It was therefore agreed that every research project involving human subjects should be preceded by careful assessment of predictable risks in comparison with foreseable benefits to the subject or to others. The right of the research subject to safeguard his or her integrity must always be respected. Every precaution should be taken to respect the privacy of the subject and to minimize the impact of the study on the subject's physical and mental integrity and on the personality of the subject.
Numerous professional associations have revised their codes of ethics to address the major moral concerns of their disciplines. For example, in 1953, the American Psychological Association issued the first code of ethics for psychologists, which was revised in 1963. In 1970, the Board of Directors of Appointed an Ad Hoc committee on Ethical standards on Psychological Research to bring the 1963 code up to date in light of changes in the science, in the profession and in the broader social context in which psychologists practice. Also in 1985, the code of ethics on the practice of sociology was approved by the membership of the American sociological Association.

3.4 Informed Consent in Research

Inform consent is a mechanism for ensuring that people understand what it means to participate in a particular research study so they can decide in a conscious, deliberate way whether they want to participate. Informed consent is one of the most important tools for ensuring respect for persons during research. Many people think of informed consent primarily as a form, that is, a piece of paper that describes in detail what the research is about, including the risks and benefits. This form generally goes through ethics committee approval procedures, includes legalistic language, and is signed by the participant, the

researcher and possibly a witness. Such informed consent forms are appropriate for biomedical and other researcher most especially when the risk faced by participants may be substantial. They may also be necessary for minimal risk research when the foundation for trust between researchers and participants is weak.

Forms are regarded as only one part of an informed consent process while in some cases, forms may not be the best way to ensure informed consent. There are also situations where obtaining informed consent from individual participants may not be feasible or necessary. For example, a researcher using participant observation to learn about how transactions occurs in a public market would find it very hard to get everyone observed in that setting to sign a consent form and would probably create unwarranted suspicion about her motives in the process of seeking such consent. Yet if people see a stranger hanging around, watching, asking questions, and perhaps taking discreet notes, they may be even more suspicious about why she is there.

How to Achieve Informed Consent

Generally, informed consent procedures are based on national and international research ethics guidelines. First and foremost, in achieving informed consent, people should be informed about the research in a way they can understand. This can be a multi-step process. For example, you may begin by approaching community leaders and explaining the research to them. The leader may them facilitate a community forum where interested people can learn about the research and ask questions. You might distribute information sheets, advertisements, or brochures, or try to get local newspapers or radio stations to do a report on the research. A community advisory board might be set up. Or the researchers might spend a week or two just talking with people or educating them one-on-one. If the researchers will be spending a lot of time in the community setting, or if the research is potentially controversial or sensitive, such efforts can go a long way toward gaining trust as well as understanding. At times, it may be necessary to obtain formal permission from community leaders or gatekeepers before research can commence.

In addition, data collection activities that require more than casual interaction with a person require individual informed consent from that person, regardless of whether community-level permissions exist. Examples of such activities include in-depth interviews and focus groups.

The person should be told:

- The purpose of the research
- What is expected of a research participant, including the amount of time likely to be required for participation.
- Expected risks and benefits, including psychological and social.
- The fact that participation is voluntary and that one can withdraw at any time with no negative repercussions
- How confidentiality will be protected
- The investigator to be contacted for questions or problems related to the research

The name and contact information of an appropriate person to contact with questions about one's rights as a research participant (usually the chair of the local ethics committee overseeing the research)

All the above-mentioned information must be provided in a language and at an educational level that the participant can understand. Would be or potential participants must be competent to make a decision about being in the research, and free from coercion or undue inducement to participate by researchers or others.

Types of informed consent

Individual informed consent may be written or oral.

Written Consent: means that a person receives a written form that describes the research and then signs that form to document his or her consent to participate. In the case of illiterate participants, the form is read to them, they make some kind of mark in place of signature, and then a witness usually signs as testimony that the consent is authentic. Written informed consent may also be described as documented informed consent.

Oral consent: means that a person receives all of the information needed for consent either verbally or in writing and then verbally consents to participate. The participant does not sign a consent form; therefore, this is often described as waiving the requirement for documentation of informed consent. This does not mean that the requirement for informed consent is waived. Most ethics committees require the researchers to maintain accurate records if how and when consent was obtained for each participant. An oral consent is generally acceptable for research with minimal risk and a signed consent form would be the only piece of identifying information for study participation.

3.5 Important Ethical Agreements in Research

The following provides valuable foundational information for proper understanding of ethical issues important for all research.

Voluntary Participation

This requires that people should not be coerced into participating in research but rather follow the tenet of research ethics which says experimental/research participation must be voluntary. In social research as it is in many other disciplines. No one should be force to participate. Although, this norm is a forced to accept in theory than to apply in practice. It is also contrary to several scientific general concerns, because the scientific goal of generalizability is threatened if experimental subjects or survey respondents are all kinds of people who willingly participate in such things. Because this orientation probably reflects more general personalities traits, the results of the research might not be generalizable to all kinds of people most clearly, in the case of a descriptive survey a researcher cannot generalize the sample survey findings to an entire

population unless a substantial majority of the scientifically selected sample actually participates – the will respondents and the somewhat unwilling.

No Harm to the Participants

In social science, the people being studied should never be injured, regardless of whether they volunteer for the study. For example, in a situation where subjects are expected to reveal information that would embarrass subjects or endanger their home life, friendships, jobs and so forth. In a study in which research subjects are asked to reveal deviant behaviour, attitudes they feel are unpopular, any rape experience or sexual assault, act of theft when young, or personal characteristics that may seem demeaning, such as low income, occasional mental disturbance, bed welting by adult, and the like. Revealing such information usually makes subjects feel at least uncomfortable.

If a particular research procedure or design is essential and also likely to be unpleasant for subjects, you will find yourself in an ethical netherworld and may go through some personal agonizing. In recent years, social researchers have been getting greater support for abiding by this norm.

Anonymity

Anonymity is guaranteed in a research project when the researcher – not just the people who read about the research – cannot identify a given response with a given respondent. Although, there are some exceptional cases, for example, an interview survey respondent can never be considered anonymous since an interviewer collects the information from an identifiable respondent. A typical example of anonymity is a mail survey or questionnaire in which no identification numbers are put on the questionnaires before their return to the research office.

Confidentiality

A research project guarantees confidentiality when the researcher can identify a given person's responses but essentially promises not to do so publicly. In an interview survey, for example, the researcher would be in a position to make public the income reported by a given respondent, but the respondent is assured that this will not be done. Whenever a research project is confidential rather than anonymous, it is the researcher's responsibility to make that fact clear to the respondent. Moreover, researchers should never use the term anonymous to mean confidential.

A number of techniques have been developed in order to allow outsiders access to data without compromising the confidentiality requirement. These include the following:

Deletion of identifier: The researcher can for example delete the names, addresses or the data released on individuals.

Crude Report Categories: The researcher can also release local or country rather than neighbourhood (or census-tract) data, year of birth rather than sa pecific date, profession but not professional specialization specific etc.

Micro-aggregation: It means, constructing "average person's from data on individuals and releasing these data rather than the original data on individuals.
Error Inoculation: The researcher can deliberately introduce errors into individual records while leaving the aggregate data unchanged in order to protect participant confidentiality.

Privacy: In course of carrying out a research study or conducting investigation, privacy of respondents or individuals is sometimes violated. The right of privacy is the freedom of the individual to pick and choose for himself or herself the time, the circumstances and most importantly the event under which his/her attitudes, beliefs, behaviour, and opinions are to be shared with or withheld from others.

Privacy is in three (3) different dimensions which are as follows:

The sensitivity of the information being given: The sensitivity or potentially threatening the information is, the more researchers are obliged to protect the privacy of the research participants. Information such as sexual practice, religious preferences, income, and racial prejudice.

The setting being observed: The setting where the research is carried out may be in private or sometimes public depending on the researcher and the research mission. For example, the home is considered one of the most private settings in our culture and intrusion into people's homes without consent is forbidden by law.

Dissemination of Information: This has to do with ability to match personal information with the identity of the research participants.

The above-mentioned dimensions must be considered by the researcher when taking decision on how private certain information is and what to do to safeguard the privacy of research participants.

Professional Researchers' Ethical Issues

Professional researchers are required or expected to fulfill the following ethics norms:

Honesty: A researcher should guide against telling lie(s) as much as possible and must be honest with himself, the participants and the research community.

Integrity: This entails keeping one's promises and agreements, act with sincerity of purpose and strive as much as possible for consistency of thought and action.
Respect: Researcher is required by norm to protect the participants' basic human and civil rights.
Communality: The norm expects researcher to report the methods, purpose, motives and consequences accurately and to have their findings, including

means ends, motives and results freely and honestly with other members of the research community. (Smith 1988:284).
Carefulness: Researchers are always advised to avoid or guide against careless errors and negligence.
Disinterestedness: Research ethical norms forbid that personal gain should not be a researcher's main (or only) reason for embarking on any form of research.

3.6 Importance of Ethics in Research

1.) Research ethical norms or principles encourage a peaceful working relationship Between the researchers and research participants. On the part of researchers/authorship, intellectual properties are protected while participants are not to be harmed in order to avoid conflict or crisis.

2.) The research ethic principles support the aims of research such s knowledge, truth and avoidance of error. For example, a researcher has to be honest in reporting data, result, methods and procedure and publication status.

3.) Ethical principles assist in building public support for research since the public have been educated and concientised and convinced that researches are carried out for the promotion and acquisition of knowledge and information necessary for the betterment, development and upliftment of mankind.

4.) Ethical principles ensure that researchers are accountable to the public.

5.) Important moral and social values such as social responsibility, human rights, animal welfare etc. are promoted by ethical principles.

4.0 Self-Assessment Exercise(s)

1. What influence do the fundamental research ethics principles have on research?
2. Define research ethics and explain two of its fundamental principles.
3. How can informed consent be achieved?

5.0 Conclusion

This unit has considered ethical issues in social research. Several codes of practice, guidelines, principles and policies which are now provided in various academic disciplines are geared toward eliminating unethical practice and misunderstandings that may arise in the course of carrying out research study.

6.0 Summary

In as much as ethics of social research deals mostly with the methods employed in carrying out a research study and ethical issues in social research are both important and ambiguous, most professional associations of social researchers have created and published formal codes

of conduct describing what is considered acceptable and unacceptable professional behaviour. Research ethics from a number of organizations therefore, provide a valuable foundation for understanding ethical issues important for all research.

7.0 References/Further Readings

Aldridge, A. and Levine, K. (2001) Surveying the Social World: Principles and Practice in Survey Research. Buckingham: Open University Press. Pages 21-3 consider privacy. Research ethics, informed consent, confidentiality and sensitivity.

Bernard HR. Research Methods in Anthropology second edition. London: sage Publications 1995.

Blaxter, L. Hughes, C and Tight, M. (2001) How to Research, 2nd ed. Buckingham: open University Press pages 157-61 deal with ethical issues in a clear and helpful way.

Busher, H. (2001) 'Ethics of Research in Education: chapter 5 in M. Coleman and A.R.J Briggs (eds) Research methods in Educational leadership and Management. London: Paul Chapman Publishing.

Cohen, L., Manion , L. and Morrison K. (2000) Research Methods in Education, 5th edu. Chapter 2, 'The Ethics of Educational and Social Research: provides 20- pages of sound advice. London and New York: Routledge.

Darlington, Y. and Scott, D. (2002) Qualitative Research in Practice: Stories from the field. Buckingham: Open University Press. See chapter 13, Research ethics'

Denzin NK, Lincoln YS (eds.). Handbook of qualitative Research. London: Sage publications, 2000.

Homan, Roger. 1991. the Ethics of social Research. London: Longman. A thoughtful analysis of the ethical issues of a practicing British social researcher.

Lee, Reymond. (1993)doing research on sensitive Topics. Newbury Park, C.A: sage. This book examples the conflicts between scientific research needs and the rights of the people involved – with guideline for dealing with s uch conflicts.

May, T. (2001) social Research issues, methods and process, 3rd edu. Buckingham: Open University Press. Pages 59-68 consider ethical issues in social research.

Oliver, P. (2003). The students guide to Research ethics, maidenhead: Open University Press. Oliver clarifys research terminology, discusses the moral justification of research, areas of research which raise ethical issues, issues relating to the principle of informed consent, anonymity and confidentiality-and much more sweet, Stephen.

1999.” Using a mock institutional research”. Teachi ng sociology 27 (January): 55-59.

Nkwi P. Nyamongo I, Ryan G. field Research into social issues: Methodological Guidelines. Washington, DC: UNESCO , 2001.

Pope C, Mays N. Qualitative Research in Health care. London : BMT Books. 2000.

UNIT4 REFERENCING STYLES IN ACADEMICS WORKS I

CONTENTS

1.0 Introduction

In the academic environment, it is imperative for every academic, sscholar researcher and student to site, reference or acknowledges all sources of information, ideas, quotations or words that you have used in your essay, research paper, articles, dissertation or thesis in a way that identifies the original sources. Also, in the academic community, it is very important you show the reader where you have used someone else's ideas or words because failure to properly do so may the reader think that you show the reader think that you are cheating by claiming someone else's work as your own.

However, failure to adequately and accurately acknowledge your sources could be tantamount to plagiarism. Plagiarism, therefore, is a grievous or very serious offence ian n academic palace that can have a disastrous consequence for an academic student fthe ound culprit and guilty of the offence.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define or explain what referencing and referencing styles means
Enumerate different referencing styles
State importance of referencing
Discuss or explain each and every referencing style.

3.0 Main Content

3.1 Definition of Referencing Styles

Referencing Styles are the various ways of acknowledging literature source consulted in research work.

They are formats used for preparing references (sources of information) for academic works.

These are endnotes or footnotes that provide a correct bibliographical citations for the sources noted in the text. Footnotes appear at the bottom of each page of academic work while Endnotes appear at the end of each chapter or at the end of the entire academic paper.

They are specific ways or formats of acknowledging all sources of information and ideas that you have used in your essays, research paper, dissertation or thesis in a way that identifies the original source

It is a compilation of a set of rules for the scholars by publications.

3.1.1 Types of Referencing Styles

There are different types of referencing styles, with each style having its peculiarities with differences in the amount of details referenced and other editorial details recognized and preferred by various bodies and publishing outfits. These are usually referred to as ‘house styles’, which include the following:

APA (American Psychological Association) Style
MLA (Modern Language Association) Styles
Chicago Manual of Style
Harvard Style
Vancouver Style
British Standard

3.2 Importance of Referencing

It guides against plagiarism which if not avoided, can lead to disastrous consequences.

When you reference correctly you are demons treating that you have read widely on a topic.

It reveals the original source(s) of information and allows the reader to consult the original sources of your information ad acknowledges the author(s) from which the information was taken

When you make good reference, you are also supporting your hypothesis with comments from expert authors.

It gives credit to previous scholarly work cited.

3.2.1 What do Styles Strive to Achieve?

Clarity and consistency of work
Conciseness: They help to avoid redundancy and save space and energy
Though manuals gives comprehensive information on referencing styles and other aspects of writing and documentation, they are not static
They are reviewed constantly.

3.3 American Psychological Association (APA) Style of Referencing

APA style of referencing is a common style used in the social and Behavioural Sciences. This style is an author-date method of referencing (i.e. it requires name of the author and your publication).

3.3.1 APA Basic Rules for Document Layout

The following are some general guidelines for referencing works I the text of a document.

The author's surname and year of publication are used within the test of a document (commonly referred to as in-text citations) when you are quoting, paraphrasing or summarizing someone else's ideas. At the end of the document full details of the in-test citations are given in a reference list.

Referring to the works of other n your text

Follow the author-date method of in-txt citation.
This means that the author's last name and the year of publication for the source should appear in the text and a complete reference should appear in the reference list at the end of the paper.
If you are referring to an idea from another work but not directly quoting the material, or making reference to an entire book, article or other work, you only have to make reference to the author and year of publication in you in-test reference.
It you are directly quoting from a work, you will need to include the author, year of publication, and the page number for the reference.
Examples for referring to another idea or study.

3.3.2 Formatting Citation in a Test by APA

The following are some basic rules for formatting citations in the body of a work or paper:

Always capitalize proper nouns, including author names
If you refer to the title of a source within your capitalize all words that are four letters long or more within the title of a source
When capitalizing title, capitalize both words in a hyphenated compound word.
After a colon or dash in a title, capitalize the first word

Italicize the titles of longer works such as books, edited collections, movies, documentaries or albums

Put quotation marks around the titles of shorter works such as journal articles, articles from edited collections, television shows and song titles

If a work has two authors, cite both names every time the reference appears in your text. Join the authors' names with the word 'and'

If a work has three, four, or five authors, cite all of the authors initials the first time you refer to the work, shorten the citation to the last name of the first author plus the words et.al. join the authors' names with; join the authors' names with an ampersand (8) if the you are referring to them in a parenthetical citation.

It a work has six authors (or more), cite only the last name of the first author plus the word et al.

3.3.3 Reference List

Authors' names are inverted (last name first); the last name and initial for all authors of a particular work unless the work has more than six authors

If the work has more than six authors, list the first six authors and then use et.al after the sixth author's name to indicate the rest of the authors.

Reference list entries should be arranged alphabetically according to the surnames (last names) of the first author of each work.

It you have more than one article by the same authors), single–author references or multiple-author references with the exact same author's in the exact same order listed in order y the year of publication, starting with earliest.

3.3.4 Examples of APA Format

Journal Article with DOI assigned

Liefert, W. Lerman, Z. Gardner, B. & Serova, E. (2005) Agricultural Labour in Russia: Efficiency and provitability. Review of Agricultural Economics, 27(3), 412-417, doi:10.111/J. 1467-9353.2005.00237.x

Journal article without DOI assigned found in Library database

Cooper, L. (2009). Human voice: Language and conscience in Twain's A Connecticut Yankee in King Arthur's court. Canadian Review of American studies, 39(1), 65-84. retrieved from EBSO Mega file database.

Magazine article without DOI assigned, found in Library database

Hubbard, L. (2009, May 11). Survey demand for defunct energy drink. Convenience store News, 45(6), 16. Retrieved August 4,2009, from EBSCO Mega file database.

Magazine article without DOI assigned, with no author, found in library database car phones unsafe at any speed. (1996, July). Safety & Health 154(1), 102. Retrieved from Academic Search Premier database.

Article freely available from the publisher (This is an example of the page number not given) Roundtree, C. & Huglen, M. (2004). The rhetoric of bush's war on evil. KB Journal 1(1) Retrieved from http://kbjournal.orglnextphase.

Journal article with DOI assigned and more than seven authors
Besselmanu, D., Schaub, D., Wenker, C. Vollm, M. (2008). Juvenile mortality in captive lesser Kudu (Tragelaphus imberbis) at Basle 200 and its relation to nutrition and husbandry. Journal of 200 and wildlife Mediumee, 39 (1), 86-91. doi:10.1638/2007-0004.1

Edited book
Letheridge, S., & Cannon, C.R. (Eds.). (1980). Bilin- gual education. New York: Praeger.

Book (two authors)
Strunk, W., & White, E. B. (1979). The elements of styles (3rd ed.) New York: Macmillan.

Article or chapter in an edited book (print)
Sheets, B. (2006). The cost of Lingering arm injuries. In B. selig. & W. Selig (eds.) A compilation of long stories (pp.211-234). Milwaukee, WI: MB Press.

Chapter or section in an internet document
Thompson, G. (2003). Youth coach handbook. In Joe soccer, Retrieved September 17, 2004 from http://www.joesoccer. Comlmenu.html

Doctoral dissertation, from a commercial database Olsen, G. (1985). Campus child care within the public supported post-secondary institutions in the stage of Wisconsin (Doctoral dissertion). Available from Pro Quest Dissertation and Theses database. (Publication No. AAT 8528441)

Online reference work
Po1 (food). (2009). In Wikipedia. Retrieved August 3, 2009 from http://en.wikipedia.org/wiki/mainpage

Video Blog Post
Redbone, L. ln.d). seduced-Leon Redbone. (Video file) Retrieved from http://www.youtube.com/watch?v=SRSQ1ISWP24

Online document with government author Wisconsin Department of Natural Resources. (2001) Glacial habitat restoration areas. Retrieved from http://www.dnr.state.wi.us/org/land/wildlife/hunt/hra.htm

Personal communications
Personal communications may be things such as email messages, interviews, speeches, and telephone conversations. Because the information s not retrievable they should not appear in the reference list. They should look as follows: example: S. Shurley (personal communication, September 20, 2008) indicated that … . Or In a ecent interview (S. Shurley, personal communication, September 20, 2000) I learned that…..

Citation of a work in a secondary source
To cite secondary sources, refer to both sources in the text, but include in the references list only the source that you actually used. For example, suppose you read Fielder (2008) and would like to paraphrase the following sentence within that article: Braun (2008) defined bat speed as "the ability to catch up to a baseball with a moving bat" (p.11).

In this case, the in-text citation would be: (Braun, 2008, as cited in Fielder, 2008) fielder (2008) would be fully referenced within the list of references.

Reference citations in text
To refer to an item in the list of references from the text, an author-date method should be used. That is, use the year of the publication in the text at appropriate points.

Example: Researchers have indicated that more is expected of students in higher education (Hudson, 2001, p.8) and secondary education (Taylor & Hornung,2002. P.31).

One author
Isaac (2001) indicated in his research….
In a recent study, research indication (Isaac, 2001)

Two or more authors
When a work has two authors, always cite both names every time the reference occurs. For works with three, four or five authors, cite all authors the first time the reference occurs. In subsequent citations, include only the last name of the first author followed by et.al

Specific parts of a source
(Yount & Mohtor, 1982, p.19)
(Cooper, 1983, chap.4)

When a work has no authors
Cite in text the first few words of what appears first for the entry on the list (usually the title) and the year.
("New Student Center," 2002).

3.4 Modern Language Association (MLA): Style of Referencing

Documenting your research paper according to MLA style (Modern Language Association) requires PARENTHETICAL DOCUMENTTION in the body of the text and preparing a list of Works Cited at the end.

Parenthetical Documentation
Parenthetical documentation informs readers to your paper that you are using information opinions, and ideas from other sources. The unit of a parenthetical documentation – a citation or reference… Consists of a name or a tit le keyword, followed by page the
number(s) of the source. Enclose them in parentheses and insert them at the end of sentences or wherever appropriate.

This guide is based on MLA Handbook for Writers of Research Papers usually in Liberal Arts and Humanities.

- Each entry must include a label indicating the format of the item like Print, Web etc.
- Abbreviations are required where need: n.p. for no publisher, n.d. for no date, and n.pag for no pagination.
- Titles should be italicized, not underlined.
- URLS do not need to be included for citations to online materials unless the URL is the only way for the reader to find the web site.
- Volume and issue numbers are included in all citations to journal articles, whether or not the journal is paginated continuously or issue-by issue.

Citations in text: use short parenthetical citations, instead of numbered footnotes, to point the reader to complete information about your sources in your Works cited list:

- The parenthetical usually includes the author's last name and the page number cited: (Higgins 25)
- If your Works cited list includes more than one work by an author, the parenthetical should include part of the title: (Higgins, Williams 141)
- If a work has more than one author, use the authors' last names as used in the citation: (Robertson and McDaniel 53), (Smith et.al)
- If the work does not have an author, the parenthetical should include the first one or two words from the title: ("Venue's Loss" 8A)
- In some cases, like newspaper articles, films or online works with no page numbers, or if an entire work as being acknowledged, incorporated the author's name or work title into your sentence instead of using a parenthetical: "in the Wizard of 07….." or "Branch report".

Book, Single Author:
Higgins, John. The Rayound William Reader. Malder: Blackwell Publishers, 2001. Print.

Book, more than one author: list authors' name in the order they are listed on the book. Use et.al, for more than three authors.

Robertson, Jean and Crang Mc Daniel. Themes of contemporary Art: Visual Art after nd

Smith, Mick, et. Al. Emotion, Place and culture. Burlington. VT: Ashgate, 2009. Print.

Work in an anthology
Hallett, Nicky. "Anne Clifford as Orlando: Virginia
Woolf's Eminist Historology and women's Biography" Anne Clifford and Lucy Hutchinson. Ed. M.hoko Suzuki. Surrey. England: Ashgate, 2009. 2-22. Print.

Newspaper Article (unsigned)

"Venue's Loss Brings Back Many Memories" Atlanta Branch, Taylor. "The Clinton Tapes: Wrestling History with the President" The New York Times 25 Sept. 2009: Books of the Times 29. Dow Jones Factwa. Web 29 Sept., 2009.

Magazine Article: written for scholars and professionals Kratzke, Peter. "Recopying to Revise: Composition in an old Key". Composition stu dies 36.2 (208): 9-22 Print.

Article from an online database: include name of database, format (Web) and date material was found. A URL is not required.

Edwards, Kim. "Good Looks and Sex Symbols: The pow er of the Gaze and the Displacement of the Erotic in Twilight". Screen Ed ucation 53.1 (2009): 26-32. Communication & Mass Media Complete. Web. 31 October, 2009.

Article from a web site: include web site publisher; if no publisher, substitute N.P. for "no publisher"

Lind, Michael "Why Dilbert is Doomed: The Jobs of T omorrow are Not what You'd Expect". Salon. Salon Media Group Inc., 2 November , 2009. Web 15 December, 2009.

Reprinted Article

Hunt, Tim Misreading of Kerouac. "The Review of Con temporary Fiction. 3.2 (Summer 1983) 29-33, Rpt in contemporary Library Criticism. Ed. Roger Matuz and Cathy Falk. Vol. 61. Detroit: Gale Research, 1990.29-33. Print.

Articlefrom a well-known encyclopedia (unsigned) " Tutankhamen". The New Encyclopedia Britannica: Micropaedia. 15th ed. 2007. Print.

Article from lesser-known encyclopedia (signed)

Schafer, Elizabet D. "Andrew's Raid". Encyclopedia of the American Civil War. Eds.. Heidler and Jeanne T Heidler. 5vols. Santa Barbara: ABC-CLIO, 2000. Print.

Article from online enclopedia on GALILEO

Killam, G.D. "Chinua Achebe". Dictionary of Litera ry Biography. Ed. Bernth Lindfors and Reinhard Sander, Vol. 117. Detriot: Gale, 1992. 15-34. Literature Resource Center. Web. 30 October, 2009.

Entire web site

Electronic Poetry Center. 2009. SUNY Buffalo. Web. 29 Sept. 2009.

Web page within a larger web site

Martin, Thomas R. "An Overview of classical Greek H istory from Homer to Alezander". Perseus Digital Library. Ed. Gregory R. Crane. 1999. tufts U. web. 25 Sept. 2009

Film or Video

The Wizard of OZ. Screenplay by Noel Langley Florence Ryerson and Edgar Allan Woolf Dir. Victor Fleming. Perf Judy Garland, Ray Bolger, Bert Lahr and Jack Haley. Metro-Goldwyn-Mayer, 1939.

4.0 Self-Assessment Exercise(s)

1. What do you understand by the concept referencing style?
2. Of what relevance is referencing to academic research work?
3. Which of the referencing house style do you prefer out of the above discussed styles and why?

5.0 Conclusion

Each and every academic discipline has its features that distinguish its aim, content, rules and methods of scholarly inquiry from those of others. Therefore, an academic who wants his/her paper published must first of all understand the principles and guideline recognized and adopted or recommended by the institution; journal, publisher, discipline body or association, organizational paper in which she/he (research) prefers.

6.0 Summary

A brief definition of referencing style was given followed by different types of styles of referencing with each style having its peculiarities with differences in amount of details, referencing and other editorial details. Importance of referencing was also stated while American Psychological Association style APA) and modern language Association style guidelines and format were discussed with relevant examples for proper understanding of how different sources of information should be cited or referenced.

7.0 References/Further Readings

American Psychological Association (APA). 2005. Publication Manual of the American Psychological Association. Washington DC: American Psychological Association.

MLA Handbook for Writers of Research Papers, 7th edition (2009)

UNIT 5 REFERENCING STYLES IN ACADEMIC WORKS 2

CONTENTS

1.0 Introduction

This unit is the other (second) part of referencing styles in Academic work I that introduces students, scholars, researchers or academics to rules on referencing styles preferred by various bodies and publishing outfits which those who want their works published should conform with. APA and MLA styles were extensively discussed in the first part, which be preceded by the Chicago manual style and Harvard style with a brief reference to others in this second part.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings you should be able to:

Explain Chicago manual style of referencing
Discuss Harvard style

3.0 Main Content

3.1 The Chicago Manual of Referencing Style

The Chicago Manual of style allows for two different types of reference styles, which reveals how to create endnotes or footnotes and a bibliography for both print and electronic formats. Endnotes or footnotes provide correct bibliography citation for the sources noted by number in the test. Footnotes appear at the bottom of each page while endnotes appear at the end of each chapter or at the end of the entire paper.

Traditionally, researchers in the humanities and social sciences use the documentary – Note style, while researchers in the sciences use the Author-Date system. The two different types of reference styles are:

the Author-Date System and

the documentary – Note (or Humanities) style.

PRINT SOURCES

(N = Footnote/end note B = bibliography)

BOOKS

Use a shortened format for subsequent references to the same work.

One author:

1. Emery Blackfoot, *Chance Encounters* (Boston: Serendipity Press, 1987), 67.

N2. Blackfoot, 97.

Blackfoot, Emery. *Chance Encounters*. Boston: Serendipity Press,1987.

Two authors:

3. Liam P. Unwin and Joseph Galloway. *Peace in Ireland* (Boston: Stronghope Press, 1990), 72.

N 4. Unwin and Galloway, 102.

Unwin, Liam P., and Joseph Galloway. *Peace in Ireland*. Boston: Stronghope Press, 1990.

More than three authors: For works having more than three authors, a note citation should give the name of the first-listed author followed by "et al." or "and others" without inverting punctuation. In the bibliography entry, the usual practice is to list all of the authors. The name of the first author is inverted.

5. Charlotte Marcus et al. *Investigations into the Phenomenon of Limited-Field Criticism* (Boston: Broadview Press, 1990), 134.

6. Charlotte Marcus and others. *Investigations into the Phenomenon of Limited-Field Criticism* (Boston: Broadview Press, 1990), 134.

N 7. Marcus et al., 175.

Marcus, Charlotte, Jerome Waterman, Thomas Gomez, and Elizabeth DeLor. *Investigations into the Phenomenon of Limited-Field Criticism*. Boston: Broadview Press, 1990.

Corporate author:

8. International Monetary Fund, *Surveys of African Economies*, vol. 7, *Algeria, Mali, Morocco, and Tunisia* (Washington, D.C.: International Monetary Fund, 1977), 27.

N 9. International Monetary Fund, 46.

B International Monetary Fund. *Surveys of African Economies*. Vol.7, *Algeria, Mali, Morocco, and Tunisia*. Washington, D.C.: International Monetary Fund, 1977.

Edition other than the first:

10. John N. Hazard. *The Soviet System of Government*, 5th ed. (Chicago: University of Chicago Press, 1980), 132.

Hazard, John N. *The Soviet System of Government*. 5th ed. Chicago: University of Chicago Press, 1980.

Edited work, compilation, or translation: The name of the editor, translator, or compiler takes the place of the author when no author appears on the title page. In notes and bibliography, the abbreviation *ed./eds., comp./comp., or trans.* follows the name and is preceded by a comma.

11. Anthony B. Tortelli, ed., *Sociology Approaching the Twenty-first Century* (Los Angeles: Peter and Sons, 1991), 59.

N 12. Tortelli, 93.

Tortelli, Anthony B., ed. *Sociology Approaching the Twenty-first Century*. Los Angeles: Peter and Sons, 1991.

ARTICLES IN JOURNALS, MAGAZINES, AND NEWSPAPERS

Basic form:

13. Noel Robertson. "The Dorian Migration and Corinthian Ritual," *Classical Philology* 75 (1980): 17, 19-22.

Robertson, Noel. "The Dorian Migration and Corinthian Ritual." *Classical Philology* 75 (1980): 1-22.

With season or month: The name of months are capitalized but lower case is recommended for the names of seasons.

14. Ilya Bodonski. "Caring among the Forgotten," *Journal of Social Activism* 14 (fall 1989): 112-34.

Bush, Jane R. "Rhetoric and the Instinct for Survival." *Political Perspectives* 29 (March 1990): 45-53.

Issues with numbers only:

15. Eva Meyerovich. "The Gnostic Manuscripts of Upper Egypt," *Diogenes*, no. 25 (1959): 91, 95-98.

Meyerovich, Eva. "The Gnostic Manuscripts of Upper Egypt." *Diogenes*, no. 25 (1959): 84-117.

Popular magazines:

16. E. W. Caspari and R. E. Marshak. "The Rise and Fall of Lysenko," *Science*, 16 July 1965, 276.

Caspari, E. W., and R. E. Marshak. "The Rise and Fall of Lysenko." *Science*, 16 July 1965, 275-278.

Newspapers:

17. Tyler Marshall. "200th Birthday of Grimms Celebrated," *Los Angeles Times*, 15 March 1985, sec. 1A, p. 3.

Marshall, Tyler. "200th Birthday of Grimms Celebrated." *Los Angeles Times*, 15 March 1985, sec. 1A, p. 3.

OTHER SOURCES

Movie reviews:

18. Stanley Kauffman. "Turbulent Lives," review of *A Dry White Season* (MGM movie), *New Republic*, 9 October 1989, 24-25.

Kauffman, Stanley. "Turbulent Lives." Review of *A Dry White Season* (MGM movie). *New Republic*, 9 October 1989, 24-25.

Book reviews:

19. Susan Lardner. "Third Eye Open," review of *The Salt Eaters*, by Toni Cade Bambara, *New Yorker*, 5 May 1980, 169.

Lardner, Susan. "Third Eye Open." Review of *The Salt Eaters*, by Toni Cade Bambara. *New Yorker*, 5 May 1980, 169.

Interviews:

20. McGeorge Bundy, interview by Robert MacNeil, *MacNeil/Lehrer News Hour*, Public Broadcasting System, 7 February 1990.

Bundy, McGeorge. Interview by Robert MacNeil. *MacNeil/Lehrer News Hour*. Public Broadcasting System, 7 February 1990.

Encyclopedias: Well-known reference books are usually not listed in bibliographies. When they are cited in notes they appear as follows. s.v. (sub verbo) means "under the word".

N 21. *Encyclopaedia Britannica*, 11th ed., s.v. "cold war."

N 22. *Dictionary of American Biography*, s.v. "Wadsworth, Jeremiah."

CITATIONS IN THE TEXT

Basic form: Consists of the author's last name and the year of publication of the work. No punctuation is used between the author's name and the date. When the reference list or bibliography includes two or more works by different authors with the same last name and the same date, it is necessary to include the author's initials. When there are more than three authors use "et al".

(Blinksworth 1987)

(Collins and Wortmaster 1953)

(EPA 1986)

(P. Brown 1991)

(Smith, Wessen, and Gunless 1988)

(Zipursky et al. 1959)

Placement of text citations: An author-date citation in the text should be placed where it will offer the least resistance to the flow of thought. The best location is just before a mark of punctuation:

Before proceeding . . .we will describe the system of scaling quantitative scores (Guilford 1950).

What conclusions . . . had they been aware of the narrow-aperture principle recently reported (Klein, Cane, and Abbelli 1991)?

ARTICLES RETRIEVED IN ELECTRONIC FORMAT

These guidelines were retrieved from the WWW and are based on the principles presented in the 14th edition of *The Chicago Manual of Style*.

FOR FOOTNOTES AND ENDNOTES:
Author's name is in normal order followed by the document title, date of Internet publication, <URL> or other retrieval information, date of access, and text division, if applicable.

Book:

1. Peter J. Bryant. "The Age of Mammals," in *Biodiversity Conservation* April 1999, <http://darwin.bio.uci.edu/~sustain/bio65/index.html> (11 May 1999).

Article in electronic journal (ejournal) or magazine (ezine):

Tonya Browning. "Embedded Visuals: Student Design in Web Spaces," *Kairos: A Journal for Teachers of Writing in Webbed Environments* 3, no. 1 (1997), <http://english.ttu.edu/kairos/2.1/features/browning/index.html> (21 October 1999).

Nathan Myhrvold. "Confessions of a Cybershaman," Slate, 12 June 1997, <http://www.slate.com/CriticalMass/97-06-12/CriticalMass.asp> (19 October 1997).

Newspaper article:

Christopher Wren. "A Body on Mt. Everest, a Mystery Half-Solved," *New York Times on the Web*, 5 May 1999, <http://search.nytimes.com/search/daily/bin/fastweb?getdoc+site+site+87604+0+wAAA+%22a%7Ebody%7Eon%7Emt.%7Everest%22> (13 May 1999).

Government publication:

George Bush. "Principles of Ethical Conduct for Government Officers and Employees," Executive Order 12674, 12 April 1989, pt. 1, <http://www.usoge.gov/exorders/eo12674.html> (30 October 1997).

Professional and personal sites:

6. Joseph Pellegrino. "Homepage," 12 May 1999, <http://www.english.eku.edu/pellegrino/default.htm> (12 June 1999).

Gail Mortimer. *The William Faulkner Society Home Page*, 16 September 1999, <http://www.utep.edu/mortimer/faulkner/mainfaulkner.htm> (19 November 1997).

FOR A BIBLIOGRAPHY:
Authors' names are inverted. The elements of entries are separated by periods. The first line of each entry is flush with the left margin, and subsequent lines are indented three or four spaces.

Article in an electronic journal (ejournal):

Teague, Jason Crawford. "Frames in Action." *Kairos: A Journal for Teachers of Writing in Webbed Environments* 2, no. 1, August 20, 1998.

<http://english.ttu.edu/kairos/2.1> (7 October 1999).

3.2 Harvard Style

In the Harvard referencing list, year of publication is usually in parenthesis:

Abaldwin, R.L. and R.T Blackburn (1981) The academic career as a developmental process: Implication for higher education.
Journal of Higher Education 52(6), pp.598-614

There are many modifications of the Harvard style (modification by universities and organizations)

Variants of the Harvard Style

At the Lachester University (UK), the year of publication is not in parenthesis and there is a period after year of publication.
At Monash University (Australia), articles are in double quotation marks.
At the University of Western Australia the year of publication is not in parenthesis.

Source Types/General Rules	**In-text citation**	**Bibliography**
Book, single author	(Collins, 2001, p.49)	Collins, J. (2001) *Good to great*. New York, HarperBusiness.
Multiple authors format (for any source). Examples are for 2, 3 and 4 or more authors.	Format in citation: (Gundry & Kickul, 2007) (Hughes, Ginnett & Curphy, 2006) (Davis et al., 2000)	Format in reference: Gundry, L.K. & Kickul, J.R. Hughes, R.L., Ginnett, R.C. & Curphy, G.J. Davis, B. et al.
Chapter in an edited collection	(Kotter, 1999, p.73)	Kotter, J.P. (1999) Making change happen. In: Hesselbein, F. & Cohen, P.M. eds. *Leader to leader*. San Francisco, Jossey- Bass, pp.69-79.
Secondary reference (book cited within another book)	(Argyris, 1982, quoted in Senge, 2006, p. 164)	Argyris, C. (1982) Reasoning, learning and action: individual and organizational. San Francisco: Jossey-Bass. Quoted in: Senge, P.M. (2006) *The fifth discipline*. New York, Currency/Doubleday.
Journal article (print)	(Hazy, 2006, p.61)	Hazy, J.K. (2006) Measuring leadership effectiveness in complex

		social-technical systems. *Emergence: complexity & organization*. 8 (3), pp.58-77.
Journal article (retrieved from online database)	(Kuvaas, 2006, p.371)	Kuvaas, B. (2006) Work performance, affective commitment, and work motivation: the roles of pay administration and pay level. *Journal of organizational behaviour* [Internet], 27 (3), pp.365-385. Available from: <http://www3.interscience.wiley.com> [Accessed 13 January 2009].
Reference book with no author (e.g., dictionary)	(Oxford English dictionary, 1989, p.127)	*The Oxford English dictionary*. (1989) vol 5, 2nd ed. Oxford, Clarendon.

Source Types/General Rules	**In-text citation**	**Bibliography**
Government report	(Ministry of the Solicitor General, 1990, p.45)	Canada. Ministry of the Solicitor General. (1990) *A vision of the future of policing in Canada*. Ottawa, ON, Department of Justice.
Magazine article	(Salmon, 2009)	Salmon, F. (2009, March 17) A formula for disaster. *Wired*, pp.74-79.
Newspaper article, no author	("Crime Rates Rise," 2005)	Crime rates rise for second consecutive year. (2005) *The Vancouver Sun*, 15 July, p.A1.
Brochure	(Royal Canadian Mounted Police, 2006)	Royal Canadian Mounted Police (2006) *Crime prevention tips for homeowners.* Nanaimo, Canada, Royal Canadian Mounted Police.
Electronic documents (i.e. electronic book or case study) retrieved from online Source	(Rochlin & Boguslaw, 2001)	Rochlin, S.A. & Boguslaw, J. (2001) *Safeco's urban marketing initiative* [Internet]. Boston, MA, The Center for Corporate Citizenship at Boston College. Available from: <http://www.caseplace.org> [Accessed 6 March 2009].
Web page – authored	(Rowett, 1998)	Rowett, S. (1998) *Higher Education for capability: autonomous learning for life and work* [Internet], Higher Education for Capability.

		Available from: <http://www.lle.mdx.acu.uk/hec/about.htm>[Accessed 8 August 2000].
Web page – corporate	(Ikea Group, 2009)	Ikea Group (2009) *About Ikea* [Internet], Inter IKEA Systems B.V. Available from: < http://www.ikea-group.ikea.com/?ID=2> [Accessed 6 March 2009].

3.3 The Vancouver Style

The Vancouver referencing style requires the name of the author the and number of publication.
Vancouver style is used in medicine and can be evaluated.

Example:
Annas G.J New drugs for acute respiratory distress syndrome. N. Engl J. Med. 1977; 337: 435-9

4.0 Self-Assessment Exercise(s)

Identify and state the major unique difference between the Harvard style and other styles.

5.0 Conclusion

As we are aware of the fact that, different formats of references exist in an academic environment. Therefore the rules and guidelines recommended by any of the referencing styles being adopted or used should be observed to ensure consistency in the final academic work and to credit to the authors whose ideas were borrowed by a researcher.

6.0 Summary

References consist of all documents or information cited in the text of a manuscript. In this unit Chicago, Harvard and Vancouver referencing styles were discussed and they cut across journal articles, books, chapters in books, technical reports, government reports, magazine and newspapers, articles, brochures, electronic documents (movie reviews) interviews, encyclopedias and others.

7.0 References/Further Readings

The Chicago Manual of Style (ref desk Z 253 U69 1993)

Speedy Guide to Harvard Referencing (Faculty of Management- Vancouver Island University

MODULE 4

COMPONENTS OF A GOOD RESEARCH

Components of a good research is the next aspect to examined in this module. It will enhance the students on the best research peace methods that will produce the long essay at the end of the programme. Therefore, the underlisted four units are the areas where the module will be center on.

UNIT 1 SAMPLE AND SAMPLING METHODS

1.0 Introduction

In some research studies, the group of items to which the study relates (the population) may be small enough to warrant the inclusion of all of them in the study. But on the other hand, the study may entail a large population which cannot all be studied. Therefore, in a situation whereby the population is very large, we cannot conduct an interview or administer questionnaires to them all, but we have to identify and make use of a certain portion of the entire population. This becomes necessary in order to cut or minimize cost, economise time and the make best of the sample that would be used in the study.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define sample and sampling
Mention types of methods of sampling
Explain different types of probability methods and enumerate the merits and demerits of each.
List and discuss different types of non-probability sampling methods.
Itemise merits and demerits of different types of non-probability sampling methods.

3.0 Main Content

3.1.1 Sample:

Is a small representative group of the population.
The part of the population which is the chosen selection while the total group with which the study is concerned is called the population.

3.1.2 Sampling:

Is the process of selecting a sample from a population.
Is the term used to denote the collection of information and drawing of inferences about a population from a study of only a part of the population.
Is the process of selecting a number of group or sample for a study in such a way that the group/sample represent the population from which they were selected.

The method of sampling is widely used in social research because it is always practical to study all the members of a community or group, since the numbers are too large. This method has come to stay in scientific investigation because it is not possible to conduct a study in which all units of interest can be covered. By carefully selecting a small proportion of the population to represent the total population, it is possible to obtain the same information or result as could be obtained from the entire population.

3.2 Importance of sampling in Research

It reduces costs in terms of time, money and administrative manpower.
It is a speedy and convenient way of conducting research.
It gives room for greater accuracy.
It offers greater scope for interaction with subjects than could be possible in full or completed coverage of the total population.

The two principles of sampling are to avoid bias in the selection procedure and obtain high precision of estimates within available resources.

3.3 Sampling Methods

There are two main methods of sampling vis.

Probability sampling, where the method of selection is random and such item or unit has determinate chance of being selected and also guides against or avoid bias; and

Non-probability sampling, where the method of selection is not strictly random, and each item or unit has no specific chance of being selected.

3.3.1 A. PROBABILITY SAMPLING DESIGN/METHOD

These include the following

Simple Random Sampling

This is a basic sampling procedure in which each item, unit or member of the population has an equal chance of being included or selected in the sample drawn from a population. A random sample can be obtained by assigning a number to each member of the population written in a piece of paper and placed in a basket. Each number is drawn from the basket (either by replacement or without replacement of number) after a thorough mix. Another method that could be applied is to use a table of random numbers specifically constructed for a such purpose.

The first step in random sampling is to ensure that each unit or individual or segment in the population is listed once and only once, such that each member of the sampling population has the same probability of being chosen.

The number of distinct samples of size n that can be drawn from the N unit is given by the combinatorial formula below:

$$- = {}_{N}C_{n} = \frac{!}{! \quad !}$$

Merits of Simple Random Sampling

It is very simple to apply

It is the most statistically reliable of all the probability sampling techniques

Every member of the population is given an equal chance of being selected this no unit in the population is either favoured or disfavoured.

Demerits of Simple Random Sampling

It is the most time consuming method of sampling

The computation of a compilation and accurate sampling frame is required which is often not easy to accomplish.

It is expensive as huge cost is required to travel and to compile the sampling frame most especially for large survey.

Systematic/Systemic Sampling

This is a technique of random selection of sample on a systematic basis. It consists of selecting every nth case, (e.g. the 5^{th} case, the 12^{th} case, the 25^{th} case, etc). The first case might be selected by a simple random procedure, but thereafter every 12^{th} unit is selected, or

It is the selection of units of the sample at a fixed interval on the sampling frame with the first member selected at random. For example, a researcher can select a 1-in-3, 1-in-5, or, in general, a 1-in-k systematic sample. Consider, a medical researcher who is interested in obtaining information about the average number of times 15,000 medical specialists prescribed a certain drug in the previous year (N=15,000). To obtain a simple random sample of n=160 specialists, we would use the methods of section A and refer to a table of random members; however, this would require a great deal of work. Alternatively, we could select one name (specialist) at random from the first k=9 names appearing on the list and then select every ninth name thereafter until a sample of size 160 is selected. This is called a 1-in-9 systematic sample.

Having known the population size which is *N* we can determine approximate sample size, n, for the survey and then choose k to achieve that sample size. As mentioned above, there are N = 15,000 specialists in the population for the medical survey, suppose the required sample size n = 100. We must choose k to be 150 or less. For k = 150, we would obtain in exactly n = 100 observations, while fork < 150, the sample size would be greater than 100.

In general, to obtain a systematic sample of n elements from a population of size N, k must be less or equal to N/n (that is, k s N/n). Note in the above example that k s ——; that is, k s 150

Merits of systematic sampling

It is easier to use on the field than a random number table.

It is mostly used when population is homogeneous, fairly small and sampling frame is complete.

It is economical and less time-consuming compared with random sampling technique.

Demerits of systematic sampling

The method cannot be said to be purely random because of the pre-selection of the subsequent sample units.

It might unconsciously lead to the elimination of certain units i.e. it does not give equal chance of being selected to the units.

Stratified Sampling

The technique tries to ensure that different groups or categories of a population are adequately represented in selecting a sample of the population. It involves dividing the population into strata or layers, and then selecting the sample units from each stratum. The strata could be in terms of sex, age or education (etc), sample units are randomly selected from each stratum, the sub-samples are then joined together to form the total sample. The technique increases the efficiency of probability sampling. Or

This method involves the division of the sampling frame into homogeneous groups in order to ensure that the sample is truly representative. The population is first divided into smaller non-over capping groups or subgroups called strata. The division is carried out such that the units in each stratum are homogeneous with the main characteristics of interval.

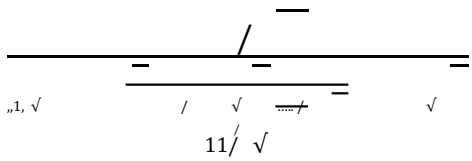
Stratified random sample is drawn by clearly specify the strata, place each sample unit of the population into then appropriate stratum for example, a household divided into rural or urban units and by selecting a sample from each stratum using the simple random sample-techniques earlier discussed. After the sample size n, is chosen, many ways exists on how to divide n into individual stratum sample sizes, $n1, n2, \ldots n_L$.

It should be noted that each division may result in a variance for the sample mean. Therefore, our task is to use an allocation (division) which gives a specified amount of information at minimum cost. It the course of carrying out our task, we must bear in mind three factors that affect the allocation scheme to use. These include:

The total number of elements in each stratum
The variability of observations within each stratum
The cost of obtaining an observation from each stratum with respect to total number of elements in a strata, note that the number of elements in each stratum affects the quality of information in the sample. For example, a sample size of 20 from a population of 200 elements should contain more information than a sample of 20 from 2000 elements. Hence, large sample sizes should be assigned a strata containing large number of elements.

Similarly, variability must be considered because a larger sample is needed to obtain a good estimate of a population parameter when the observations are less homogeneous.

The formula for allocating samples in each stratum is given as follows:



Where Ni denotes the size of i^{th} stratum, denotes the population standard deviation (SD) from the i^{th} stratum and Ci the cost of obtaining a single observation from the i^{th} stratum.

It is necessary to approximate the variance of each stratum before sampling in order to use the allocation formula in equation. The approximate may be obtained from earlier surveys from knowledge of the range of measurements within each stratum.

Merits of Stratified sampling

It requires a small sample in order to ensure representativeness than simple random sampling.
It ensures adequate representation of each type of category therby, providing greater reliability.
It enables disproportionate sample sizes possible from different strata.
Crucial variables are used to define the strata.
It enhances the accuracy of the sample estimates.

Demerits of Stratified sampling

A complete sampling frame for the entire population is required which leads to high cost and more time for the exercise.
The availability of the information necessary to divide the population into groups is not guaranteed by the availability of sampling.
It fails to produce always an estimator with a small variance than the corresponding estimator of sample random sampling.

Cluster Sampling

This is a procedure used in large-scale surveys, where the population (or the area) to be studied might cover all extensive territory. The desired sample size in this approach could be arrived at by demarcating the area into small units, called clusters, and then drawing the sample units from the randomly selected clusters. Clusters and sample units could be selected by the process of simple, systematic or stratified random sampling, or by a combination of these techniques. Or

On the other hand, this method is the division of the population into small groups called clusters based on the criterion of geographical proximity. The sample units are chosen in nearby groups of various sizes in selected areas of similar populations. The size of the final cluster is very important and the smaller the final cluster, the more reliable the sample. From the categorized clusters a sample of a cluster is drawn using systematic or random sampling. All the units within the chosen clusters may then form the sample, or a sub-sample can be selected with the aid of systematic or random sampling.

Clusters may be of equal or unequal sizes. The usefulness of cluster sampling can be shown in the following illustration. Assuming a researcher or an investigator wishes to estimate the average income per household in a large town, how then should he choose the sample? If the researcher uses simple random sampling (SRS0, it is obvious he/she will need a frame listing all the household welements) in the town which may be very costly to obtain. The researcher cannot avoid this problem either by using stratified random sampling because a frame is still required for each stratum in the population. Rather than drawing a SRS of elements, the investigator could divide the city into regions such as blocks (or clusters of elements), and select a simple random sample of blocks from the population. This is easily accomplished using a frame which lists all city blocks. Then the income of every household within each sampled block would be measured.

How to draw a cluster sample

First and foremost, you specify appropriate clusters. This is so because elements within a cluster are often physically close together and, hence tend to have similar characteristics. Stated another way, the measurement of one element in a cluster may be highly correlated with the measurement of another.

Thus, the amount of information pertinent to a population parameter may not be increased substantially as new measurements are taken within a cluster. Since measurements cost money, an investigator would waste money by choosing too large a cluster size. As a general rule, the number of elements within a cluster should be small relative to the population size, and the number of clusters in the sample should be reasonably large. For example, suppose that school districts are specified as clusters for sampling households in a city. The clusters contain many households.

Consequently, the resources of the investigator allow only a small number of clusters; say 2 or 3, to be sampled. Thus sample may not be representative of the population because the households within the same school district may be relatively homogeneous with respect to the characteristic being measured. More information could be obtained by sampling a larger number of clusters of smaller size. Once appropriate clusters have been specified, a frame which lists all clusters in the population must be composed. A sample of clusters is then selected from this frame by using the SRS.

Properties of Estimators when Cluster Size is Equal

The estimators of and Õ possess special properties when all cluster sizes are equal (that is, $m_1 = m_2 \ldots = m_n$). first, the estimator, is an unbiased estimator of the population mean, . Second, ˆ y , is an unbiased estimator of the variance of.
Finally, the two estimators, M and N ct, of the population total, Ô, ˆare equivalent.

Merits of Cluster Sampling

it is useful in situations of the unavailable complete sample frame.
It sometimes gives more information per unit cost than do either simple or stratified random sampling.
It is less expensive than simple or stratified random sampling if the cost of obtaining a frame which lists all population elements is very high or if the costs of obtaining observations increase as the distances separating the elements increase.

Demerits of Cluster Sampling

It makes available less reliability than a random sample of the same size.
Biased sample can be generated as a result of the choice of a few clusters because units with the same characteristics can be included in the selected clusters.

Multi-stage Sampling

This technique can be regarded as a variant of cluster random sampling. In adopting this procedure the sampling process moves through a series of stages. From a large total population, a sample is randomly selected into a first stage, and this is again randomly sampled into a second stage and maybe into a third stage (etc). The probability of selecting the sample units is enhanced if the initial (i.e. first stage) sampling fraction is high. Or it involves selection procedure, the primary groups and subgroups are selected on the bases of geographical distribution rather than other characteristics. The first stage of this process involves breaking down the area under survey (population) into a number of standard regions called the primary sampling units. The sample to be chosen is then divided among these primary sampling units according to their population sizes. At the second stage of this process, a small number of the primary sampling units is randomly selected. The selected small number is referred to as the secondary sampling units. Finally, the sample in each secondary unit is chosen using any of the random, stratified, and systematic sampling techniques. Even within each group, stratified can be adopted. However, the extent of stratification is dependent on the purpose of the survey and the homogeneity of the population. It must be pointed out that the first stage of multistage sampling is akin to cluster sampling.

Advantages of Multi-Stage Sampling

It saves time and cost of conducting survey.

Advantages of Multi-Stage Sampling

It reduces the extent to which the same genuinely random
It may lead to increase in sampling error due to loss of randomness.

3.3.2 B. NON-PROBABILITY SAMPLING METHODS/DESIGNS

Non-probability procedures are generally only used when probability sampling cannot be practicalised or is not practicable. This is so because the representativeness of the sample may be low and the statistics that might be calculated from the sample data may be dubious and this unreliable.
In quantitative research or non-probability procedures, only a sample (that is a subset) of a population is selected from any given study. The examples include the following which will also help you understand the reasons for using each method.

Quota Sampling

It is a method or technique commonly used in opinion poll or market survey. It entails informing the interviewers how many respondents with particular characteristics to sample so that the overall reflects the characteristics of the population as whole characteristics might include age, place of residence, gender, class, profession, marital status etc. The criteria we choose allow us to focus on people we think would be most likely to experience, know about or have insights into the research topic. We then proceed to the study area and using recruitment strategies appropriate to the location, culture and study population – find people who fit these criteria until we meet the prescribed quota. The interviewers, however do not know whom to sample. The result of quota sampling is a series of accidental samples. Where is some information about the population, quota can be included. Once the quota for a particular category has been filled, responses will not be collected from those in that category.

Merits of Quota Sampling

It is very useful when the overall proportions of different groups within a population are known.
It can be used when the study is based upon a simple comparison of two groups.
It can be adopted or used in circumstances when random and stratified sampling cannot be used.
It is very cheap

Demerits of Quota Sampling

It is not truly random because each unit within the population does not have an equal chance of being chosen.
The lack of genuineness may distort the results
Low response rate may be experienced.
A number of personal questions may be required before the researcher can determine whether the respondent has the characteristics of quota group on which information is required.
It may be difficult in a practical sense to fill the quota.

Accidental sampling

This is a method in which the researcher constitutes the sample by just taking any unit that is available, he/she takes any that is at hand and continues so until the desired sample size is attained. Or

It is a technique that makes use of any unit of the population at hand. It is essentially a convenience sampling technique that follows no prescribed sampling rules. This leads to the inability of the researcher to determine the representativeness of the sample. Therefore, it is impossible to eliminate how much bias has been introduced into the sample.

Snowballing Sampling

This is a very special sampling method usually used when other methods are not practical. It entails making use of personal contacts to build up a sample of the group to be studied. However, such a sample cannot be representative because units must be part of a network of contacts before they can have any chance of being included. Or

It is also known as chain referral sampling under which participants or information with whom contact has already been made use their social network to refer the researcher to other people who could potentially participate in or contribute to the study. Snowball sampling is often used to find and recruit a “hidden population”, that is groups not easily accessible to researchers through other sampling strategies.

Purposive Sampling

This is one of the most common sampling strategies in which sample units are chosen on the basis of the judgement of the researcher, which often can be faulty. The sample elements are chosen because of certain common criteria relevant to a particular research question. The method is used for community situations in which one or a few communities are selected of the variables with which the research is concerned. Also,

research that has to do with inter-relationship between variables may be carried out through a case study. Under this technique, sample sizes may or may not be fixed prior to data collection, depending on the resources and time available, as well as the study's objectives. Purposive sample sizes are often determined on the basis of theoretical saturation (the point in data collection when new data no longer bring additional insights to the research questions). Purposive sampling is most successful when data review and analysis are carried out in conjunction with data collection. In a nutshell, the researcher relies on his "assumed" good judgement in selecting the sample units.

Convenience Sampling

Under this sampling technique, the researcher or investigator selects a group of sampling units from the study population solely on the ground of convenience. It is usually based on the assumption or presumption that there is a reason for anyone unit/chunk from the population to be different from the others with respect to the characteristics under investigation. The sample selection process continues until your required sample size has been reached. It is evident that the technique it prone to bias and influences which are beyond your control, as the cases only appear in the sample because of the ease of obtaining them.

Judgement Sampling

It is a common non-probability method. The researcher selects the sample based on judgement. This is usually an extension of convenience sampling. For example a researcher may decide to draw the entire sample from one "representative" city, even though the population includes all cities. When using this method, the researcher must be confident that the chosen sample is truly representative of the entire population.

4.0 Self-Assessment Exercise(s)

1. What is a sample?
2. How does a sample differ from the accessible population?
3. Why should a sample be representative of its parents' population?
4. Briefly explain probability and non-probability sampling techniques
5. Define simple random sampling.
6. Discuss how you would use this technique in obtaining your sample.
7. Differentiate between accidental and simple random sampling.

5.0 Conclusion

Any researcher always aims at obtaining a sample that is as representative of the population under study as possible despite all odds and challenges. Despite the fact that these aims are not easily realizable in practice because of time, money and insufficient knowledge of the population, the researcher has to take some factors into full account while making decisions relating to sampling.

6.0 Summary

In this unit, you learned about sample and sampling. Sampling is widely used in social research, especially in survey research and non-reactive research techniques. You learned about different types of probability sampling methods and their merits and demerits.

Different types of non-probability sampling methods were also extensively discussed coupled with their merits and demerits.

7.0 References/Further Readings

Bernard HR. Research Methods in Anthropology second Edition, London: Sage Publications, 1995

Denzin NK, Lincoln YS (eds.) Handbook of Qualitative Research, London: Sage Publications, 2000.

Nkwi. P, Nyamongo I, Ryan G Dield Research into social Issues: Methodological Guidelines, Washington, DC: Unesco, 2001

Hope C, Mays N. Qualitative Research in Health Care London: BMJ Books, 2000.

Snedecor G. W and Cochrane W.G (1980): Statically Methods. The Iowa, State University Press, Ames, Iowa, USA.

Tuned Agboola; C.O., Olatubara; B. Ola Yusuf and Moruf Alabi (2003): Contemporary social science Research Methods: A practical guide. Murlab Search wisdom Educational Services, Marina, Lagos, Nigeria.

UNIT 2 RESEARCH MEASUREMENT AND SCALING

Contents

1.0 Introduction

Whenever a researcher sets out to collect information or gather data on an identified research problem, he/she is more or less involved in one kind of measurement or the other. Naturally, we all measure things from time to time in our individual lives, but the process of measurement in research can be complicated if not properly handled. It entails a number of decisions that can have serious consequences on the outcome of a research study if taken with levity.

Therefore, the importance of measurement in a research study should not be underestimated because the success of every research effort depends on the appropriateness of the measuring instrument/scale designed for the study. Hence, for the purpose of proper data analysis and interpretation, the information or data obtained in research has to be transformed from qualitative (i.e. words or phrases) into quantitative (i.e. numeric) forms.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant reading, you should be able to:

Define measurement
State functions of measurement
Explain types of scale of measurement

List and discuss measuring scales and errors of measurement
Briefly discuss validation of instrument and reliability testing

3.0 Main Content

3.1 Meaning of Measurement

Measurement may be viewed as a procedure of assigning numerals to properties, objects, and events by following specific rules for understanding the numbers so assigned.

Measurement enables the researcher to record (register) the value of a particular variable obtained from the field.

For example, instead of recording ‘Yes’ or ‘No’ to questions, the number ‘1’ for ‘Yes’ and ‘2’ for ‘No’ (or vice versa) could be used to record the responses. It is easier to handle the lather (i.e. the number), than the former, both at the level of data collection and at the level of using the data (i.e. data analysis and interpretation).

In the case of objects or events, the numbers are used to measure the attributes of the object or events. Therefore social scientists do not measure their theoretical variables per se, but rather indicators or indices of the variables. Meaning that measurement in social sciences is to a large extent, indirect. Measurement, therefore, is not an end itself, but rather a means of capturing in quantitative form aspects of reality which can be used to support or falsity theories about social behavior. In fact, measurement could be likened to or referred to as the bridge between theoretical statements and the empirical observations in which they are based, and, without adequate measurement procedures the theories themselves become unstable.

3.2 Functions of Measurement

Measurement provides data for the social scientist.
It enables scientist (researcher) to understand the property of the event.
It is also a mechanism through which researcher views the relationship of one property to that of the other.
It gives room for testing hypothesis, propositions and theories.
Measurement helps to establish the degree of presence or absence of some factors.
Measurement makes possible the meaningful observation of reality (that is, it lightens the methodology of concept to the world of reality).
It promotes new discovery.

3.3 Definition of Scale and types of Scales of Measurement

3.3.1 Scale: A scale is a set numerical values assigned to subjects, objects, or behaviours for the purpose of quantifying and measuring qualities. Scales and used to measure attitudes, values and other characteristics.

They differ from tests in that the results of these instruments, unlike these tests do not indicate success of failure, strength or weakness. The measure the degree to which individual possesses the characteristics of interest.

3.3.2 Types of Scales of Measurement

The following are the four general types of scales of measurement: nominal, ordinal, interval and ratio.

Nominal Scale: It is know or referred to as the crudest form of the scaling methods. It gives categorization without order; whatever is being measured is categorized into two or more categories that indicate only differences with respect to one or more characteristics. For example, sex of an individual, which can be either male or female-which can be represented by number 1 or 2.

Ordinal Scale: This is the next highest scale of measurement. In addition to indicating differences, this scale also orders the scores on some basis, such as low to high or least to most. Although the scores are ordered, equal intervals between scores are not established. They are used when a researcher wants to put his or her observations or data in a certain order of importance. An example is people attitude towards a particular issue; they could be assigned the following choices.

Strongly disagree ☐ disagree ☐

☐ ☐

Neutral Agree

☐

Strongly Agree

One of the characteristics of these categories is that the distance (i.e. interval) between categories rank next to each other are equal.

Interval Scale: Interval scale is also called equal unit. In addition to ordering, equal units or intervals are established in this scale, such that a difference of a point in one part of the scale is equivalent to a difference of one point in any other part of the scale. An example is the thermometric measurement that is the thermometer used for measuring (reading) temperature. However, unlike the other

scales, interval scale can measure the interval or distance or distance between two points on a quantitative instrument. For example, interval scale allows the research to say that position 9 on the scale is above position 10 and also that distance from 10 to 9 is the same as the distance from 9 to 8 but it does not give room for conclusions. To say that 12 is twice as strong as the position 6 because no zero position has been established. Interval scale does not have an absolute zero point instead its zero point is arbitrarily determined.

Ratio Scale: the ratio scale is regarded as the highest level of measurement, because the characteristics of it categories include all those discussed in the above three scales. In addition, to equal units, this scale contains a true zero point that indicates a total absence of whatever is being measured. Examples include a tape rule, ruler and monetary expenditures for various school functions, etc. The ratio scale is normally used when variables such as weight, length and time are measured (quantified).

The scale comprises a hierarchy measurement levels which are based on the amount of information contained in the score or the measurements generated by the scales. The scale of measurement adopted for research determines the statistical design to be used.

Many variables cannot be categorized into the hierarchy of scales, especially into ordinal and interval scale. At times, it is difficult to define the equal unit or interval absolutely. The intervals may be established on the basis of convention and usefulness. The major concern is whether the level of measurement is meaningful and that the implicated information is quantified. It is not normally used to measure people's attitudes or perceptions because the lowest possible length and weight are known to be zero, but it is obviously difficult to define a total absence (zero point) of human qualities.

3.4 Measuring Scales

The outcome as well as success of every research study depends on the appropriateness of the measuring scale designed. Nworgu (1991) described three major scales for the measurement of psycho-social variables. These are:

The summated rating scale devised by Rensis Likert which is usually referred to as; the Likert-type scale
Equal appearing interval scale also known as Thurstone scale and
The cumulative scale called Guttman's scale.

These scales are widely used in the social sciences and education for the measurement of effective traits, most especially attitude.

Likert's summated Rating Scale: The construction of this scale involves generation of statements about the variable being measured and providing a set of graduated response options. Example of Likert's summated rating scale is:
Instruction: Please read each item and tick ( ) the most appropriate column that describes your view.

Note that:

SA = Strongly Agree = 4 points
A = Agree = 3 points
D = Disagree = 2 points
SD = Strongly Disagree = 1 point.

S/No	Statements	SA	A	D	SD
1.	Most conflicts in Nigeria are ethnic religious and resource based.				
2.	Amnesty has drastically reduced Niger Delta crisis				

The respondent is expected to indicate his position on each statement by ticking the appropriate column in the graduated response options. These are summed up for each individual so as to obtain a total score which represents the person's stand on the variable or attribute that is being measured.

Thurstone Equal-Appearing Internal Scale

This type of scale requires that the researcher construct a number of statements (items) which are related to the attitude being measured. These statements are presented to a panel of 25 (or more) judges, who are requested to sort the items into? Or more categories sets of judges are asked to rate each of the items in terms of the degree of intensity on a 7 point scale or more. The average rating for each item is computed, that is the average of the categories into which items was sorted. The code for rating is as follows:

Rating Code

Very High	High	Slightly above Average	Average	Slightly below Average	Low	Very Low
7	6	5	4	3	2	1

Hypothetical Rating of an item by 25 Judges

Category	7	6	5	4	3	2	1	Total
Number of Judges	2	1	4	3	4	5	6	25
Category X	14	6	20	12	12	10	6	80

The mean value is obtained by dividing 80 by 25
i.e. 3.2

This is the average point assigned to the item by the 25 judges. Each of the items constructed in the questionnaire is subjected to the same procedure, with a view of obtaining a numerical value or weight for each item. About 20 items are selected on the basis of their weights, from the pool of items for inclusion in the final instrument.

By using this scale, respondents are requested to tick 3 to 5 of the twenty statements or items which best represent their views on the issue. The individual score is determined by taking the mean or median of the scale values of those statements that were picked by him or her. If a subject (an individual) picks statement 3, 8, 11, 15, 19, with scale values 2.5, 2.7, 3.4, 3.8 and 4.1 respectively, the mean score is 3.3.

..... =. 3.3

Mean Score = 3.3 while Median is 3.4

Either of these (3.3 or 3.4) values can be used as the individual's score. The higher the score, the more intense is the person's attitude towards the issue under consideration.

Guttman's Cumulative Scale

Unlike the earlier two scales discussed above, Guttman's scale considers scale considers the unidimensionality of items, that is, the degree (extent) to which all the items measure one aspect of a particular variable. Guttman scale has become widely used in many types of social science research, particularly in psychology and area of attitude measurement (like peace and conflict study) in survey research Guttman scale analysis is a means of analyzing the underlying operating characteristics of three or more items in order to determine if their inter-relationship meet several special properties which define a Guttman scale. It is unidimensional because it measures only one underlying attribute. Guttman scaling begins with measuring a sett of indicator or items. These can be questionnaire items, votes, or observed characteristics. The indicators are usually

measured in a simple yer-no or present –absent fash ion. Three to twenty indicators can be used. The researcher selects items on the belief that there is a logical relationship among them then places the results into a Guttman scale and determines whether the items forms a pattern that corresponds to the logical relationship. Once a set of items is measured, the researcher considers all possible combinations of responses for the items.

Example of use of Guttman Scaling

A researcher might consider a set of seven items with varying intensities and which are un-dimensional. Let us assume these items are given to a group of eight respondents to indicate the extent to which they agree or disagree with each of the items. The items have been arranged in order of intensities from the most intense to the least intense. The appropriate response for every individual is indicated with a + sign for agree and – sign for disagree. T he items are unidimensional. Anybody who agrees with item 1, will also agree with subsequent items, that is, 2,3,4,5,6 and 7. Those who agree with item 2, will also agree with items 3,4,5,6, and 7 Respondent who however agree with 2 does not necessarily have to agree with item 1, just as those who agree with 3 may not agree with 2, and so on.

Respondent	**STATEMENT**							**Score**
	(Most Intense)				**(Least Intense)**			
1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**7**
2	**+**	**+**						**6**
3	**-**							**5**
4	**-**	**-**						**4**
5	**-**	**-**	**-**	**-**				**3**
5/6	**-**	**-**						**2**
			-	**-**	**-**			
7	**-**	**-**	**-**	**-**	**-**	**-**		**1**
8	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**

The score for each respondent is given by the number of items he agrees with. Respondent 1 agreed with all the seven items, hence he scored 7; respondents 2 agreed to 6 items, hence he scored 6; and so on. The responses follow the same pattern, as the items are unidimensional and constitute a perfectly scale. If the items of a perfect scale vary in intensity like the above one, the scale is considered to be perfectly reproducible. Given the total score of any respondent, one can determine the items that he has agreed with. Those who score 7 must have agreed with seven items while those who score 6, agreed with item number 2 to 7, those who scored 5, agreed with items 3-7, and so on in that order.

Practically, perfect scales are rare to come by, as most scales are characterized by response error like those in the table above. Guttman's formulae, coefficient of Reproducibility is equal to 1. The number errors can be used to determine the extent to which a scale can be reproduced.

Imperfect scale

Respondent	1	2	3	4	5	6	Score
1		-					5
2	-				-		4
3	-	-	-				3
4	-	-	-	-		-	2
5	-	-	-	-	-		1

In the above scale, the number of errors is 3, while the number of responses is 30 (i.e. number of items multiplied by number of respondents)
The coefficient of reproducibility is 1-3, which is equal to 1-0.1, which is equal to 0.9. This shows that the scale is not reproducible. If a scale yields a coefficient of 1.0, it is perfectly reproducible, but if then coefficient is 0.0, the scale is totally irreproducible, since every response on the scale constitutes an error.

Socio-metric Techniques: Socio-metric techniques are used for studying the organization of social groups. It entails measurement to bring out and to assess interaction pattern between close associates in a variety of groups. For example, in conducting socio-metric measurement in a school, each of the children in a reading group may be asked to choose two other children whom they would like to study with, sit next to, eat lunch with or play with after school. The socio-metric method is essentially a study of choices made by each person in a group. This can generate answers that can be represented in a socio-gram which shows the pattern of interpersonal relations in a group.

It is not widely used except for research in social psychology and in educational research especially when dealing with person one on one. It can be used to study mental ability achievement and teacher's preferences for children.

3.5 Errors of Measurement

In the course of carrying out a research work (study), for data collection, the instrument used in measuring could be biased. For example, if same test is taken twice, they will seldom perform exactly the same (i.e. their scores or answers will not usually be identical). This may be due to some factors ranging from difference in motivation, energy, anxiety, different testing situation and so on.

There are two identified sources of measurement error, namely, systematic error and random error.

Systematic error is a situation in which respondent reactions are due to socially and or culturally desirable. When this error occurs, it means that respondents are not giving their true opinions. When this happens consistently, then researchers fail to measure what they intended to measure.

Random error occurs when measurement vary (for a number of reasons). Such factor that may directly affect measurement consistency are:

Some respondents are tired or ill.
Some respondents found the presence of the researcher threatening.
The researcher has a monetary lapse in correlation.
The research equipment (e.g. tape recorder) mal functions.

3.6 Validation of Instrument

Validation is a way of ensuring that a research instrument is of good quality. (i.e. it reveals the extent to which an instrument measure what it is supposed to measure). Validity tries to ascertain whether the instrument measures precisely the characteristics, tracts, or whatever for which it was intended.

Validity is one of the main concerns with research "Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings" (Seliger & Shohamy 1989, 9 5). Controlling all possible factors that threaten the research's validity is a primary responsibility of every good researcher.

Validity therefore, refers to the appropriateness of the interpretation of the results of a test or inventory, and it is specific to the intended use. These are possibility of a test being highly valid for certain situations and not valid for others. There are two major approaches to determining the validity of an instrument namely logical analysis and criterion.

The first approach of determining the validity of an instrument is through a logical analysis of the content or a logical analysis of those things which make up an educational traits, constructs, or characteristics. It can also be referred to as judgement analysis. The second approach uses criterion measurement, of which the criterion may be some sort of standard or desired outcome. The criterion being measured may be performance on a task or test, or a measure of job performance. Therefore, validity is a measure of correlation between the test validated and the criterion measured.

The traditional view of validity is that there are basically three different types, namely: content, criterion, and construct. This view which has two variations of criterion validity – concurrent and predictive. A more current percep tion is that validity is a unitary concept. However, there are different types of evidence of validity while the procedures for determining validity are the same.

3.7 Reliability Testing

Reliability is another way of ensuring that an instrument used in a research study is of good quality. It is essential to conduct test(s) to determine the extent to which the research

instrument is reliable. Reliability therefore, means the extent to which an instrument measures consistently whatever it was designed to measure. It is the extent to which an instrument will give similar results for the same individual at different times. In a conceptual sense, an observer's score could be seen in two ways. The individual's 'true' score and an 'error' score that is due to in accuracy of the measurement. Reliability is related to the two views. It scores have large error components, the reliability will be low, but if there is little error in the scores, the reliability will be high.

Reliability is a statistical concept that is based on association between two sets of scores representing the measurement obtained from the instrument when it was used with a group of individuals. Reliability of coefficients could be in the range to 0 to 1.0 inclusive. Conceptually, if the reliability coefficient of an instrument is 0, there would be no 'correct' component in the observed score. The observed score would be made of complete error. If however, the reliability coefficient were 1.0, the observed score would contain no error; it would consist entirely of the true score. It is expedient to obtain high-reliability coefficients, even though the coefficient of 1.0 is very rare to come by. Methods of testing for Reliability

The reliability co-efficient of a research study can be estimated through the following procedures with each of them having a computational formula:

Split – half: This procedure requires that the be administered just once. In calculating the split-half reliability, the test items are divided into two halves, with the items of the two halves matched in content and difficulty. The halves are then scored independently. If the test is reliable, the scores on the two halve have a high positive relationship. Somebody who score high on one half would tend to score high on the other half, and vice versa. The Pearman-brown prophecy formula can be used for computation, that is:

$$r_t = \frac{\quad}{\quad}$$

Rulon's formula can also be used, that is:

$$= \frac{\quad}{r_t \qquad 2}$$

where:
S2 h1 = Variance of 1st half test
S2 h2 = Variance of 2nd half test; and
Variance of the whole instrument

Kuder–Richaidson Procedures
K – R method applies to instrument which are score (i.e. pas or fail/all or none).
$\sum pq$ = sum of the variances of the individual items

Parallel forms of Alternate forms
This procedure entails the use of two or more equivalent forms of the test. The two or more forms are administered to a group of individuals with a short time interval

between the administrations. If the test is reliable, the patterns of scores for individuals should be virtually the same for the two or more forms of the test. There should be a high positive association between the scores. Pearson product moment correlation or Rank-order correlation can be used for computation.

Test-Retest

This involves administering the same test on two or more occasions to the same individuals. Again, if the test is reliable, there will be a high positive relationship between the scores. The Pearson product moment Correlation can also be used for computation.

Cronbach Alpha

This formula was developed by Croubach (1951) based on two or more parts of the test.

The formula is stated below:

$$\frac{K}{1}\ \Sigma$$

Where: K = number of items

variance of a single item

variance of the whole instrument

When two or more parallel forms of the test are used, the reliability coefficient is a coefficient of equivalence – the extent to which the forms are equivalent. Using the test-retest procedure gives a reliability coefficient that is a coefficient of stability – the extent to which the scores on the single test remain table. Coefficients of equivalence and stability are based on more than one test administration.

4.0 Self-Assessment Exercise(s)

1. What do you understand by the concept measurement?
2. what is importance of measurement to research study?
3. Enumerate and briefly explain types of measurement scales you have learnt
4. What is scaling in research?
5. Mention types of scaling and discuss any two of them
6. Why do you scale in research?

5.0 Conclusion

Measurement and scaling are essential tools required for data collation and analysis in a research study. They also determine the quality and effectiveness of research instrument(s) used for data collection and at the same time, a central part of analyzing research instrument, testing hypothesis theoretical assumption and interpreting data obtained from the field. The type of measuring scale adopted is usually determined by what is to be measured, with necessary consideration given to legal and ethical issues while collecting, collating analyzing and interpreting data.

6.0 Summary

In this unit, concept of measurement and scaling were extensively discussed. Meaning of measurement, types of measuring scales, functions of measurement as well as errors of measurement were explained. Importance of validation of instrument coupled with reliability of the instrument used in collecting data, analyzing data, together with interpretation of findings were not left out. The importance of acknowledging all sources of data is also very necessary in social sciences study.

7.0 References/Further Readings

Conradu, H. (2004). Research Methodology University of South Africa Pretoria.

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

Kerlinger, F. N. (1992). Foundation of Behavioral Research, Florida, USA: Harcourt Brace College Publishers, P. 391 – 434.

Nworgu, B.G. (1991). Educational Research: Basic Issues and Methodology, Ibadan: Wisdom Publishers Limited, P.81 – 111

Osiko, J. O. (2006). "Use of A. Research Questionna ire" in A. I. Olayinka; V. O. Taiwo; A. Raji – Oyelade, and I. P. Farai (Eds): Methodol ogy of Basic and applied Research, Ibadan, Ibadan, pp. 133-149.

Olusala, (E. C. (2001). Introduction to research methodology Africana-Fep Publishers Ltd. Nigeria.

Wersma, W. (1994). Research Methods in Education: An Introduction, Boston: Allyn and Bacon, p272-305.

UNIT 3 VALIDITY AND RELIABILITY

CONTENTS

1.0 introduction

Each and every research studies make use of one data gathering instrument or the other, which must be capable or able to discriminate between subjects with respect to a certain characteristics. Also, all studies are designed to either test hypothesis or answer research questions. And for research tools or instrument used could be meaningful, they must satisfy two basic criteria; they must be reliable and valid.

Although, the concept validity is complex and controversial but of great importance to research. Reliability can be studied without inquiring into the meaning of variable but it is impossible to study validity without inquiring into the nature and meaning of the researcher's variables.

2.0 Intended Learning Outcomes (ILOs)

By the end f this unit and relevant readings, you should be able:

Define validity
Explain different types of validity
State what reliability is
Discuss various forms or types of reliability.

3.0 Main Content

3.1 Definition/Meaning of Validity

Validity is an indication of how sound your research is.

It is indication of the extent to which a measuring instrument measures what it is supposed to measure.

Validity is another essential characteristic of measurement. It is the proper to being genuine, a true reflection of attitudes, behavior or characteristics (Scolt and Marshall 2005).

More specifically, validity applies to both the design and the methods of you findings. Validity in data collection means that your findings truly represent the phenomenon you are claiming to measure. Valid claims are sold claims. Validity is one of the main concerns with research. “Any re search can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings” (Seliger & Shohamy 198 9,95) controlling all possible factors that threaten the research’s validity is a primary responsibility of every good researcher.

Validity also refers to the appropriateness of the interpretation of the results of a test or inventory and it is specific to the intended use (Wiersma 1995).

Validity is always specific to the particular purpose for which the instrument is being used. For example, a test that has validity in one situation and for one purpose may not be valid in a different situation or for a different purpose. The purpose for which the test is being used is also a major factor in validity. The different purposes of tests require different types of evidence to support the validity of that particular use.

3.1.1 Internal Validity

This is affected by flaws within the study itself such as not controlling some of the major variables (a design problem), or problems with the research instrument (a data collection problem).

“Finding can be said to be internally invalid becau se they may have been affected by factors other than those thought to have caused them, or because the interpretation of the data by the researcher is not clearly supportable” (Seliger & Shohamy 1988, 95).

Some of the factors which affect internal validity are the followings:

Subject variability
Size of subject population
Time given for the data collection or experimental treatment
History
Attrition

Maturation
Instrument/task sensitivity

3.1.2 External Validity

Is the extent to which you can generalize your findings to a larger group or other contexts. If your research lacks external validity, the findings cannot be applied to contexts other than the one in which you carried out your research. For example, if the subjects are all males from one ethnic group, your findings might not apply to females or other ethnic groups (O_5, if you conducted your research in a highly controlled laboratory environment, your findings may not faithfully represent what might happen in the real world.

"Findings can be said to be externally invalid beca use (they) cannot be extended or applied to contexts outside those in which the research took place" (Seliger & Shohamy 1989, 95).

The following are seven important factors that affect external validity:

Population characteristics (subjects)
Interaction of subject selection and research
Description explicitness of the independent variable
The effect of the research environment
Researcher or experimenter effects
Data collection methodology
The effect of time.

3.2 Types of Validity

There are four basic approaches used in determining the validity of an instrument. These include; predictive, concurrent, content, and construct validity.

3.2.1 (1) Predictive Validity

This is a form of criterion validity whereby an indicator predicts future events that are logically related to a construct. Or it is the ability of an instrument to predict some future event(s). It cannot be used for all measures. The measure and the action predicted must be distinct from but must indicate the same construct. Predictive measurement validity should not be confused with prediction in hypothesis testing, where one variable predicts a different variable in the future.

The predictive validity of an instrument may vary depending upon such factors. Sometimes, prediction based on scores of one test may be imperfect but predictions based on a combination of several test scores will invariably be more accurate. Predictive validity is usually obtained by computing the correlation coefficient between a distribution of the test scores obtained at an earlier time against a distribution of score on some later criterion measure. Gay 1987 stated that the procedure for determining predictive validity as follows:

Administer the test, (the predictor or variable to a group)
Wait until the behavior to be predicted, the criterion variable occurs

Obtain measures of the criterion for the same group
Correlate the two sets of scores
Evaluate the result.

3.2.2 (2) Concurrent Validity

There are times the criterion data are collected about the same time the predictor tests are also collected. Under this condition, concurrent validity is established by correlating the predictor and the criterion scores. It is usually measured by calculating correlation coefficient between the distribution of test score and some concurrently existing criterion measure. The steps involved in determining concurrent validity are thus:

Administer the new test to a defined group of individuals.
Administer a previously established valid test (or acquire such scores of already available) to the same group, at the same time or shortly thereafter.
Correlate the two sets of scores
Evaluate the results.

3.2.3 (3) Content Validity

This has to do with the extent to which a text or instrument adequately covers the domain of behavior it intends to measure.

It is the process of establishing the representativeness of the items with respect to the domain of skills, tasks, knowledge etc of whatever is being measured. (Wierma 1995).

It is a logical analysis of the items determining their representativeness. It requires both item validity and sampling validity. Item validity is concerned with whether the test items represent measurement in the intended content area and sampling validity is concerned with how well the test sample the total content area. For example, an investigator or a researcher conducting a test on PCR III, the researcher must define the purpose and the subject matter to be covered. It means

the whole content of the course material have to be sampled and the sample would form the basis for inferences about the student's understanding and assimilation of the entire course.

Content validity should not be confused with face validity. Face validity refers only to how test appears to the perceiver, that is, validity by impression; and in the real sense it is not validity while content validity is.

3.2.4 (4) Construct Validity

A construct can be defined as an ability, aptitude, trait, attribute or characteristics that is hypothesized to explain some aspect of behavior such as mechanical ability, intelligence, anxiety or extraversion. Construct also refers to something that is not itself directly measurable but that explains observable effects. Construct validity determines to what extent

a test is consistent with a given theory or hypothesis under consideration – to what extent it taps what is implied by the theoretical definition.

In construct validation, three steps are involved which are as follows:

The first step defines the meaning of the construct, deduce certain consequences in a wide variety of situations that should and should not be observable if the construct that has been hypothesized does exist.
Secondly, the researcher gathers data to test these hypotheses
Third, he makes an inference as to whether the theory is adequate to explain the data based on the evidence derived.

In most cases, construct validation takes place during the development and tryout of at test and is based on accumulation of evidence from divers sources.

3.3 Reliability

Reliability is the extent to which a test or procedure produces similar result under constant conditions on all occasions.
It is the degree of stability or consistency of a measurement.
The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring.
Reliability means dependability or trust worthiness

For example, a measuring instrument that gives the same or very similar measurement or result each time it is used under the same condition or characteristics is considered to be reliable while a device that does not do so lacks perfect reliability and contains measurement error. Conceptually, an observed score can be viewed from two perspectives:

The individual true score.
An error scores.

Reliability is related to either of the two parts. If scores have large error components, the reliability is low but if little error is observed in the scores, reliability is high. This is a statistical concept based on the association between two sets of scores representing the measurement obtained from the instrument when it is used with a group of individuals.

The reliability of an instrument can be measured or assessed in many ways by making use of statistical method called correlation coefficient symbol. Reliability coefficients can take on value from o to 1.0 inclusive. Conceptually, if a reliability coefficient is 0, there would be no true component in the observed score. The observed score would entirely be consisting of error. On the other hand, it the reliability coefficient were to be other the observed score would contain no error; it would consist of true score entirely.

3.4 Types of Reliability

There are different types of reliability, each is determined in a different manner ad each deals with a different kind of consistency or each with a distractive source of error in measurement. These include:

3.4.1 (1) Test – Retest Reliability

It is also referred to as the coefficient of stability which is the degree at which scores are consistent overtime. It is obtained by administering the same test to the same group of individuals on two occasions and correlates the paired scores. The correlation coefficient obtained by this procedure is called a test-retest reliability coefficient. For example, a physical fitness test may be given again the following week. If the test is reliable, each individual's relative position on the second administration of the test will be near his or her relative position on the first administration of the test. The reliability coefficient (r xx) will be near 1. Any change in relative position from one occasion to the next is considered as error. If the text contains considerable error, the xx will be nearer 0. The procedure for determining test-retest reliability is as simple as follows:

Administer the test to an appropriate group
After some time has passed, like two weeks, administer the same test to the same group.
Correlate the two sets of scores
Evaluate the results.

3.4.2 (2) Equivalent-Forms Reliability

This equivalent-form technique of estimating reliability is also known as the alternate – or *parallel-forms technique.* It is applied or used when it is probable that subjects will recall their responses to the test items. Instead of correlating the results of two administrations of the same test to the same group, one correlates the result of equivalent forms of the test administered to the same individuals. If the two forms are administered at essentially the same time (in immediate succession), the resulting reliability coefficient is called the coefficient of equivalence.

If subjects are tested with one form on one occasion and with another form on a second occasion and their scores on the two forms are correlated. Then the test is reliable and there will be high positive association between the scores. The major problem associated with this technique of estimating reliability is the difficulty in designing alternate forms of test that are truly equivalent. Lack of equivalence is a source of measurement error. The equivalent-forms technique is therefore recommended when one wish to avoid the problem of recall or practice effect and in situations when one has available a large number of test items from which to select equivalent samples.

3.4.3 (3) Split-Half Reliability

Split-half artificially splits the test into two halves and correlates the individuals' scores on the two forms. That is, test is administered to a group, and later the items are divided into two halves, scores are obtained for each individual on the two forms, and a coefficient of correlation is calculated. This split-half reliability coefficient reflects fluctuations of

equivalence because it reflects fluctuations from one sample of items to another. If each subject has a very similar position on the two forms, the test has high reliability. But if there is little consistency in positions, the reliability is low. The method requires only one form of a test, there is n time lag involved, and the same physical and mental influences will be operating on the subjects as they take the two sections.

Longer tests are more reliable than shorter tests if everything else is equal. To transform the split-half correlation into an appropriate reliability estimate for the entire test, the spearman – Brown prophecy formula is employed

Where

xx = the estimated reliability of the entire test
1 2 1 2 = the Pearson correlation between the two halves.

3.4.4 (4) Rationale Equivalence Reliability

It is also called internal consistency reliability used in estimating the reliability of an instrument through the application of Kuder-Richardson formulas from a single administration of a single form of a test without splitting the test in half for scoring purposes.

These formulas are applicable to items scored appropriately, for example, right or wrong, passed or failed, true or false etc. The formulas for estimating reliability are:

K-R-20 provides the means of all possible split-half coefficients
K-R-21 may be substituted for K-R 20, if it can be assumed that each item be scored dichotomously that is, correct or incorrect, 1 or 0.

Crombach Alpha (is a formula developed by Crombach (1951), based on two or more parts of the test requires only one administration of the test. It is also referred to as coefficient alpha. It is another widely measure of homogeneity. It is a general formula of which K-R 20 formula is a special case.

The formula for alpha is

Where K = number of items on the test
= Sum of the variances of the items scores
variance of the test scores (an k items)

The formula for alpha is similar t the k-R 20 except that ∈pq is replaced by , the sum of the variance of the item scores. Crobach alpha is used when measures have multiply scored items such as attitude scales or essay tests.

3.4.5 (5) Inter Rater Reliability

This is another type of reliability used in measuring instruments that require ratings or observation of individual by other individual(s). it is an index of the extent to which different

judges/observers give similar ratings to the same behavior. One should ensure that ratings assigned are not influenced by the observers own values, attitudes, and other personality characteristics. The procedure of assessing this type of reliability requires that two or more raters observe or rate, the same behavior. To determine the degree or extent of agreement among the judges, the judges' ratings are usually correlated. The resulting correlation is therefore referred to as the inter-rater reliability index. It is also referred to as inter-observer reliability.

4.0 Self-Assessment Exercise(s)

1. What do you understand by the concept validity?
2. What is reliability?
3. Briefly explain the word validity and discuss three types known to you
4. Compare and contrast validity and reliability
5. Enumerate and briefly explain different types of reliability.

5.0 Conclusion

Validity and reliability are regarded as central issues in all scientific research measurement that concerned with how concrete measures, or indicators are developed for constructs. Both are salient in social research because constructs in social research are often ambiguous, diffuse and not directly observable. Perfect reliability and validity are very difficult or impossible to achieve. Despite this, they are what researchers strive for. They try as much as possible to maximize the reliability and validity of indicators.

6.0 Summary

In this unit, you learned about how a researcher measures a construct through the application of reliability and validity. In addition, you learned about different types of validity and reliability and the principles of reliability and validity are used in all forms of measurement. They are used to avoid common errors that create unreliability and invalidity and to evaluate your measure. Both also help you become aware of specific instances in which pitfalls are likely to occur in measure of concepts.

7.0 References/Further Readings

Babbie, E (2001) The Practice of social Research USA Thomas Learning Inc.

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

Gay, L. R. (1992) Educational Research, Competences for Analysis and Application USA Macmillan Publishing company.

Pattern, M. L. (2005) understanding Research Methods, An overview of the essential USA Publishing

UNIT4 IMPORTANCE OF THE USE OF STATISTICS IN RESEARCH

CONTENTS

1.0 Introduction

A large number of people or researchers are usually afraid of or intimated by quantitative research because of the fact that they lack or do not have in-depth knowledge of mathematics and statistics. In as much as research is regarded as the application of the scientific method(s) to the study of a problem(s). Questions/hypothesis are thought of in an attempt to find a solution to the problem at hand. In order to gather information or data, instruments must be put in place. The data collected are not useful because they are referred to as raw data or using appropriate statistical tools. In this unit, we will examine the meaning of statistics, types of statistics, the relevance of statistics in research, scale of measurement and experimental design and statistical procedures are two sides of a coin because if the design of research is faulty no amount of statistical manipulation can lead to the drawing of valid inference that are basic components of statistics.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define statistics
Mention and explain types of statistics
Enumerate the relevance of statistics into social research
State scale of measurement

3.0 Main Content

3.1 Meaning/Definition of Statistics

The word statistics has two major meanings: Statistical data and statistical methods. When statistics is used in the context of data, it refers to the quantitative aspects of things or numerical description /collection of numerical facts and figures. A typical example of this is learning by gender (male or female) or by class level (100, 200, 300 or 4oo levels, monthly wages distribution of either academics or non-academics staff in a University, annual production figures of a manufacturing company, etc.

On the other hand, the word statistics from statistical method point of view is refers to a body theories and techniques employed in transforming raw data into useful and meaningful information for making logical tenable and rational decisions and conclusion.

It is also the science of dealing with statistical data. It involves the following:

Collection of Data
Analysis of data
Inference or decision making

3.2 Types of Statistics

Statistics can be very broadly classified into two categories, viz,

Descriptive statistics
Inferential statistics

Description Statistics

This is an aspect or type rising summarizing and describing quantitative data.

It is used to describe the basic feature of the data un a study. They provide simple summaries about the sample and the measures. Example of descriptive statistics are graphs, charts (pie charts), columnal charts, bar charts histograms etc), pictograms, tables and any form whereby data are displayed for easier understanding. Other examples are measures of central tendency (mode, mean, median), correlation coefficient (degree of relationship), Kurtosis, skewness. Etc.

Description of how data is prepared tend to be brief and to focus on the more unique aspects of your study, such as specific data transformations that are performed. Descriptive statistics can be voluminous. In most write-ups, these are carefully selected and organized into summary tables and graphs that only show the relevant or important information.

Inferential Statistics

It deals with the methods by which inferences are made on the population on the basis of the observations made on the smaller sample. Inferential statistics rest on the strength of deductive reasoning. This investigates questions, models and hypothesis. In many cases, the conclusions from inferential statistics extend beyond the immediate data alone.

Any procedure of making a generalization that goes beyond the original data is called inferential statistics obtained when data are collected. It this uses probability that is, the chance of an event occurring. An essential component of ensuring data integrity is the accurate and appropriate analysis of research findings. Improper statistical analyses distort scientific findings, and mislead casual readers (Shepard, 2002), and may negatively influence the public perception of research. Integrity issues are just as relevant to analysis is non-statistical data ad well.

Examples of inferential statistical tools are student to-test, Analysis of variance, Analysis to covariance, correlation Analysis, multiple regression, multivariate Analysis of Variance, etc.

Relationship among variables can also be determined. Also, by studying past and present data and conditions, it is also possible to make predictions based on this information. It would be observed that descriptive statistics consists of the collection, organization, summarization, and presentation of data while inferential statistics on the other hand, consists of generalizing from samples to populations, performing estimation and hypothesis testing, determining relationships among variables and making predictions.

3.3 Relevance of Statistics to Research

Statistics helps the researcher in quantitative research to:

acquire the techniques of data collection
understand statistical procedures or methods for analyzing data
acquire competence in planning and carrying out research.

3.4 The Need for Statistical Analysis

Statistical analysis is defined as the process of investigating and evaluating a given set of data and drawing relevant conclusions from the data. It entails the art of data collection, choice of appropriate statistical methods and the conduct of analysis.

The statistical analysis is essential because of the following reasons.

Statistical analysis helps to reduce a complex mass of date to a few easily understandable quantities. Complex data may be reduced to totals, averages, percentages, groups, and so on and presented graphically, diagrammatically or in a tabular form.

It makes use of descriptive language which is more efficient and exact in communication. It guides against any vague conclusions and emphasizes arriving at definite ones.

It allows drawing of generalizations and making less with similar facts under different conditions, locations or period.

It enhances the presentation of results in a summarised, more meaningful and self-explaining form, this emphasizing the hidden information in the raw data.

It reduces or minimizes the uncertainties in conclusions on data

It gives room for or establishes a level of reliability on conclusions.

3.5 Basic Statistical Approach/Procedure

Statistical approaches to a research problem are categorized as follows:

Collection of fact (data)

This is the first step in the statistical treatment of a research problem. The raw material upon which the researcher is to work is referred to as numerical data. The quality of data collected will determine the validity of statistical conclusions, among other considerations. Data collection should be undertaken in a planned manner because without proper planning, the facts/data collected may not be suitable for the intended purpose and a lot of time and money expended may be wasted.

Organisation of data

In most cases, data collected are a huge mass of facts running into hundreds and thousands of figures. Effort must be made such that irregularities in the data and the bulk are reduced. This will involve organization, classification, tabulation and presentation of data in a suitable form.

Statistical Analysis of data

The statistical analysis method to be used should be conceived right from the data collection stage. It includes such things as measures of central tendency, measures of dispersion or viability, test of independence and associations' comparative test and explanation of the nature of relationships. At this stage, raw data are transformed into useful information.

Interpretation of Results

This stage is known to be the final phase of the statistical technique. It entails those methods by which judgments are formed and inferences drawn. A good knowledge of the statistical method(s) used by the research is essential for proper interpretation of the results.

3.6 Data Preparation

It is important to find out if the respondents provided useful information that could be used to trace their responses long after they have finished responding to the research instruments. The first thing to do is to enumerate all the copies of the questionnaire collected from the field serially. In addition, demographical data should also be checked to make sure there are no empty spaces. For example, if a respondent forgets or decides not to include his/her

gender, but responded that she had been pregnant before, this would give us a clue that the respondent is female.

Also, if a respondent decided not to indicated that his/her socio-economic states (in terms of high or low) but indicated that he/she has 4 cars, and has build house in high class reserved area or estate, this may also help the researcher to identify the respondent as high SES respondent.

Scale of Measurement

There are various ways by which numbers or values are assigned to variables. In some cases, simple classification is done while in others we arrange in order of size. These are four (4) different scales of measurement, which are Nominal scale, ordinal scale, interval scale and Ratio scale.

Norminal Scale

Norminal scale is used for identification or categorization purposes. Data in norminal scale do not have magnitude, equal interval or absolute zero. For example, in a basketball or football match, players wear jerseys with different numbers. That a player wears jersey number 1 does not make the best or the worst among his/her mates. Also, we usually categorize and make frequency counts on the group e.g. categorization based on sex (male and female) as M and F or by assigning numbers like 1 and 2. Another example is brands of electronics which can also be grouped or categorize like 1-LG, 2 = Benz, 3 = Toyota, 4 = Nissan. The value attached to each of these brands of electronics or cars does not cannot serious meaning because we cannot authoritatively conclude that LG or the Jeep are the best or worst electronics or veluncle because we only assign nominal data or we are just using nominal data.

Ordinal Scale

In ordinal scale, the order or arrangement is important. The order is more than a mere listing. It is progression from the highest to the lowest or from lowest to the highest.

Example of average scores

1.	78.6	1
2.	78.4	2
3.	75.2	3
4.	71.0	4
5.	67.0	5

Ordering is done by ranking in the above table. It has magnitude but lack equal interval and absolute zero. In ordinal scale of measurement, we have ranks to indicate positions which do not give any information about distance/interval between points on the scale.

Interval Scale

Here, the differences between successive points on the scale are equal. Hence, they have equal intervals. For example, the difference between 15 years and 20 years of respondent is 5 years. It is possible because equal interval are used in the measurement and there is no also lute zero points. In an e-examination measurement, there is a difference of 10 between a pupil who scored 60 and another who scored 70. the assumption is that the result obtained from the instrument used in measuring these student's ability is reliable (error is minimized). This is usually difficult and that is why it is emphasized that instruments used in any research work should be valid and reliable.

Ratio Scale

A ratio scale is made up of all the quantities such as absolute zero and equal intervals. For example, in the thermometer the absolute zero is 273 kefvin. This makes comparison between points in the scale possible and valid.

Types of Data organization

Frequency Distribution

A frequency distribution is a list showing the number of times each score value (or interval of score value) occurs in a distribution. It provides a summary of test scores in a form which accurately depicts the group as a whole.

How to construct frequency distribution

Arrange the data in descending order
Use a letter to symbolize a score value (e.g. x)
Make a tally against each occurrence of the score value (i.e. frequency). Frequency is represented by the letter f.

The purpose of a frequency table is to reduce the number of entries or entities to deal with, then the score can be grouped together into broader categories. Each of these new categories is referred to as a class interval which covers the same range of scores on the scale of measurement.

Measures of central Tendency

A measure of central tendency is an index whose value depicts the typical performance of the whole class. The three (3) common indices of central tendency are the mean, median and mode.

When to use Mean, Median and Mode

The mean score is used as a typical score representing an entire distribution when the distribution is not skewed. This condition can be illustrated by using the following distribution i.e. (3,4,5,6,6,7,8,8,9)

$$\text{Mean} = \frac{3+4+5+6+6+7+8+8+9}{9} = \frac{56}{9} = 6.22$$

$\therefore$ mean = 6.22

Median and Mode = 6

Since the distribution is not skewed, it is best to use the mean as a measure central tendency of the distribution.

When the distribution is skewed, however, the median is used. The modal score is rarely used as a typical score representing an entire distribution. It should be used to supplement any information from the mean or median especially when the distribution has more than one mode.

Concept of Dispersion

The concept dispersion also known as variability refers to the extent to which scores in a distribution deviate from each other and their central tendency. There are different measures of variability namely: range, semi-interquartile range, variance and standard deviation.

The Range

Range only takes into consideration the two extreme scores and therefore it is not a true reflection of the variability of all the scores in the distribution. Again, all other scores may be changed provided the change does not affect bother the upper and the lower scores. Therefore, we do not have a reflection of the variability of all the scores in the distribution.

Standard Deviation

Standard deviation also known as semi-interquartile range belongs to the same group of statistics as the median. Like the median it does not involve all other scores in the distribution in its computation other than taking note of their positions and presence. It is a kind of average of all the deviation of scores from the mean.

For example, let us consider the following illustration with 2 distributions A and B

(15, 18, 21, 24, 27) = A
(5, 13, 21, 29, 37) = B

These two distributions have the same mean (a value of 21). However, the difference between any two scores in distribution A is 3 where as in distribution B it is 8. distribution A disperses less than distribution B. Again, though the mean value of both is 21, the distributions have different deviations from their central tendency measures.

Standard Deviations computations are as follows:

Distribution A	Deviation form Mean	Distribution B	Deviation from Mean
15	6	5	16

18	3	13	18
21	0	21	0
24	3	29	8
27	6	37	16
	Total deviation = 18		Total deviation = 48

Correlation

Correlation is a compound word i.e. co and relation. Co means joint while relation means association. Therefore, correlation means joint association.

Correlations can also be defined as a measure of the relation between two or more variables. It shows the strength and direction of a linear relationship between two random variables.

There are three (3) possible considerations for correlation – positive, negative and zero

Positive: examples are height and weight (as height increases weight also increases). Time and temperature, I.Q. and achievement, age and fertility, area and radius of circle.

Negative: examples are the age of a car and resale value, force of attraction and distance etc.

Zero: examples of things that are not related are shoe sizes and income, weight and I.Q, height and I.Q etc

When two things are related, it does not mean that one causes the other. There are also two things to note about a correlation index. They are the strength or magnitude of the correlation index and direction (sign either +ve or – ve) of the correlation index.

Uses of Correlation Index

It helps to predict the performance of students.

It helps to ascertain the reliability of a test is i.e. how stable and consistent the student's performance is with time over a test. This is done by test – retest method and this determines stability coefficient.

It is also used to test for equivalence. Through this, the coefficient of Equivalence tells us how comparable the two (2) tests are.

It is also used to determine the internal consistency of a test. This can be done by split-half reliability. This in turn tells us how each item in a part is related to another item in another part of the test.

4.0 Self-Assessment Exercise(s)

1. What is statistic?
2. What are the importance of statistics to research work?

5.0 Conclusion

As earlier discussed, statistics is an important tool in research study, but not an end. This means the a researcher or a student intending to carry out a research work (study) should tool (right tool) should be adopted or chosen early at the time the researcher is clarifying his or her research idea or topic.

6.0 Summary

In this unit, you were made to understand that statistics is a tool, not an end. This implies that a conscious choice of the right tool should be made. You learned about the meaning and types of statistics being used in analyzing data. We also discussed relevance of statistics to research, the need for statistical analysis, basic statistical approach, and data preparation. In addition you learned about scale of measurement as well as type of data organization and concept of dispersion. The choice of statistical tool or equation(s) to be use for the research analysis should be made early at the time of designing the research or at the time the researcher is clarifying his or her research data.

7.0 References/Further Readings

Aggarwal, Y. P. (1998). Statistical Methods: Concepts, Application and computation sterling publishers private limited.

Bluman, A.G (1990) Elementary Statistics. Mc Graw Hill, Higher Education, New York.

Dixon, W. J. and F.J Massey (1983). Introduction to statistical Analysis (4th Edition).

Gupta, C. B. and V. Gupta (1973). An introduction to statistical Methods. Vikas Publishing House PVT Limited, New Dehli.

John, P.W.M (1971). Statistical Design and Analysis of Experiments. Wiley New York

MODULE 5

Types of Research and Data Analysis

In the final module of this course, five units will be considered and these units are stated as follows:

Unit 1 Qualitative Research
Unit 2 Quantitative Research
Unit 3 Qualitative Data Collation and Analysis

Unit 4 Quantitative Data Analysis
Unit 5 Conflict Analysis

UNIT 1 QUALITATIVE RESEARCH

CONTENTS

1.0 Introduction

In the social research, we usually systematically collect and analyse empirical evidence in order to understand and explain social life. But in the course of embarking on such study, it is either we adopt qualitative research method or quantitative method. The most obvious difference is that in qualitative research method, the objective of research is not to generate qualitative data, but to use a technique of data collection which can yield very useful but non-quantifiable data.

Qualitative methods are subjective and exploratory; but can offer useful explanation especially when they are used in conjunction with quantitative methods; either as a preliminary approach, or as a complimentary phrase.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define the concept qualitative research
Explain nature of qualitative research
State characteristics of qualitative research
Enumerate reasons for conducting qualitative research
List merits and demerits of qualitative research methods.

3.0 Main Content

3.1 Qualitative Research

Qualitative research is a type of research sharing similar or same characteristics with scientific research which consists of an investigation that:

Seeks answers to a question.
Systematically uses a predefined set of procedures evidence(s).
Produces findings that were not determined in advance.
Procedures finding that are applicable beyond the immediate boundaries of the study.

Creswell (1994) defines qualitative research as an inquiry process of understanding based on distinct methodological traditions of enquiry that explore a social or human problem.

The researcher builds a complex, holistic picture, analyses words, reports detailed views of information, and conduct the study in a natural setting.

Creswell (1994) divides qualitative research into five (5) main Qualitative Research Types and identifies the key challenges of each mode of inquiry.

The Biography
Phenomenology
Grounded Theory
Ethnography
Case Study

Denzin and Lincoln (1994) define qualitative research:

Qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials case study, personal experience, introspective, life story interview, observational, historical interactional, and usual tests – that describe routine and problematic moments and meaning in individuals' lives.

Qualitative research shares the theoretical assumptions of the interpretative paradigm, which is based on the notion that social reality is created and sustained through the subjective experience of people involved in communication (Morgan, 1980). Qualitative researchers are concerned in their research with attempting to accurately describe, decode, and interpret the meanings of phenomena occurring in their normal social

contexts (Fryer, 1991). The researchers operating within the framework of the interpretative paradigm are focused on investigating the complexity, authenticity, contextualization,

shared subjectivity of the researcher and the researched and minimization of illusion (Fryer, 1991).

Qualitative research in general is more likely to take place in a natural setting (Denzin, 1971; Lincoln and Guba, 1985; Marshall & Rossman, 1989). This means that topics for study focus on everyday activity as "defined, enact ed, smoothed, and made problematic by persons going about their normal routines" (Van Maanen, 1983, p. 255). Qualitative research is less likely to impose restrictive a priori classification on the collection of data. It is less driven by very specific hypotheses and categorical frameworks and more concerned with emergent themes and idiographic descriptions (Cassell and Symon, 1994).

3.2 Characteristics of Qualitative Research

Qualitative research is the study of symbolic discourse that consists of the study of texts and conversations.

Is the study of the interpretive principles that people use to make sense of their symbolic activities.

Is the study of contextual principle, such as the roles of the participants, the physical settings and a set of situational events, that guide the interpretation of discourse.

It lays emphasis on 'human- as – instrument'

It is an exploratory and descriptive focus

The researcher identities studies and employs one or more tradition of inquiry.

It entails rigorous qualitative methods of data collection. The researcher collects multiple forms spends adequate time on the field.

The information, writing or report is so persuasive such that reader experiences the study as though he was present in it.

It gives clear, engaging and unexpected ideas such that the findings become believable, realistic and accurately reflecting all the complexities that exist in real situation.

We analyze data using multiple levels of obstruction. Writers often present their studies in stages, or employ early and on-going inductive.

3.3 Reasons for Conducting Qualitative Research

Researchers undertake a qualitative research study because of the nature of the research question often starts with a how or what so that initial forays into the topic describe what is going on.

We choose a qualitative study because the topic needs to be explored since variables cannot be easily identified, theories are not available to explain behavior of participates or their population of study and theories need to be developed.

Qualitative study is used because of the need to present a detailed view of the topic

Qualitative approach is chosen in order to study natural setting

A researcher might select a qualitative approach because of his/her interest in a library style; by bringing himself or herself into the study, the personal pronoun "I" is used, or perhaps the writer engages a storyt elling form of narration. Or because it captures the language and imagery of phenomenon being studies and the need to write in a library style.

It has longer duration especially in a situation where there is sufficient time and resources to spend on extensive data collection in the field and detailed analysis of "text" information.

It is adopted because audiences are receptive to qualitative research.

Qualitative approach is employed to emphasize the researcher's role an active learner who can tell the story from the participants' view rather as an "expert" who passes judgment on participant. (Cresswell, 1994).

3.4 Merits and /demerits of Qualitative Method

3.4.1 Merits of Qualitative Methods

It gives room for obtaining a more realistic feel of the world that cannot be data experienced in the numerical and statistical analysis used in qualitative research

It provides flexible ways to perform data collection, subsequent analysis, and interpretation of collected information
It provides a holistic view of the phenomena under investigation (Bogdan & Taylor, 1975; Patton, 1980)
It gives the researcher, ability to interact with the research subjects in their own language and on their own terms (Kirk & Miller, 1886).
It allows descriptive capability based on primary and unstructured data.
It allows researcher to observe events that may be too risky or dangerous to create in the laboratory
It allows us to explore the generalizability of the laboratory findings in order to ascertain whether changing the context changes the phenomenon.

3.4.2 Demerits of Qualitative Method

It can bring about departing from the original objectives of the research in response to the changing nature of the context (Cassell & Symon,1994)
It can lead to arriving at different conclusions based on the same information depending on the personal characteristics of the researcher.
Inability to investigate causality between different phenomenon
Difficulty in explaining the difference in the quality and quantity of information obtained from different respondents and arriving at different, non-consistent conclusion
It requires a high level of experiences from the researcher to obtain the targeted information from the respondent.
It lacks consistency and reliability because the researcher can employ different probing techniques and the respondent can choose to tell some particular stories and ignore others.
It can entertain biases that might have an impact on the study.

3.5 Types of Qualitative Research

Cresswell (1994) divides qualitative research into five (5) main types such as:

The Biography
Phenomenology
Grounded theory
Ethnography
Caste Study

3.5.1 (1) The Biography

Biography is a method or type of qualitative research that involves a detailed, or comprehensive first-hand report/information of the inner experiences of individuals with

reference to the way in which they describe, interprete, and comprehend the world around them (Schurik 1988)

It is the study of an individual experiences as told the researcher or found in documents and the archival records. The life course stage may be childhood, adulthood or old age written chronologically or experiences such as education, marriage and employment. Biographies are usually lengthy personal documents compiled by researcher in respect of those parts of an individual's life that are relevant to the research he or she is conducting.

Howard (1985) explains that there are many types of biographies including medical, psychiatric and psychological profiles. In addition, there are cases histories relating to careers, as well as criminal case, court records, correspondence, notes, contracts, minutes, memoranda, diaries, memoirs, reports and autobiographies are referred to as documents sources of biographies. This research method is unique in the sense that it enables the researcher to review the individual's life in its totality. It also suitable for exposing the confusion, contradictions and ambiguities embedded in human behavior.

Challenges of Biography (Cresswell, 1994)

- The researcher needs to collect extensive information from and about the subject of the biography.
- The investigator needs to have a clear understanding of historical, contextual material to position the subject within the larger trends in society or in the culture.
- It takes a keen eye to determine the particular stories, slant, or angle that "works" in writing a biography and to uncover the "figure under the carpet" (Edel, 1984) that explains the multilayered context of a life.
- The writer, using an interpretive approach, needs to be able to bring himself or herself into the narrative.

3.5.2 (2) Phenomenology

This is the first major approach to qualitative research (i.e., the descriptive study of how individuals experience a phenomenon). Phenomenology is a 20th Century philosophical movement dedicated to describing the structures of experience as they present themselves to consciousness, without recourse to theory, deduction, or assumptions from other disciplines such as the natural sciences phenomenology is both a philosophy and a research method. The purpose of phenomenological research is to describe experiences as they are lived in phenomenological terms (i.e. to capture the "lived experience" of study participants). The philosophers from which phenomenology emerged include Husserl, Kierkegaard, Heidegger, Jean Paul Sartre etc.

Philosophical orientation

The phenomenologists view the person as integral with the environment. The focus of phenomenological research is people's experience in regard to a phenomenon and how they interpret their experiences. All phenomenologists agreed that there is no a single reality;

each individual has his or her own reality. This is considered true even of the researcher's experience in collecting data and analyzing it. "Truth is an interpretation of some phenomenon; the more shared that interpretation is the more factual it seems to be, yet it remains temporal and cultural" (Munhall, 198 9).

There are four aspects of the human experience, which are of interest to the phenomenological researcher:

Lived space (spatiality)
Lived body (corporeality)
Lived human relationships (relationality)
Lived time (temporality)

All of these aspects are taken into consideration we must be aware that people see different realities in different situations, in the company of different people and at different times.

Research method/Procedure in Phenomenology

The foundational questions in phenomenology are "what is the meaning, structure, and essence of the lived experience of this phenomenon by an individual or by many individuals"?

Methodology: The researcher tries to gain access to individuals' life-worlds, which is their world of experience; it is where the consciousness exists. Understanding, human behavior or experience requires that the person (respondent) interpret the action or experience for the researcher, and then the researcher must interpret the explanation/information provided by the person.

Developing Research Questions: The first step to be taken or considered in conducting a phenomenogical study is to identify the phenomenon to explore. The researcher will then develop research question(s):

What are the necessary constituents of this feeling or experience?
What does the existence of this feeling or experience indicate concerning the nature of the human being?

Sampling: After developing the research question(s) the researcher identifies the sources of the phenomenon being studied and from these sources seeks individuals who are willing to describe their experience(s) with the phenomenon in question. These individuals must understand and be willing to express their inner feelings and describe any (psychological, physical or physiological) experiences that occur with the feelings. For examples, refugees, combatants, war victims, raped victims during war/crisis situation.

The researcher searches for the invariant structures of individuals' experiences (also called the essences of their experiences) and also searches for commonalities across individuals

rather than focusing on what is unique to a single individual. For example, what are the essences of peoples' experience of the death of a loved one during crisis/war? Here is another example: What are the essences of peoples' experiences of rape/sexual assault during crisis?

Data Collection and Analysis: Data or information are collected through a variety of means: observation interactive interviews, videotape, and written description by subjects. The data is typically collected by in-depth conversations in which the researcher and the subject (informant) are fully interactive. When the first data are collected, analysis begins and will guide decisions related to further data collection. The meaning attached to the data is expressed within the phenomenological philosophy.

After analyzing your phenomenolical research date, you should write a report that provides such description and a "vicarious experience" of being there for the reader of the report. The outcome of the analysis is a theoretical statement responding to the research questions. The statement is validated by examples of the data, often direct quotes from the subjects.

Challenges of a phenomenology study

The researcher requires solid grounding precepts of phenomenology.
The participants in the study need to be carefully chosen to be individuals who have experienced the phenomenon.
Bracketing personal experiences by the researcher may be difficult.
The researcher needs to decide how and in what way his or her personal experiences will be introduced into the study.

3.5.3 (3) Grounded Theory

This is another major approach to qualitative research which is (development of an inductive technique, "bottom-up", theory that is "g rounded" directly in the empirical data). The term grounded means that the theory developed from the research has its roots in the data from which it was derived.

Philosophical Orientation: Grounded theory is based on symbolic interaction theory. This theory holds many views in common with phenomenology. George Herbert Mead (1934), a social psychologist was a leader in the development of this theory. The theory of symbolic interactionism is not a topic for full discussion here but is explored more fully in the sociology. Though, symbolic interactionism explores how people define reality and how their beliefs are related to their actions. Reality is created by people through attaching meaning t situations. Meaning is expressed by symbols such as words, religious objects, and clothing. These symbolic meanings are the basis for actions and interactions. Unfortunately, symbolic meanings are different for each individual. Symbolic meanings may be shared by groups such as football supporters, ethnic groups etc. these shared meanings are then transferred to new members by socialization.

Methodology: The steps of grounded theory research occur simultaneously. The researcher will be observing, collecting data, organizing data, and forming theory from the data at the same time. An important methodological technique in grounded theory research is the

constant comparative process in which every piece of data is compared with every other piece.

Data Collection and Analysis Techniques

Data may be collected by interview, observation, records, or a combination of these. Data collection usually results interview transcripts, or video/audio taped conversations that contain multiple pieces of data to be sorted and analyzed. This process is initiated by coding and categorizing the data.

Data analysis often follows three steps:

Open Coding (i.e., reading transcripts line-by-line and identifying and coding the concepts found in the data).
Axial Coding (i.e., organizing the concepts and making them more abstract).
Selective Coding (i.e. focusing on the main ideas, developing the story and finalizing the grounded theory.)

Outcome:
The outcome is a theory explaining the phenomenon under study. Here is the foundational question in grounded theory: what theory or explanation emerges from an analysis of the data collected about this phenomenon? It is usually used to theory, remember what theories tell you "How" and "why" something operates as it does; theories provide explanations.

Grounded theory can also be used to test or elaborate upon previously grounded theories, as long as the approach continues to be one of constantly grounding any changes in the new data.

The research report presents the theory supported by examples from the data. The literature review and numerical results are not used in then report. The report tends to be narrative discussions of the study process ad findings.

The grounded theory process is "complete" when occurs (i.e., when no new concepts are emerging from the data and the theory is well validated).

The final report should include a detailed and clear description of the grounded theory.

Challenges of Grounded Theory

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

The researcher needs to recognize that the primary outcome of this study is a theory with specific components: a central phenomenon, causal conditions, strategies, conditions and context, and consequences. These are prescribed categories of information in the theory.

3.5.4 (4) Ethnography

Another major approach to qualitative research is ethnography (i.e., the discovery and description of the culture of a group of people). Alternatively, it may focus on more narrowly defined ones (e.g., the culture of people, the culture of violence, the culture of an organization) referred to as micro-ethnography. The underlying assumption of an ethnographer is that every human group eventually evolves a culture that guides the members view of the world and the way they structure their experiences.

The aim of the ethnographer is to learn from (rather than to study) members of a cultural group – to understand their world view as they defi ne it. Ethnographic researchers sometimes refer to emic and etic perspectives. An Emic perspective refers to the way the members of the culture envision their world – it is the insiders view.

The Etic perspective, by contrast, is the outsiders' interpretation of the experiences of that culture. Ethnographers strive to acquire an emic perspective of a culture under study.

Moreover, they strive to reveals what has been referred to as tacit knowledge. Information about the culture that is so deeply embedded in cultural experiences that members do not talk about it or may not even be consciously aware of it.

Ethnographers almost invariably undertake extensive fieldwork to learn about the cultural group in which they are interested. Ethnographic research is typically a labour – intensive endeavour that requires long periods of time in the field months and even years of fieldwork may be required. In most cases, the researcher strives to actively participate in cultural events and activities. The study of culture require a certain level of intimacy with members of the cultural group and such intimacy can only be developed over time and by working directly with those members as an active participant. The concept of researcher as instrument is frequently used by anthropologists to describe the significant role the ethnographer plays in analyzing and interpreting a culture.

The foundational question in ethnography is: What are the cultural characteristics of this group of people or of this cultural scene? Because ethnography originates in the discipline of Anthropology, the concept of culture is of central importance. Culture is the system of shared beliefs, values, practices, language, norms, values, rituals and material things that group members use to understand their world.

There are two additional or specialized types of ethnography.

Ethnology (the comparative study of cultural groups)
Ethno-history (the study of the cultural past of a group of people). An ethno-history is often done in the early stages of a standard ethnography in order to get a sense of the group's cultural history.

Here are some more concepts that are commonly used by ethnographers:

Ethnocentrism (i.e., judging others based on your cultural standards). You must avoid this problem if you are to be a successful ethnographer, even a researcher in order to guide against bias!

Going Nature (i.e., Identifying so completely with the group being studied that you are unable to be object).

Holism (i.e., the idea that the whole is greater than the sum of its parts; in involves describing the group as a whole unit, in addition to its parts and their interrelationships).

Methodology

As previously mention, there are two basic research approaches in anthropology, emic and etic. The emic approach to research involves studying behavior from within the culture. The etic approach involves studying behavior from outside the culture and

examining similarities and differences across cultures. The steps ethnographic research includes the following:

Identification of the culture to be studied,
Identifying the significant variables in/of the culture.
Literature review
Gaining entrance
Cultural immersion
Acquiring information
Gathering data
Analysis of data
Description of then culture
Theory development

Data collection and Analysis: Data collection involves primarily observation and interview. The researcher may become a participant/observer in the culture during the course of the study. Analysis involves identifying the meanings attributed to objects and events by members of the culture. These meanings are often validated by members of the culture before finalizing the results.

The final ethnography (i.e., the report) should provide a rich and holistic description of the culture of the group under study.

Challenges facing Ethnography

The researcher needs to be grounded in cultural anthropology and the meaning of socio-cultural system as well as the concepts typically explored by ethnographers.

The time to collect data is extensive, involving prolonged time in the field.

In many ethnographies, the narrative is written in a literary, almost story telling approach, which may limit the audience for the work and may be challenging for

authors accustomed to traditional approaches to writing social and human science research.

There is a possibility that the research will "go active" and be unable to complete the study or be compromised in the study. This is but one issue in the complex away of field work issues facing ethnographers who venture into an unfamiliar cultural group or systems.

3.5.5 Case Study

Another import approach to qualitative research is case study research (i.e., the detailed account and analysis of one or more cases). The foundational question in case study research is: What are the characteristics of this single case or of these comparison cases? A case is a bounded system (e.g., a person, a group, an activity, an event, a process).

Many different concepts and theories can be used to describe and explain the case being studied, because the roots of case study are interdisciplinary in nature.

Classes of Case study

Robert stake classifies case study research into three types namely:

Intrinsic Case Study (where the interest is only in understanding the particulars of the case)

Instrumental Case Study (this is a situation where the interest is in understanding something more general than the case).

Collective Case Study (it has to do with the situation where interest is in studying and comparing multiple cases in a single research study)

Methodology: Multiple methods of data collection are often in case study research (i.e., interviews, observation, documents, questionnaires).

Analysis/Interpretation: The case study final report should provide a rich (i.e., vivid and detailed) and holistic (i.e., describes the whole and its parts) description of the case and its context.

Challenges of Case Study

The study of more than one case dilutes the overall analysis; the more cases an individual studies, the greater the lack of depth in any single case. The researcher therefore must consider whether to study a single case or multiple cases.

4.0 Self-Assessment Exercise(s)

1. Define qualitative research. Of what importance is qualitative methods to research?
2. Briefly explain or define qualitative research method and state some of Characteristics.
3. Enumerate and explain three (3) specific ways of conducting qualitative research.
4. What is qualitative researcher method? State at least five (5) merits and demerits of qualitative research method each.

5.0 Conclusion

Having been introduced to the fundamental elements of a qualitative approach to research and extensively discussed five types of qualitative research identified by Cresswell couple with the key challenges facing each mode of enquiry. An intending or a prospective qualitative researcher would have understood the basic procedural rudiment of qualitative research and would have become proficient in the use/application of qualitative methods in exploring a social or human problem(s).

6.0 Summary

This unit focused on the qualitative research methods by defining the concept from different perspectives as postulated by different scholars in the field. Characteristics of

qualitative research was broadly discussed together with the reasons for conducting qualitative research. Merits and demerits of the concept were not left out undiscussed in order to appreciate the strength and weakness of the concept.

Also, specific ways of conducting qualitative research were discussed so that we can understand and appreciate the strength of each in their own terms.

7.0 References/Further Readings

Balsley H. L. (1970). Qualitative Research Methods for Business and Economics. New York: Random House.

Bernard, H. R. (1995). Research Methods in Anthropology, Second Edition. lOndon:

Sage Publication.

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

Cassel, C. & Symon, G. (1994). Quanlitative Research in Work Conents. In C. Cassell, & G. Symon (Eds.), Quanlitative Methods in Organisational Research (pp. 1-13).

Thousand Oaks, CA: Sage Publication.

Denzin, N. K. Lincolu, Y. S. (2000) (eds). Handbook of Qualitative Research London:

Sage Publications.

Frankfort-Nachmias, C., & Nachmias, D. (1992). Research Methods in the Social Sciences. (4th ed). New York: St. Martin's Press.

Kirk, J. & Miller, M.L. (1986) Reliability and Validity in Qualitative Research.

Qualitative Research Methods Series, I. Beverly Hills, CA: Sage Publications.

Marshall P.A. (2003). Human Subjects Protections Institutional Review Boards, and Cultural Anthropological Research. Anthropol Q 2003; 76(2): 269-85.

Morgan, G. & Smircich, L. (1980). The case for Qualitative Research. Academy of Management Review, 5, 491 – 500.

Nwi, P., Nyamongo, I., Ryan, G. (2001). Field Research into social Issues:

Methodological Guidelines. Washington, DC: UNESCO

Patton, M.Q. (1980). Qualitative Evaluation Methods. Newbury Park, CA: Sage.

Pope, C. & Mays, N. (2000). Research in Health Care. London: BMJ Books.

Van Maanen, J. (1983). Qualitative Methodology Beverly Hills, CA: Sage Publication.

UNIT 2 QUANTITATIVE RESEARCH

1.0 Introduction

1.0 Introduction

With the sufficient knowledge and understanding of the major paradigm of qualitative research methods acquired in the previous module, it is also very important to learn the paradigm of quantitative research methods in order to be able to provide a basis for examination of your preferred method. As you are aware of the fact that length, breadth, and height are measured by the use of ruler or tape, and weight by the scale, but in social sciences setting, there are no social tapes or scales to measure social phenomena or events. What constitutes the measuring instrument in social research therefore is the application of quantitative research methods in gathering data or information about social phenomena or events. Social scientific research therefore, demands and relies on very carefully designed and constructed research instrument to enable the researcher move from the level of empirical measurement to the level of theoretical construct. Quantitative research is used widely in social sciences such as psychology, economics, sociology, political science, peace studies, and less frequently in anthropology and history.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define quantitative research
Enumerate characteristics of Quantitative research
State reasons for conducting quantitative research
Explain characteristics and nature of quantitative research
List and discuss different types of qualitative research
Itemize merits and demerits of quantitative research

3.0 Main Content

3.1 Definition of Quantitative Research

Quantitative research in the social sciences refers to the systematic empirical investigation of social phenomena via statistical, mathematical or computational techniques.

It is a type of research that is concern with the numeric relevance of various kinds of behaviour, issues, phenomena or the generation of numerical data that can be converted into numbers using statistical methods to count and measure outcome of a research study.

The objective of quantitative research is to develop and employ mathematical models, theories and or hypotheses pertaining to phenomena.

In the social sciences, the term relates to empirical methods, originating in both philosophical positivism and the history of statistics. The functional or positivist paradigm that guides the quantitative mode of inquiry is based on the assumption that social reality has an objective ontological structure and individuals are responding agents to this objective environment (Morgan & Smircich, 1980). Quantitative research involves counting and measuring of events and performing the statistical analysis of a body of numerical data (Smith, 1988). The assumption behind the positivist paradigm is that there is an objective truth existing in the world that can be measured and explained scientifically. The main concerns of the quantitative paradigm are that measurement is reliable, valid, and generalizable in its clear prediction of cause and effect (Cassell & Symon, 1994).

Quantitative research being deductive and particularistic is based upon formulating the research hypothesis and verifying them empirically on a specific set of data (Frankfort Nachmias & Nachmias, 1992). Scientific hypotheses are value-free; the researchers own values, biases, and subjective preferences have no place in the quantitative approach.

3.2 Characteristics of Quantitative Research

It is usually presented in quantities or number (slae, statistics)
It classifies features, count them and construct statistical model to explain what is observed or the data/information collected
Quantitative researcher knows clearly what he/she is looking for in advance
Deductive reasoning approach is used in quantitative research study

All suspects of the study are carefully designed before data collection
Large samples are used with equal chances of being selected in the population
quantitative data are more efficient and are able to text hypothesis but may miss contextual detail
It seeks precise measurement and analysis of target concepts e.g. use of survey, questionnaire et.

3.3 Reasons for Conducting Quantitative Research

Researcher conducts quantitative research because of the following reasons:

It is used to make comparism between or among different variables (things) we study
It is used study relationship that exist between or among variables
It enables the researcher to study statistics involving multi-ways tables and significance test for different groups of phenomena
It is the most suitable method of studying problems with a fairly well developed theory to guide the designing and utilization of standardized data collection procedure and structured research instrument.
It is used in studying relationship between the numbers of periods.
It is used for verifying generalizable findings or study
It is the most appropriate when the outcome of a research sought after a general pattern than a process motive.

3.4 Characteristics and Nature of Qualitative Report Research

There exist five main characteristics and nature of quantitative research which are as follows:

3.4.1 Hypothesis:-

This form one of the major characteristics of quantitative research. Hypothesis is a formal affirmative statement predicting a single research outcome, or a tentative explanation of the relationship between two or more variables. In qualitative research, immediately a research problem has been identified, formulation of hypothesis becomes imperative to either support it or contradict it. Hypothesis is divided into two: (a) a Null Hypothesis (which usually indicates no effect or change and (b) An Alternative hypothesis (which is usually our experimental hypothesis). To test hypothesis, a researcher would have to collect data. Which usually contain evidence that either agrees with the alternative hypothesis or the Null hypothesis.

3.4.2 Causality or Cause and Effect

The cause-and-effect relationship between variable concerned with the purpose of explaining and predicting phenomena. To predict outcome of an event, we have to identify different types of variables. A variable is an event or condition that the researcher observes or measures or plan to investigate and that is liable to variation or (change), (Rosnow and Rosenthal 1996). Two other terms for variables that are frequently mentioned in literature are independent and dependent variables.

3.4.3 Generalizability

Generalizability is another characteristic of quantitative research that involves the extent to which the results of a study can be generalized (applied) beyond the sample to the larger population. Researchers are said to generalize when they apply the findings of a particular study of people or settings used in the study. The whole notion of science is built on the idea of generalization. Every science seeks to find basic principles or laws that can be applied to

great variety of situation and in case of social sciences, to a large number of people. Population generalizability refers to the degree to which a sample represents the population of interest. A representative sample is usually employed because the conduct of a study takes a considerable amount of time, energy (frequently) and money. Researchers usually want the results of an investigation to be as widely applicable as possible.

3.4.4 Reliability or Internal Validity

The concept reliability in everyday English means dependability or trustworthiness. The term means the degree of consistency that the instrument or procedure demonstrates, whatever it is measuring, it does so consistently. It means the consistency and dependency of a measurement. It means that a reliable test should produce the same results on successive trials. For example, if a researcher tested the causes or more different times. He/she should expect to obtain very close to the same results each time. Or if a researcher tries to know ascertain to cause(s) regular kidnapping in the Niger Delta area of Nigeria. Reliability is usually expressed numerically as a coefficient: a high coefficient indicates high reliability.

3.4.5 Statistical Analysis

Once the gathered data have been prepared for analysis, the choice of statistical procedures to be applied is not only determined by the researcher hypothesis and design but also by the type of measurement scale represented by the data. Although, statistical analysis can be undertaken manually but for easy, timely, efficient and effective purposes, computer softwares are usually employed.

In social sciences, the best well used package for data analysis is SPSS (statistical package for the social sciences) which is specifically designed to deal with data and generate statistics. Excel is used for simple calculations and some statistics especially for generating graphics to illustrate your results.

3.5 Types of Quantitative Research

The following are the different types of quantitative research methods:

Survey research
Descriptive research
Correlational research
Causal – comparative research
Experimental research

1. Survey Research:

Survey research is a non-experimental and social scientific approach that studies small and large population. It draws a sample of a population, study the sample, and then make inferences to the population from the sample data only rarely, however do research or study whole population. The purpose of survey is to describe the attitudes, beliefs, opinion,

motivation and behaviours of a population. The survey researcher is interested in the accurate assessment of the characteristics of whole population of people. It attempts to determine the incidence, distribution and interrelations among sociological and psychological variables.

The term survey is not synonymous with questionnaire alone but with the methods such as interview method and observational method. Survey not only uncovers data but also interpret, synthesize, and interpret data and print to implications and interrelationship. The survey research applies no control or manipulation of the variables in the studied subject. Samples lend to be large in survey because of the need to make generalization.

Survey research is likened to be the best method available to the social scientist interested in collecting original data for describing a population too large to observe directly.

According to Fawole el al (2008), Survey research is used for many different applied purposes such as:

To help select the behaviour to be changed by an or through intervention

To choose the largest population best suited for an intervention
To profile a population
To determine the best channel to reach a population

Features of Survey Research

Survey research involves research in which:

Data are collected from members of a sample that represents a known population
A systematic technique is used to collect data (e.g. questionnaire and interview).
The researcher manipulates no independent variables
Data are sought directly from the respondents
Subjects provide data in natural settings
Responses of subjects are assumed to be largely unaffected by the context in which they are elicited
Influences of confounding variables are controlled statistically
The purpose of the research may range from explanation of phenomena to hypothesis testing

Advantages of Survey

The methods and procedure can be made visible and accessible to other parties (i.e. it promotes transparency and accountability).
It is useful or used in describing the characteristics of a large population
Standardized questionnaires have an important strength with regard to measurement generally
Data collection takes place in natural setting and are obtained directly from respondents

Surveys (especially self-administered ones) make very large sample visible
Results are accurate because of large sample sizes and generally low sampling error.
It is made up of varieties of systematic data collection methods (e.g. interviews, questionnaires and observation) which can be used jointly (combined) or separately.

Disadvantages

Standardization requirement of ten seems to result into filling of round pegs into square holes, leading to enforcement of respondents to subscribe to statement they don't fully endorse

Survey research is very expensive in term of total cost, because of large administrative or personnel costs.
It seldomly deal with the context of social life where the respondents are thinking and acting
Survey research is generally weak on validity and strong on reliability.
Questionnaire and or interview measures may be poor indicants of the construct studied by a researcher using the sample survey method.
Causal inferences from sample survey generated data are difficult to justify because no independent variable are manipulated by the researcher using this method

Descriptive Research

This type of research involves collecting data in order to test hypothesis or answer questions concerning the current status of the subject of the study. No manipulation of variables is attempted but only descriptions of variables and their relationships as they naturally occur.

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

They involve hypothesis formulation and testing
They use the logical methods of inductive – deductive reasoning to arrive at generalization
Method of randomization is often employed so that error may be estimated when population characteristics are inferred from observations of sample.
Both the variables and procedures are described as accurately and completely as possible so that the study can be replicated by other researchers. Descriptive research method range from survey which describes the status que of variables to
the correlational study, which investigates the relationship between variables. They are non-experimental because they deal with relationships among non manipulated variables.

Descriptive research seeks to find answers to questions through the analysis of variable relationships. What factors seem to be associated with certain occurrences, outcomes, conditions or types of behaviours?

3.6 Merits and Demerits of Quantitative Research

3.6.1 Merits of Quantitative Research

The advantages of quantitative research include:

Stating the research problem in very specific and set terms (Frankfort – Nachmias & Nachmias, 1995).
It clearly and precisely specifies both the independent and the dependent variables under investigation.
It follows firmly the original set of research goals, arriving at more objective conclusions, testing hypothesis, determining the issues of causality.
It facilitates achieving high levels of reliability of gathered data due to controlled observations, laboratory experiments, mass surveys, or other form of research manipulations (Balsley, 1970).
It promotes or encouraged elimination and minimization of subjectivity of judgement (kealey & Protheroe, 1996).
It allows or gives room for longitudinal measures of subsequent performance of research subjects.

3.6.2 Demerits of Quantitative Research

The disadvantages or weaknesses of quantitative research method are as follow:

It fails to provide the researcher with information on the context of the situation where the studied phenomenon occurs
Inability to control the environment where the respondents provide the answers to the questioning the survey
There are limited outcomes to only those outlined in the original research proposal due to closed type questions and the structured format.
It does not encourage the evolving and continuous investigation of a research phenomenon.

4.0 Self-Assessment Exercise(s)

1. What is quantitative research method?
2. Briefly discuss characteristic and nature of quantitative research report.
3. List five (5) types quantitative research and explain three of your choice
4. Define the concept quantitative research and enumerate five of its merits and demerits each.
5. Compare and contrast quantitative research and qualitative research methods.

5.0 Conclusion

Having learned about the quantitative research components that are based on positivist approach to research that is more particular or concerned about the variables, causal relations and hypothesis that are language of quantitative research. It was also revealed that we should begin such research with a general topic, narrow it down to research questions and hypothesis, and finally test hypothesis against empirical evidences. The importance of theoretical explanation and concepts as a critical parts of research design in quantitative research was also appreciated.

6.0 Summary

In this unit meaning of the quantitative research method was well explained and its characteristics stated. Reasons for conducting quantitative research coupled with the nature and characteristics of quantitative research report. Such as (hypothesis, causality or causes and effect, generalizability, reliability and statistical analysis) were also discussed. We also discussed extensively different types of quantitative research (i.e. survey research descriptive research, correlational research, causal-comparative research and experimental research. The advantages and disadvantages of quantitative research were also well stated or enumerated for our consumption.

7.0 References/Further Readings

Rosnow, R.L and Rosenthat, R. (1996) Beginning Behavioral Research. A Conceptual Primer. New Jersey Prentice Hill.

Best, J.W. and Kahn, J.V. (2006) Research in Education Boston Pearson Education Inc.

Fraenkel J.R. and Wallen, N.E. (1996) How to Design and Evaluate Research in Education New York Mc Graw – Hill Inc.

Gay, L.R. (1981) Educational Research Competencies for Analysis and Application Ohio, Charles E Merril Publishing Co.

Nachmias, F. and Nachmias, D. (1996) Research Methods Social Sciences 5th Edition, New York, St. Martin's Press.

Creswell, J.W. (1994): Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, C.A: Sage Publications.

UNIT 3 Qualitative Data Collation and Analysis

7.0 References/Further Readings

1.0 Introduction

Before any social problems or challenge(s) could be solved, a researcher is required to set up a research design capable of providing the data or information that can bring about solution to the research problems. Having identified the statement of the research problem, map out the research design to be used in preferring solution the problem and obtained relevant data or information from the subjects, the researcher would now be in the best position to carry out data analysis. This will enable him/her to determine the extent to which information (data) at hand can assist in testing the hypothesis or provide answers to the relevant questions raised in the research problems. In the course of carrying out data analysis, the use of statistics by the researcher becomes imperative because statistics is for the fundamental purpose of description and analysis, and its proper application for the provision of information necessary to answer questions or test hypothesis, determination of statistical methodology to be used and to ascertain conclusions, deductions or inferences that can be validly drawn from the analysis of the data.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

Define Data collation, Analysis and qualitative data analysis
Explain some concepts

List and explain different types of qualitative data analysis
Discuss procedures for qualitative data analysis

3.0 Main Content

3.1.1 Definition of Data Collation: - Is the process by which data are collected from the sources a researcher has selected and presented in a lucid, straight forward, summarized and tabulated forms for easy interpretation and analysis.

Is the transfer of collected data to coded form for further processing through the use of data processing instruments (e.g. computer) in research method.

3.1.2 Definition of Data Analysis: - Is the process of looking at and summarizing data with the intent to extract useful information and develop conclusions.

Etymologically, it means the process of breaking down.

Socially, it is the process of simplifying complex phenomena to aid personal or collective decision making.

Scientifically, it is the complete process of processing data obtained previously, whether in a primary context or in a secondary manner, for the purpose of making sense of the data so collected.

3.1.3 Meaning of Qualitative Data Analysis

Qualitative Data Analysis (QDA) is the range of processes and procedures whereby we move from the qualitative data that have collected into some form of explanation, understanding or interpretation of the people, situations, events or phenomena investigated. OR

Refers to the process of summarizing and describing the mass of words generated by interviews, observational data collected, video, audio recording, images, documents (reports, meeting minutes, e-mails, field notes (notes taken in the field being studied) during a field investigation.

Qualitative data are forms of information gathered in a numerical form.

3.2 Process of Qualitative Analysis

The process of QDA usually involves two things, writing and the identification of themes. Writing of some kind is found in almost all forms of QDA. In contrast, some approaches, such as discourse analysis or conversation analysis may not require the identification of themes. Nevertheless finding themes is part of the overwhelming majority of QDA carried out today.

Writing: - writing involves writing about the data and what you find there. In many cases what you write may be analytic ideas. In other case it may be some form of précis or summary of the data, though this usually contains some analytic ideas.

Coding into Themes

Looking for Themes involves Coding. This is the identification of passages of text (or other meaningful phenomena, such as part of images) and applying labels to them that indicates they are examples of some thematic idea. At its simplest, this labeling or coding process enables researchers to quickly retrieve and collect together all the text and other data that they have associated with some thematic idea so that they can be examined together and different cases can be compared in that respect.

Interpreting

It is easy, when starting QDA both to write and code in ways that are nothing more than descriptive summaries of what participants have said or done. Inevitably, even description involves some level of interpretation though the trick is to move away from the kinds of description and interpretations that people would use in the milleu, community or setting you

are investigating to a categorization and analytic understanding that begins to explain why things are as you have found them.

Organizing

The data sets used in qualitative data analysis tend to be very. Though samples may be quite small compared with those used quantitative approaches such as surveys, the kinds of meaningful data collected (field notes, video recordings and interviews, for example) tend to be very lengthy and require the kind of intensive examinations, understanding and reading that only humans can do. In order to keep a clear mind and not become overwhelmed by the sheer amount of data and analytic writings, the analyst needs to be organized.

3.3 Types of Qualitative Data Analysis

The following are the types of qualitative data analysis:

1.Manual Method:

In qualitative manual data analysis, notes and interviews are transcribed and transcripts and images etc. are copied. The researcher then uses folders, filling cabinets, wallets etc, to gather together materials that are examples of similar themes or analytic ideas. This facilitates easy retrieval of such linked materials but necessitates two things:

i. Making multiple copies of the original data as the same data may represent two or more themes or analytical ideas

A careful method of labeling of the material in the folders or files so that it is possible to check back and examine the broader context in which that data occurred. The analyst needs to know where the snippets of data in the files came from so that they can be re-contextualized

2.Ethnographic Summaries:

David Morgan (1988) lists this as one of the most familiar means of analyzing qualitative data. It involves the use of quoted (phenomenological or emic) statements to capture a more elaborate or comprehensive range of ideas.

3.Computer Assisted Qualitative Data Analysis (CAQDA)

With the advent of the personal computer that proved excellent at manipulating text, it was clear that with the right software much of the manual organization could be done efficiently with a pc. More than twenty CAQDA programmes are available for analyzing qualitative data. CAQDA programmes automate procedures of analysis that have been in use for generations by ethnographers while others use linked coding schemes, hypertext, and case based hypothesis of testing. CAQDA is associated with analysis of aggregate (quantitative) data according to the tenets of logical positivism and the constructed category of "quantitative research" rather than the constructed category of "qualitative research".

This day, many researchers have replaced physical files and cabinets with computer-based directories and files along with the use of word processors to write and annotate texts. The CAQDA packages being used by analysts not only make the coding and

retrieval of text easy to do, but can add other functions like searching that computers do quickly but which takes human ages to do or in some cases, which humans have never done. At first the focus of CAQDA was on text since that was easy to handle on PCs, but now that much audio and video is in digital form too, software has been developed to support the analysis of audio and video data.

Therefore, computer-assisted analysis carries the connotation of hard data, computation and objectivity. It feeds the tensions between positivists and non-positivists – in other words, it is the quantification of data, which on their own represent the quality (not quantity) of human social experience. It also provides a context for synthesis between quantitative and qualitative research methods and data.

3.4 Procedures for Qualitative Data Analysis

There are no 'quick fix' techniques in qualitative analysis because "there are probably as many different ways of analyzing qualitative data as there are qualitative researchers doing it!" (Lacey and Luff, 2001:3).

The procedures are as follows:

i. Broad Levels of Analysis

Simple counting of the frequency with which certain words or phrases occur (sometimes called content analysis, although this term refers more accurately to Beverly Hancock's use of it as 'thematic analysis') (Lacey and Luff, 2001:4).

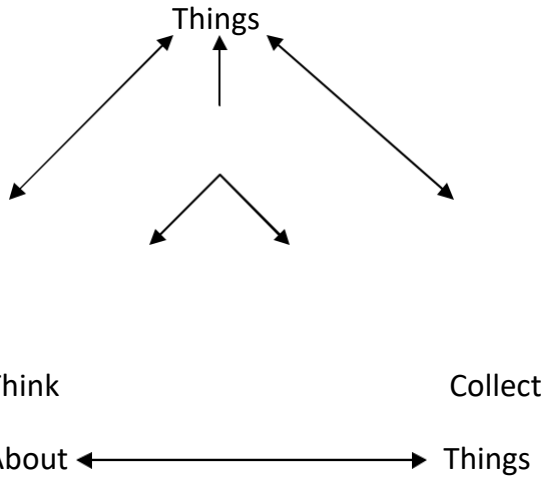
ii. Thematic Analysis

Beyond words, we move to sentences or paragraphs dealing with particular words or concepts. Deeper questions are asked and deeper enquiries made.

iii. Noticing, Collecting and Thinking Model

Seidel (1998) developed a useful model to explain the basic process of qualitative data analysis. The model consists of 3 parts: Noticing, Collecting, and Thinking about interesting. These parts are interlinked and cyclical. For example while thinking about things you notice further things and collect them. Seidel likens the process to solving a jigsaw puzzle. Noticing interesting things in the data and assigning ‘code’ to them, based on topic or theme, potentially breaks the data into fragments. Code which have been applied to the data then act as sorting and collecting devices.

Notice



The Data Analysis Process (Seidel, 1998)

iv. Noticing and Coding

In Kelle and Seidel (1995) codes are differentiated in two basic ways; the can act as "objective, transparent representation of facts" or they are heuristic tools to enable further investigation and discovery. At one level the codes are acting as collection points for significant data. At another level the code labels themselves are acting as markers or pointers to the way you rationalize what it is that you think is happening. At a third level they enable you to continue to make discoveries about deeper realities in the data that is referenced by codes.

v. Development of Codes

The way codes are developed and the timing of this process will depend on whether your research project and your approach is inductive or deductive. This will be one implication of the methodology used in your research project. If your approach is deductive you may be seeking to test existing theories or expand on them. In this case you may develop codes which represent the sensitizing ideas concepts and themes within that theory, before you start assigning passages of the data to those codes.

Basic Steps, Stages or Procedures

These levels of analysis proceed from the simple to the complex but they are undergirded by the following steps, stages or procedures.

Familiarization with data (review, listening, reading)
Transcription of tape recorded material
Organization and Indexing of data for easy retrieval and identification
Anonymissing of sensitive data coding (including indexing).
Thematisation (identification of themes)
Recording
Development of provisional categories

Exploration of relationships among categories
Illustration of relationships in domain analysis
Refinement of hypothesis and categories
Development of theory and incorporation of pre-existing knowledge
Testing of theory against data
Report writing, including quotes where appropriate

However, it is important to know or note that the above steps are not strait jackets and should be followed blindly. The analysis of qualitative data should proceed from the same vital openness and flexibility with which the data had been collected in the first place. Reporting the findings should also attempt to capture or retain some of this vitality.

4.0 Self-Assessment Exercise(s)

1. How does process conceptualization in qualitative research differs from unit of qualitative research.

2. Enumerate five differences between quantitative and qualitative data analysis.

3. Is data analysis necessary in qualitative research? Discuss

5.0 Conclusion

Despite the explanation given above, we have to be cognizance of the fact that in the course of analyzing qualitative data in terms of themes,/concepts, ideas, or interactions or the processes, you have to do the thinking and the analysis yourself because there is no software that can actually do the thinking and interpretation of the collected data for you.

6.0 Summary

In this unit, you have learned how researchers analyse qualitative data. Data collection, data analysis and qualitative data analysis were briefly defined and process of QDA discussed. You also learned about the types of qualitative data analysis and procedures for qualitative data analysis. However, it has been revealed that qualitative data are more difficult deal with than data in form of numbers. Mathematical properties are usually assigned to numbers that let a researcher use statistical procedures. But qualitative analysis requires more effort by an individual researcher to read and reread data notes, reflect on what is read, and then make comparisms based on logic and judgement.

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7.0 References/Further Readings

Creswell, J.W. (1994). Research Design: Qualitative and Quantitative Approaches Thousand Oaks, C.A.: Sage Publications.

Coffey, A.B. Holbrook and P. Atkinson (1996): Qualitative Data Analysis: Technologies and Representations: Sociological Research On lin: Vol. 1, no. 1. Available on line at: http://www.socresonline.org.uk/1/1/4.html

Gibbs, G.R. (2002) Qualitative Data Analysis: Explorations with Nvivo. Buckingham; Open University Press.

Seidel, J.& Kelle, U. (1995) 'Different Functions of Coding in the Analysis of Textual Data' in U. Kelle (editor) Computer Aided Qualitative Data Analysis: Theory, Methods and Practice. London: Sage.

Seidel, J (1998) Qualitative Data Analysis. The Ethnograph v5 Manual, Appendix E. Available online at: http://www.qualisresearch.com.

UNIT 4 QUANTITATIVE DATA ANALYSIS

1.0 Introduction

2.0 Intended Learning Outcomes (ILOs)

3.0 Main Content

- 3.1 Definition of Quantitative Data Analysis
- 3.2 Fundamentals of Quantitative Data Collation
- 3.3 Data Cleaning
- 3.4 Types of Techniques of Quantitative Data Analysis
- 3.5 Data Interpretation Data Reporting

4.0 Self-Assessment Exercise(s)

5.0 Conclusion

6.0 Summary

7.0 References/Further Readings

1.0 Introduction

At the completion of research observation by a researcher on the subjects and has obtained relevant information or data (e.g. administration of questionnaires, interview schedules etc.) the data have to be carefully checked through, edited and appropriately sorted out. This exercise is referred to as data processing which sets the stage for data analysis. Data analysis is more than number crunching. It is an activity that permeates all stages of a research study. Concern with analysis should (i) begin during the design of a study, (2) continue as detailed plans are made to collect data in different forms, (3) become the focus of attention after data are collected, and (4) be completed any during the report writing and reviewing stages. But the form and quality of the data determine what analysis can be performed and what can be interred from them.

2.0 Intended Learning Outcomes (ILOs)

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

Define quantitative data analysis
Explain some fundamentals of Data collation
Discuss data cleaning
State types of techniques of quantitative data analysis

Discuss data interpretation data reporting

3.0 Main Content

3.1 Data Analysis

Data analysis is the process of summarizing the data in a meaning manner that would provide answers to research questions. For example, in the case of research involving field work the data could be summarized in terms of the total number of subjects (respondents) and their distribution by sex, age, marital status, level of education, income level, number of children, religion (etc as the case may be). The analysis could reveal or show the number and characteristics of subjects who responded to specific questions, and the pattern of response. It involves ordering the data for statistical representation in terms of frequency distribution and statistical computations (e.g. mode, mean, standard deviation etc.), and construction of tables and cross tabulations. It is at the level of data analysis that the research data are related to the specific hypothesis of the study in order to highlight the findings of the research.

Data analysis could be handled manually and/or mechanically. The process is usually very tedious, cumbersome and lacking in accuracy. The use of small calculator could be helpful. It is however preferable and indeed, strongly recommended to handle the data mechanically by the use of the computer. The computer machine has the capability and facilities to handle even very complex computations, construction of tables, and the written text with speed, accuracy and versatility.

3.1.1 Required Skills in Data Analysis

Several skills or series of skills are required when analyzing data, some of which are conceptual charity, field experience, adequate knowledge of statistical technique and ability to use computer to manipulate data.

3.1.2 Methods of Data Analysis

The methods of data analysis include statistical, mathematical, cartographic, mapping (involves the use of GIS), and other methods researchers can utilize in analyzing data. A decision concerning the types of quantitative or qualitative analytical methods to be used by a researcher depends largely on the hypothesis and the types of data that are available. Soon, after collating the data, it is often useful to think of ways of constructing a frequency distribution tables and or graphs. It is quite possible to make use of your spreadsheet package to produce graphs to help at this stage. The important point is to select the most appropriate chart that will present the data's properties clearly.

3.2 Fundamentals of Data Collection

For easy interpretation and analysis of data, data collection is very important because it involves a summary and tabulation of collected information (data).

Data collection entails coding of data, followed by data entry into machine-readable format, preliminary cleaning of data and ends with the production of raw data files containing all the information recorded in the questionnaires. The data collection stages are as follows:

3.2.1 Coding of Data

Coding of data is the final phase in the data collection process. It converts the observations or measurements made into the form suitable for SPSS or other analytical packages to ensure clarity. Data coding is referred to as the process of grouping responses either from questionnaires or interviewees into categories that bring together the similar ideas, concept or themes that have been discovered into a process. A researcher can code for names, evidences, themes, time sequences and hesitations, signs of emotion and indications of fear or amusement. The print out of the database with an explanation of the codes is referred to as "data co ding sheet". An experienced researcher can decide to code on anything which he/she considers may be of help in the data analysis.

3.2.2 Coding Stages

Coding of data proceeds in stages which is usually suggested by the original reading of the questionnaires, or interviews and the intended purposes of the research report. It is very

important that appropriate codes are assigned or should be assigned to all the variables under study. For example, educational qualification can be coded (EDU), religion affiliation can be given (RelAfl), marital status (Msta), household size could be given (Hsz), Urban area may be given a code (Uare) etc.

However, it should be noted that not all data use the actual values especially of such data is made up of categorized variables. For instance, if a question about age is asked and possible responses are categories as “less than 1 8years old”. “18 to 35”, “36 to 50”, “51 to 65” and “over 65 years of age”. For these data to be coded, we can make use of the following codes: less than 18 = 1, 18 to 35 = 2, 36 to 50 = 3, 51 – 65 = 4 and 65 years and above = 5. A similar coding system could be applied for gender, ethnicity (ethnic group) or religious affiliation. For gender we might use 1 for female and 2 for male. It should always be at the back of our mind that we need to enter numbers.

SPSS package allows you to enter “Male” and “Female ” by changing the type of variable from Numerical to a String, but makes you very limited in the sort of analyses you can then conduct.

There are times we observe that questions are not given any response by the subject or may simply inadvertently skip a question and making it becomes missing data. Sometimes you collect data using open ended questions such as: “What do you think is lacking in the programme”? Respondent then writes in their answers. In a situation like this, one would review a number of responses and then develop a code such as: the facilitator = 1, content = 2, the methods used = 3, the time allocated = 4, the day of the week = 5 etc. We should try as much as possible to either use actual or pre-coded values for the variables of interest, because post-coding of open-ended items is time consuming and some subjectivity becomes inevitable in translating written responses into coded numerical values.

It is very important for you to develop a code manual (guide) that indicates how each variable is to be coded before entering your data into a computer for processing which could be actual or coded values and in what field it appears.

3.2.3 Data Entry Programmes

The programmers that are available to aid researchers in data entry include:

Statistical software packages

These include SPSS, Microsoft Access, Microsoft Excel, ISSA, SATA etc. They are specifically designed for this purpose and they generate data sets in the form required for analysis.

Database Packages

Database packages such as dbase, paradox and Microsoft access, allow the user to create screen forms with validity and consistency checks. Screen can mimic the questionnaire

closely. They are capable of dealing with several different units of analysis at once (e.g. the household and the household members).

Custom Programme

It is possible for competent programmers to write a programme in a language such as FORTRAN, C-language, Visual Basic to perform data entry. The main advantage is that, it can be completely tailored to the specific requirements of the questionnaire. Although, it takes time to write, test and debug the programme and one largely depends upon a single person if anything goes wrong.

3.2.4 Data Entry or Data Capture

Data entry covers the initial computerized log-in of the completed questionnaire. Basically, data entry process involves five elements. These are data entry screens, validity checking, consistency checking, data combination and transformation, and data base orgranisation which are briefly described as follows:

Data Entry Equipment: A very good computer comprising screen, key board, central processing unit and a printer is required for data entry. The computer could either be desktop laptop which must be in good working condition with relevant or needed programmes already installed on it.

Validity Checking: A good data entry programme should make checks on the values and codes entered in each field as the data are keyed in. Ideally, this checking process should take place as soon as you press a key (usually Enter or Tab) to move on to the next field, and any error would be flagged immediately. Alternatively, the check may take place after each case (questionnaire) has been entered. Checking schemes that operate only after data entry is completed are much less efficient as you will have to physically locate each questionnaire again to check on the correct data. Validity checks are required to ensure that the field is not left bland, that only meaningful codes are used for the field, to check for values possibility.

Consistency Checking: It examines the interrelationship between 2 or more fields. For example, consistency checks in a household questionnaire might include: household size is equal to the number of persons in the household roster; age of household head must at least be is years.

Data Combination and Transformation: A computer can be used to combine or transform the data in a number of ways. But while most statistical packages provide the means of doing this, it may make sense to carry out some transformation at the data entry time. For instance, coding some fields like occupation, using the look-up table, and applying a set of rules to derive a new variable such as household type.

Data Base Organisation: Immediately the data have been entered, they must be organized in the form in which they will be analysed. For example, data in each questionnaire can be divided among a number of different units of analysis: household level data, money-earning activities etc. The database must then be exported from the

data entry programme in a form, which can be read and understand by the programme which will be used for statistical analysis.

3.3 Data Cleaning

Once the data have been entered completely, the next process is to examine it and produce tables and pinpoint problems that require checking. All incorrect or suspicious values must be examined, the original questionnaires checked, and the data either confirmed or corrected.

Data cleaning also referred to as data cleansing or scrubbing, deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. During data cleansing, records are checked for accuracy and consistency, and either corrected, or deleted as necessary. Data cleansing can occur within a single set of records, or between multiple sets of data which need to be merged, or which will work together. Data quality problems are present in single data collections, such as files and databases (e.g. due to misspellings during data entry, missing information or other invalid data).

A data cleaning approach is expected to satisfy these several requirements. First and foremost, it should detect and remove all major errors and inconsistencies both in individual data sources and when integrating multiple sources. The approach should be supported by tools to limit manual inspection and programming effort and be extensible to easily cover additional sources. It should also not be performed in isolation but together with schema-related data transformations based on comprehensive metadata. Each time a lot of data are being stored, errors are bound to creep into the system. The goal of data cleansing is to minimize these errors, and to make the data as useful and meaningful as possible. Without regular data cleansing, mistakes and errors can add up, leading to less efficient work and more complications down the road.

3.4 Types of Techniques of Data Analysis

Various techniques are often used or employed in carrying out simple data analysis and comparative analysis. The common methods used in analyzing data through inferential and descriptive statistics have been discussed under relevance of the use of statistics in research.

3.5 Data Interpretation

This is the process of giving flesh to the research data in terms of the meaning and implications of the findings. It involves the following.

Description of the data – to find out what is typical abort the sample, an d the determination of the interrelationship of the different variables in the study.

Drawing of Inferences – this relates to the use of statistics to determi ne the relationship among variables, and how the relationship is affected by other variables presumed in the study (as intervening or antecedent variables). It involves testing hypotheses and explaining the results of the research.

Making generalization – indicating the implications of the findings of t he study for the population or the phenomenon studied; for similar populations and phenomena; and for the wider society. It involves giving opinion that might apply to a larger number of cases, resulting from the consideration of particular facts or cases. It is in the light of the implications of the results of the study for society that suggestions and/or recommendations are made for better knowledge and understanding of the phenomenon studied, and for improvement of life in the society.

3.6 Data Reporting

The research report is the climax of the research enterprise. It is important in the sense that unless the findings of a study are communicated to others by way of report, nothing is known about the research. The research report therefore, is the medium for the dissemination of information and advancement of knowledge. In preparing the report, the audience and the fora to be addressed, the purpose of the report and the language of the discipline, among other things, should be taken into consideration. The considerations are important because they would influence what is presented and how it is presented. Research report should be clearly understood and capable of replication, if need be. To meet following outline:

Statement of the Problem: The research problem should be briefly but clearly stated. The rationale for the study and the objective should be clearly indicated, and the significance of the research explained in terms of the practical and theoretical importance of the study. There should be a brief review of other relevant studies, which could provide the background for the study. In this section, the hypotheses of the research, if any, should be stated and the major concepts employed defined.

The Research Procedures: The research report should give sufficient information on how the study was carried out. This includes a discussion of the research design, the sample and sampling techniques, and the methods of data collection and analysis.

The Results: This section of the research report presents the findings of the study. The data should be adequately interpreted and attention drawn to new developments and insights which might have been gained in the process of the study.

The Implications: In the preparation of research report the implications of research findings could be handled along as part of the presentation and interpretation of data, or it be discussed separately. It includes making inferences and generalizations as might be deemed necessary, as well as drawing attention to the limitations of the study in terms of some unanswered or new questions, and making suggestions for future research.

Ideally the report could start with an abstract, and/or end with a summary which highlights the main elements of the research and its major findings.

4.0 Self-Assessment Exercise(s)

1. How do researchers' clean data and check their coding

2. What is a code book and how is it used in research?

5.0 Conclusion

In as much as the goal of scientific research is to produce knowledge that truly neglects the social world. A good researcher should try as much as possible to guide against possible errors or obstacles that can enter into the research process at many places such: research design, measurement, data collection, coding, calculating statistics and constructing tables, or interpreting results.

6.0 Summary

In this unit you learned about organizing quantitative data to prepare them for analysis, and analyzing them (organizing them into charts, or tables, or summarizing them with statistical measures). Statistical analyses are used by the researcher to test hypothesis and answer research questions. You also learned how data must be coded first and then analyse using univariate or bivariate statistics.

7.0 References/Further Readings

Rosnow, R.L and Rosenthat, R. (1996) Beginning Behavioral Research. A Conceptual Primer. New Jersey Prentice Hill.

Best, J.W. and Kahn, J.V. (2006) Research in Education Boston Pearson Education Inc.

Fraenkel J.R. and Wallen, N.E. (1996) How to Design and Evaluate Research in Education New York Mc Graw – Hill Inc.

Gay, L.R. (1981) Educational Research Competencies for Analysis and Application Ohio, Charles E Merril Publishing Co.

Nachmias, F. and Nachmias, D. (1996) Research Methods Social Sciences 5th Edition, New York, St. Martin's Press.

Creswell, J.W. (1994): Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, C.A: Sage Publications.

UNIT 5 CONFLICT ANALYSIS

CONTENTS

1.0 Introduction

As a peace studies and conflict resolution professional or student, it very important for you to carry out thorough analysis of any type of conflict you intend or you are writing your project/thesis on ever before you embark on data analysis.

Therefore, it is imperative for you to acquire necessary knowledge and skills required to enable such a person gain an insight into the hidden issues in conflict. The issues ranging from the causes of the conflict, stages/phases of conflict, the stakeholders (parties in conflict), and the conflict analytical tools and techniques necessary for proper understanding of conflict analysis in view of proffering sustainable solution to the conflict. Analysis is usually accompanied by "conflict mapping" and "tracking" both of which are very important at giving the conflict management practitioner a clear picture of what is happening, what is at stake and what could be done to manage the "difficult" situation.

2.0 Intended Learning Outcomes (ILOs)

By the end of this unit and relevant readings, you should be able to:

define concept of conflict analysis
explain the meaning of stakeholders, categorise stakeholders and itemize criteria for determining stskeholders
state pre-intervention conflict analysis
define conflict mapping and tracking
identify conventions used in mapping relationships
enumerate different conflict analytical tools.

3.0 Main Content

3.1 Definition of Conflict Analysis

Conflict analysis is a critical review, interpretation and explanation of what is observed and recorded about the conflict situation. Or A process by which the root causes, dynamics, issues, and – other – fundamentals of conflict are examined, reviewed and unraveled through the use of various mechanisms for proper and better – understanding of the conflict from several perspectives.

Conflict analysis enables peace expert intervening in a conflict the opportunity of gathering necessary data or information that will facilitate easy bringing together of parties in dispute and reveal a dependable, reliable and effective direction on the choice of strategies and action to be adopted for a successful intervention and termination of conflict.

3.2 Definition of Stakeholder

A stakeholder is defined as those men and women, group or parties who are directly or indirectly involved in the conflict and have a significant stake in the outcome.

3.2.1 Categories of Stakeholders

Primary Stakeholders

They are those whose goals are, or are perceived by them to be incompatible and who interact directly in pursuit of their respective goals. They are the direct investors in the conflict.

Secondary Stakeholders

Are affected directly by the outcome of the conflict but who do not feel themselves to be directly involved. As the conflict progresses, they may become primary and primary may become secondary.

Interested Stakeholders

These parties have an interest in the conflict. They stand to benefit from the outcomes whether peaceful or conflictual. The difference between interested and secondary stakeholders is that the interested stakeholders suffer no direct impact of the conflict in the short and medium term.

3.2.2 Criteria for Determining Primary-Stakeholders

Determining where stakeholders should be put is both political and fluid. The following often determines the decisions of interveners in selecting the stakeholders to engage.

Functional

This suggests those who directly wage the conflict. Their legitimacy on the negotiating table is their capacity and ability to perpetuate the conflict. They are the embodiment of the conflict. Observers believe they have the power to end the conflict.

Representativity

This is political aspect of stakeholders' categorization. Stakeholders are primary because they represent a large number of people who are directly affected by the conflict. These people also have the means to wage conflict or build peace.

Moral Authority

Primary Stakeholders can also be determined because their moral authority carries the vision of post-conflict society. These include religious leaders, civil society organizations including women's organizations, traditional leaders. Earlier, this category was only confined to the secondary level.

Five (5) Elements Required to Structure Analysis of Stakeholders

o	Relationship	-	What is the interaction between the stakeholders?
o	Agenda/power	-	What are the agendas of key stakeholders for conflict and for peace?
o	Needs	-	What are the needs of the different stakeholders? Which needs are opposing and overlapping?
o	Action	-	What actions are the different stakeholders undertaking to promote peace or conflict? What is the cumulative power of actions for peace or conflict?

3.3 Pre-Intervention Conflict Analysis

Entering into conflict situations by a researcher or conflict management practitioner is often an unpredictable task which requires a critical careful conflict analysis. It is not enough for him/her to just note the positions of the stakeholders (parties) in the conflict but s/he must have a thorough understanding of their interests, values and needs as well.

The following model suggests a way for the intervenor to gather data and increase the certainty that his/her entry will be constructive to the disputing parties. It is the responsibility of an intervenor to develop a comprehensive picture of the conflict by identifying its key element. The pre-intervention information gathered usually points the intervenor in a certain direction, suggesting ways to engage the parties to reduce tensions and work together to find solution to the problems that they face on one hand. Additional information or data collected during the course of intervention should also be incorporated into the conflict analysis. This may help you determine why an issue is so hard to resolve or it may suggest an alternative approach to conflict management.

History of the Conflict

It is important for a conflict analyst to understand the significant events that has happened in the past between the parties. It reveals the genesis of the conflict and whether they have had previous disputes. History also enables the intervenor to ask the following questions. What has been the pattern of their relationship? Was there a recent change in the relationship? Did the conflict abate at one time before re-escalating? What past efforts have been made to resolve it and why they failed?

Preferring answers to these questions might require visiting local, state and native archives for documentary evidence. Oral interviews might also be used to gather necessary information.

Context of Conflict

It is also necessary to know how the parties are currently trying to resolve their differences. What is the physical environment of the conflict? That is the social, economic and political environment of the conflict, as well as the dimensions of the external situations (state, sub-regional and global). How do the parties communicate and make decisions?

Primary Parties

Identify the parties involved in the conflict, what are the parties positions and underlying interest? What are their values and perceptions of the other parties? Do the parties have settlement authority? What interest, goals, or needs do the parties share in common?

Power Relations

This has to do with the ability to influence or control other events, which could be in form of physical strength, status, control of resources, persuasive ability, support of allies, and so on. There are two major types of power that can be exercised by either of the parties in conflict which are: hard power which is usually associated with violent conflict while the other is soft power that is identified with positive conflict. The following questions are usually being asked under power relation: Is there balance of power between the disputants? What is/are the source(s) of the parties' power? What resources are at the disposal of each party? How often do the parties use their power and what are the consequences of such power? Are there any untapped power bases of the parties? What method of peace process is suitable for the success of the intervention?

Other Parties/Stakeholders

Apart from the already mentioned primary parties, under this, we have secondary parties and shadow parties that must be considered and their link or relationships with the primary parties ought to be carefully examined in order to understand the overall underlying problems associated with a conflict. Secondary parties can easily be identified compared to shadow parties because most times. Shadow parties hide their identities but supply primary parties resources required for the prosecution of conflict.

The roles these parties play in the conflict must be ascertained. You should know whether they align with either of the primary parties or neutral. When and how these parties can be involved in the peace agencies or organizations availability and involvement in the process of conflict resolution cannot be underestimated.

Issues

What are the primary issues as identified by the parties?

Are there hidden or secondary issues not stated by the parties that are needed to be identified?

What kind of intervention procedures is necessary for the types if issues are identified?

Is the conflict genuine in its own right or is it merely a symptom of other unresolved conflict(s).

If the latter or former, how much time and efforts must be expended on the conflict in order to reach or arrive at a reasonable and sustainable resolution.

The Immediate Situation

What is happening now? (Should the first step be efforts to move towards negotiations, or are short – term violence reduction strategies called for? It is the responsibility of the intervenor to determine the most effective and reliable conflict management strategy to adopt in accordance with the urgency and demand of the conflict situation. For example, if the conflict is at a violent stage, definitely, the intervenor may be compelled to adopt some violence reduction strategies to reduce the rate of likely casualty that may arise.

Stages of Conflict

We have to ascertain whether the conflict is escalating or stabilizing, and ask why?

If the conflict is escalating, what is happening: Are issues moving from specific to general? Is there an increase in issues or resources used to wage the conflict? Has disagreement turned to antagonism? Is there an increase in the level of power being used by either parties? Are the parties polarized? Has extremist leadership arisen? Is communication affected or being distorted? Are parties engaged in propaganda campaigns?

If the conflict is stabilizing, what is happening? Are safety-value mechanisms put in place? Is there a fear of escalation? Are there agreements on norms and values? Are there social bonds, friendships, cross-cutting memberships among party members?

Are there other third party intervenors or external interference or threat? Are there time constraints or other limitations on the further use of resources?

Timing

To ascertain the actual and right time of intervention.
Determine the most profitable and successful time of the intervention.
To know the party that is likely to benefit from immediate intervention.

Possible Options of Intervention/Settlement

The level of knowledge and understanding of the parties alternatives should be considered.

Level of parties awareness of each other's alternatives or option should be considered.

Examine the efforts made so far by the conflicting parties in the accomplishment of their options.
Evaluate the realistic nature of the parties.

3.4 Definitions of Conflict Mapping and Tracking

Conflict Mapping:

Wehr (1979:18) describes conflict mapping or the "first step in intervening to manage a particular conflict".

Conflict mapping can also be defined as graphical representation of the conflict in which the conflicting parties are placed in relation to the situation on ground.

Maps are used for a variety of purposes to understand conflict situation better, to ascertain where power lies, to examine conflict clearly from one viewpoint, to look for openings (way out) or new strategies, to know where our allies or potential allies are placed, to find our own niche, to evaluate what has been done and for many other reasons.

Conflict Tracking:

Is the process which involves monitoring, observing and recording the trend of change and continuity in the conflict process. What to keep of could include:

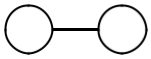
> Conflict parties, including internal leadership struggles, varying prospect for military success and the reading of general population to express support for a settlement; possible ways of re-defining goals and finding alternative means of resolving differences including suggested step towards settlement and eventual transformation; likely constraints on these, and how these might be overcome.

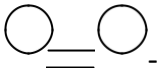
It is very important for the person keeping track of the conflict to pay careful attention to the minutest details about the issue and circumstances around him.

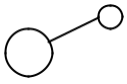
3.4.1 Conventions for Mapping Relationship.

The following are the particular conventions we use in mapping relationships existing between or among the stakeholders (parties) involved in a conflict situation.

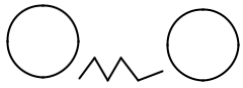
1.  - The circles indicate parties to the situation. The size of the circle indicates power relations of the parties.

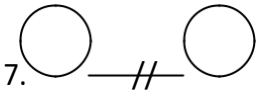
2.  - Straight lines indicate direct relationship between the parties when communication is at its best.

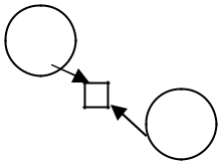
3.  - Double connecting lines indicate an alliance

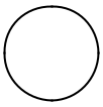
4.  - Dotted lines indicate informal weak or intermittent relationship.

5. - Arrows indicate the predominant direction of influence or activity.

6.  - Lines like lightening indicate discord or conflict.

7.  - A double line like a wall across lines indicates a broken relationship.

8.  - A square or rectangle indicates an issue, topic or some thing other than people.

9  - Shadows show external parties which have influence but are not directly involved.

Conflict Resolution Stakeholders' Network (CRESNET)

Training Manual 2001.

3.5 Conflict Analytical Tools

Conflict mapping tracking and analysis processes are the essential ingredients required in pre-third party intervention for the collection of essential and comprehensive information/data by a mediator or conflict intervenor to discover purposeful tool(s) and techniques that can be used or adopted to suit their needs.

Through such data, Moore (1996:114) notes, that a mediator would:

> Develop a mediation plan or conflict strategy that meets the requirements of the specific situation and the needs of all parties.

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Avoid entering a dispute with a conflict resolution or management procedure that is appropriate for the stage of development or level of intensity that the dispute has reached.

Operate from an accurate information base that will prevent unnecessary conflicts due to mis-communication, mis-perception, or misleading data.

Clarify which issues and interests are most important.

Identify the key people involved and the dynamics of their relationships.

As mentioned above, some of the techniques or tools may look familiar or may be unfamiliar. However, all have been tried and used repeatedly and successfully by people from many different types of conflict situations. In many cases, groups have adapted them to suit the particular needs they have or based on the perceptions of the people who work on it.

These are some of the available tools/techniques

Timeline

Definition

Timeline is a graph that shows events plotted against a particular time-scale.

Timeline shows different views of history in a conflict: helps to clarify and understand each side's perception of events and also facilitate easy identification of events that are most important to each side. It lists dates (years, month, or day, depending on the scale) and depicts events in chronological order.

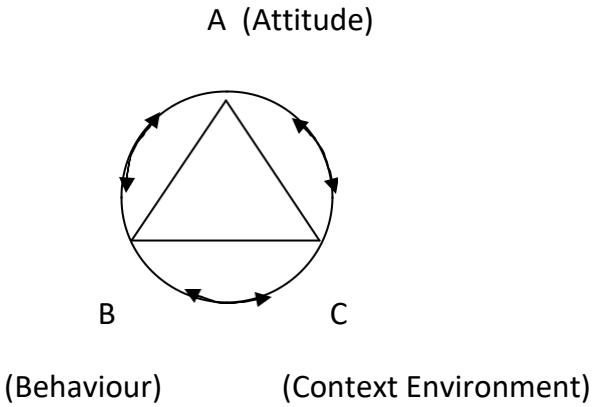
In a conflict situation, groups of people often have completely different experiences and perceptions: they see and understand the conflict in quite distinct ways. They often have different histories. People on opposing sides of the conflict may note or emphasize different events, describe them differently, and attach contrasting emotions to them.

Using the Timeline

Timeline is not a research tool per say as mentioned above, but a way to prompt discussion and learning. In conflict situation, it is usually used early in a process along with either analytical tools or later in the process to help in strategy building. It is also used when people disagree about events or don't know each other's history and as a way of helping people to accept their own perspective as only part of the "truth". Variation in use: it is used by parties themselves and shared with each other; it is

followed by a discussion about events that are highlighted by each side and adding a line for peace initiatives during the same time period.

ABC TRIANGLE METHODS OF ANALYSIS



Attitudes (willingness to change, fixed position)

Behaviour (agitation, demand, pleas, violence)

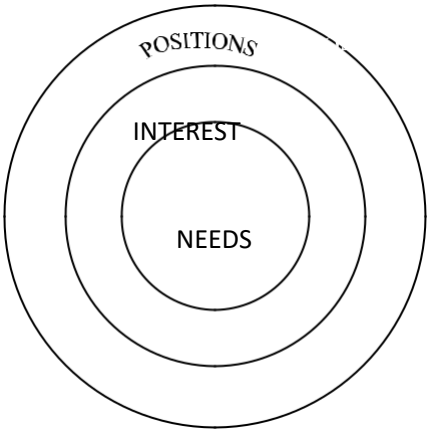
Context (the background)

ABC analytical tool sees conflict having three above mentioned elements, which affect one another.

The third party intervenor or peacemaker in a conflict, uses this tool by drawing up a separate ABC Triangle for each of the major stakeholders in the conflict. He lists key issues relating to attitude, behaviour and context from the parties viewpoint, identify the most important need and fears, and inform each of the parties, his needs and fear as you think, and place these in the middle of the triangle of each of them. You later compare and contrast the perception of the parties for detecting the major object of conflict and then pay attention on the majority. The causes and issues, which are the products of the parties differences, will be addressed, while intervenor will make the parties see reasons on why they should do away with negative perceptions and embrace peace in order to bring about positive and sustainable peace.

The Onion/Doughnut Method of Analysis

This is a graphic tool based upon the analogy of an onion and its layers. The outer layer contains the positions (parties' wants). Underlying these are the interests of the parties in conflict (what parties want to achieve from the situation concerned). The third layer is the core cause at the conflict situation, that is; the most important needs to be satisfied. It is important for intervenor to carry out or do this "onion" analysis for each of the parties involved.



When times are stable, relationships good, and trust high, our actions and strategies may stem from our most basic needs. We may be willing to disclose these needs to others, and discuss them openly, if we trust them, and they may be able, through analysis and empathy, to grasp our needs even before we disclose them.

In more volatile or dangerous situations, and when there is mistrust between people, we may want to keep our basic needs hidden. To let others know our needs would reveal our vulnerability, and perhaps give them extra power to hurt us. If all of us are hidden from each other, they are also less likely to be able to grasp our needs through analysis or empathy because of lack of knowledge and because our mistrust changes our perceptions of each other.

In such a situation of conflict and instability, actions may no longer come directly from needs. People may look at more collective and abstract level of interests, and base their actions on these. When the interests are under attack, they may take up and defend a position, which is still further removed from their original needs.

This type of analysis enables intervenor to understand the dynamic of a conflict situation, and prepare dialogue facilitation between groups in a conflict. The analysis is most useful in a mediation or negotiation processes when parties involved in either of the processes which to clarify for themselves their own needs, interests and positions.

As they plan their strategies for negotiation, they can decide how much of the interior "layers" – interests and needs – they want to reveal to the other parties involved.

Force – Field Analysis

This tool can be used to identify the different, forces influencing a conflict. It is used to analyse both positive and negative forces in a conflict. Whenever action is being taken to bring about change, there will be other forces that are either supporting or hindering what you are trying to achieve. This tool offers a way of identifying these positive and negative forces and trying to assess their strengths and weaknesses. It can also help you to see more clearly what is maintaining the status-quo.

How to use this tool

First and foremost, you begin by naming your specific objective that is the action you intend to take or the change you desire to achieve. Write this objective at the top of the page and drawn a line down the centre of the page.

On one side of the line, list all the forces that seem to support and assist the action or change to happen. Next to each one draw an arrow towards the centre, varying the length and/or thickness of each arrow to indicate the relative strength of each force. These are pointing in the direction of the desired change.

On the other side of the line, list all the forces that seem to retrain or hinder the desired action or to minimize in some way the negative force, in order to facilitate increase in the likelihood of the desired change happening.

At this stage, you may want to examine your plan of action and make modifications in your strategy if necessary in order to build upon the strengths of the positive forces and then try to reduce or even remove the effects of the negative forces.

The Force Field Analysis was developed by an American Social Psychologist Kurt Lewin (1951) as a useful tool built on the premise that forces are often driven by human habits, customs, and attitudes that can affect the change process.