Traditional Methodologies

In

Social science research

Footsteps

By

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I am grateful to the living God, the source of my energy and the talent who laid me through my academic Pursuit.

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The final manuscripts were read and the proof read by Mr. Bem Ianna, Department of languages and Linguistics Nassarawa State University Keffi.

I am very grateful

Foreword

The book, Traditional Methodologies in Social Science Research: Foot Steps presents a rare opportunity for social science students to connect with the historical developments in behavioral research. The author presents in a simple but incisive manner, the philosophical and scientific antecedents of social science research. Readers are guided in a logical way through the different stages of conducting research with unequivocal emphasis on ingenuity, analytical thinking, articulation and resiliency.

Research design is explicitly and eruditely discussed by the author. In the process, he guides the reader through the stage of preparation to the logistics of conducting research. Owing to the fact that research is an activity that does not exist in the vacuum, the need for a broad knowledge base and strong theoretical orientation are emphasized as a sine qua non for the objective analysis and interpretation of study outcome.

The book presents the research process as a pleasurable activity through the systematic presentation of facts or information and simple use of language. By this, it is obvious to generate interest among students of social science in research methodology. Research is presented as a compelling tool for the social science scientist to possess, but whose potential deployment to humanity's circumstance and plight is clearly acknowledged to depend on personal initiative.

In the circumstance of the dearth of textbooks in such rare field as research methodology, Lawrence Lanshima Orkuugh present to social science students and indeed scholars hands-on tool for conducting research or assessing reports emanating there from. There is no doubt that Traditional Methodologies in Social Science Research: Foot Steps will remain a classical reference material to all categories of students conducting research on human subjects. The work is commendable and highly recommended.

Andrew Ezadu'yan Zamani, PhD

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REFERENCE

CHAPTER ONE
INTRODUCTION

BRIEF HISTORY

For many decades, even centuries, man has placed a lot of emphases on finding answers to his problems. There is a strong quest to find out 'why', 'when' etc. of things not easily comprehendible or obvious. For example, what are the causes of global warming? Why are children from broken homes more prone to crimes?

Apart from searching for knowledge for the sake of just knowing, more often, it is the presence of problems that make us inquire and if possible, provide some solutions to these problems. From the existence of man, he has been bombarded with one problem or the other; from the famines, plagues and diseases brought about by world wars to problems of the Great depression, and more recently environmental pollution of our planet.

As man advances, he has been able to solve some of his problems with modern invention such as the use of technology to enhance food production through mechanized farming; the invention of silo to preserve grains and the refrigerator to preserve food.

While these technological inventions have solved some of the problems, they have also brought about other types of problems. For example, the chemical compound used for the manufacturing of computers, air-conditioners, refrigerators, etc. called chloro-fluorocarbon (CFC) has adverse effect on health. It interferes with the ozone layers thus exposing us to Ultraviolet radiation. Such radiation

increases skin cancer, and destroy other terrestial and aquatic plants and animal lives.

In man's quest for knowledge and finding solutions to his problems and questions, he has adopted both the non-scientific and scientific approaches. The non-scientific approach includes such methods as; Tenacity, Authority and *a priori,* and the scientific approach which is the methods of science.

(i) **The Tenacity Method (Mystical):** By this method, man attributes supernatural or mystical causes to the phenomena or situations he cannot understand. He holds firmly to certain phenomena to be true because he has always known it to be true. Frequent repetition of such "truths" seems to enhance their validity. The rigidity and/or pragmatism of gods, spirits or fate are answers to man's problems. Psychological evidence has proven that men will often cling to their beliefs in the face of clearly conflicting facts.

(ii) **The Method of Authority (Expert)**:This method deals with belief and trust in the judgment of the expert in a certain line of inquiry. On issues concerning life, mortality, predestination, etc. depending on weather one is a Christian or a Muslim, the Bible or Qur'an is usually the authoritative reference respectively. On matters regarding health or illness, the medical doctor's opinion is usually more authoritative than that of a layman.

(iii) **The *A priori* Method**: The *a priori* method is based on the proposition that "agrees with reason" and not necessarily on one's experience. The use of logic is the guiding principle. The idea seems to be that men by free communication can reach "the

truth" because their natural inclinations tend toward "the truth".

(iv) **The Method of Science:** This method is characterized as logico empirical which implies:

a. things must be logical or rational

b. They must be observational or empirically tested.

c. It is subjected to systematic control and predictions.

In essence, the method of science deals with the logical and persistent patterns or regularity in social life. In this regard "science is the most advanced method of attaining knowledge" (Kerlinger, 1973). It has an in- built mode of correction, which other methods lack. A true scientist does not accept a statement as true even though the evidence surrounding it seems convincing, he verifies it through testing. It adopts objectivity and not personal belief, values, attitudes, emotions, biases and traditions. Therefore our study of research involves social scientific research.

RESEARCH NEEDS IN THE SOCIAL SCIENCES.

All the social science subjects, Sociology, Economics, Psychology Marketing, Journalism, and Demography etc. seek understanding of human behaviour in groups and institutions with a view to find solutions to personal, political, social, economic and other kinds of social problems Psychology, for instance, is the study of human and animal behaviour or of social action in human groups and in society. The need for courses in methods of psychological

research has come to occupy an increasingly important position in psychology curricula. For the career psychologist who has a serious interest in understanding individuals and groups, he must give some thoughts to the ways in which natural social facts can be and are gathered, this is a skill he acquires through the study of research techniques.

The student who hopes, instead, to obtain an administrative position in government or business must acquire research knowledge and techniques to enable him assess and evaluate research studies of others and decide whether they are reliable enough to be used as the basis of his decisions. Demographers need to be equipped with research techniques and tools as they investigate patterns and trend of population structure and change in various societies.

CHAPTER TWO
CONCEPT OF RESEARCH

MEANING

Several definitions have been purported for the concept research. Osuala (1990:1) defined research as the process of arriving at a dependable solution to problems through the planned and systematic collection, analysis and interpretation of data. According to him, research is a most important tool for advancing knowledge, for promoting progress and for enabling man to relate more effectively to his environment, to accomplish his purposes and to resolve his conflicts.

In a more simplistic manner, research is also defined as the process of planning, systematic collection, classification and analysis of data for the purpose of providing meaningful solution to our problems.

QUALITIES OF RESEARCH

Research depicts the following qualities:

(a) Research is oriented towards the discovery of relationship that exists among the phenomena of the world in which we live.

(b) Research deals with finding the conditions under which a certain phenomenon occurs and the conditions under which it does not occur in what might appear to be similar situations.

(c) Research does not include the application of what is already known. It is not looking up words in the dictionary or historical facts in the encyclopedia. This is called facts finding.

d) The research process is not only applicable to the social sciences but also the physical sciences such as biology, physics, chemistry, although they may not necessarily

subscribe to the same methods. Applying the research process or principles to the social science provides us an opportunity to:

(1) Control any situation whose nature is adequately understood.

(2) Predict consequences of observed phenomena.

SELECTION OF A RESEARCH TOPIC

This is a fussy area for many students who engage in research. Although, there are no standard rules that will guarantee the suitability of a topic, however, the following are some basic guidelines:

1. The topic must be of interest to the student. A student cannot do his best on a topic that has no personal meaning to him.
2. The topic must be researchable, not one that objective evidence can provide solution.
3. The topic should be original, not a duplicate.
4. The topic must be significant. It should be capable of adding new information to the present state of knowledge.
5. The topic should not be too broad. It should be accomplishable within the limits of the time, money and other resources available.
6. The topic must indicate a felt difficulty or an unanswered question, which has persisted in a particular area and must concern a large portion of the population.
8. Avoid sensational topics i.e. prostitution, homosexuality, occultic practice, coup de' tat, etc.

RESEARCH PROBLEM

Every researchable topic has a 'problem' in a certain perspective, i.e. economical, political, psychological or sociological. The research problem is the academic question posed for solution or resolution. The research problem when stated serves to elaborate upon the information implied in the title or topic.

In order to identify a problem, the research must aim at examining one or a combination of issues about the phenomenon of the subject matter, such as 'how', 'what', 'when', or 'why'? The research problem is, thus, the how, what, when or why questions posed for resolution. Example: TOPIC: **"The effect of Exclusive Breast Feeding on Maternal and Infant Health Status in Jos Metropolis."**

STATEMENT OF THE PROBLEM

This is the characterization or a specification of the components and factors of research problem. One or several of these factors may have some direct and/ or indirect effects on the problem. It is important to note or list as many of these factors as possible but pay more attention to the ones critical and relevant to the problem.

According to Ajaegbu (1983: 11), statement of the research problem means "a theoretical postulation of or speculation on the ways in which different factors or elements of the problems interact or relate one to the other in the context of the problem being investigated",

Generally, the language is pragmatic and extrapolative to insinuate questions and research objectives. For instance, statement of the problem written on the topic: "The Effect of Exclusive Breast-Feeding on Maternal and Infant Health status in Jos Metropolis", could be: The increasing rate of neonatal mortality and maternal morbidity is creating great concern not only among health workers but among families in Jos metropolis. Many factors are attributable, and the major ones identified are the improper dietary habits promoted by inadequate breast feeding of infants and the ingestion of contaminated liquid supplements.

The study intends to show how exclusive breast-feeding can

alleviate the situation by providing answers to the following questions:

- What is the extent of exclusive breast feeding can in Jos Metropolis?
- What is the duration of breast-feeding among mothers in Jos metropolis?
- What are the various food supplements given infants in Jos metropolis?

RESEARCH OBJECTIVES

The research objectives are the specific tasks that one sets out to achieve as one unravels the research problem. Research objectives can be stated generally, in which case it reflects a broad notion of what the study would achieve. Specific research objectives often include such phrases as: to discover; to find out; to determine; to identify; to evaluate; to ascertain; to describe; etc. Specific research objectives also clearly state unambiguous tasks the study intends to back to our example on breast-feeding, the objectives can be stated as:

GENERAL OBJECTIVES (AIM):

To determine how exclusive breast-feeding can improve the health of mothers and their infants in Jos metropolis.

SPECIFIC OBJECTIVES

- To determine the extent of exclusive breast-feeding among mothers in Jos metropolis.
- To find out the average length or duration of breast feeding among mothers who practice breast-feeding in Jos metropolis.

- To describe the health status of mothers and infants who breast-feed in Jos metropolis.
- To correlate breast feeding practice with the health of mothers and infants in Jos metropolis.
- To formulate appropriate recommendations and policies.

HYPOTHESIS

The researcher cannot study a problem; situation or a phenomenon without making a conjectural statement that will direct his investigation and afterwards enable him make deductions including conclusions and recommendations. He often formulates a hypothesis.

Hypothesis is a tentative statement about relationships that exist tween or among two or more variables. It is a conjectural statement about relationship between variables; and a predication, which has no evidence supporting it, and needs to be tested and subsequently it can be accepted or rejected.

This definition suggests that (1) Hypothesis is made of variables; (2) The variables may or may not be related; (3) Therefore, there is a guess about the relationship that may exist between or among the variables.

The major objective of a hypothesis is to provide a starting point for investigating a research problem and at the same time to direct and guide the investigation.

There is little doubt that hypothesis is important and indispensable tools of scientific research. There are three reasons for this belief:

1. They are so to speak, the working instruments of theory.
2. A hypothesis can be tested and shown to be probably true or false. Isolated facts are not tested, only relations are tested. This is probably the main reason why they are used in scientific inquiry.
3. They are powerful tools for the advancement of knowledge because they enable man to get outside himself (values and opinions).

CRITERIA FOR FORMULATING A GOOD HYPOTHESIS:

1. A hypothesis must be stated in clear terms and should not be ambiguous.
2. It should express a relationship between two or more variables; one of the variables must be a dependent and the rest independent variables.
3. A hypothesis must be stated in a testable form. To test a hypothesis, measurement must be made. This implies, a hypothesis must contain two or more variables that are measurable.

A hypothesis may be stated in two ways:
(a) Null form (symbolize, Ho)
(b) Alternative form (symbolize, H_1)

The null hypothesis (Ho) states that there is 'no difference' in effect of one or more independent variables on the dependent variable(s). If any difference is noticed at all, it can be attributed to chance. The alternative hypothesis (H_1) on the other hand predicts 'a difference' and indicates the expected direction of that difference.

In general, any research which requires that data be gathered and analyzed in order to examine the effect of one variable on another or one in which relationships are examined must have one or more hypotheses.

THEORETICAL FRAME OF REFERENCE

When a researcher has successfully chosen a good topic, identified the problem and probably stated the hypothesis, the next task is to know more about the research problem by establishing a baseline in terms of previous knowledge in the area he has chosen.

A review of literature in a research study involves re-examining the extent at which previous studies have been carried out in that area. It also brings out important facts about these studies and at the same time eliminates statements, which may not agree with the proposed study.

Often times in literature review, theories of other authors are used as frame or guide to focus the direction of the study as well as describe the relationship among the variables or provide systematic explanation to a set of facts and laws.

A theory is a set of interrelated constructs, concepts, definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena. Theory defines the orientation of the subject matter by assisting to locate the type of data that can be abstracted. It looks at reality and helps us to understand the nature of its inter-relationship. It assists the researcher to develop a conceptual model by which relevant social phenomena can be classified in a systematic fashion.

The theory one may use depends upon what he is studying whether individuals, groups or societies and upon the questions he may wish to answer at the time.

An example is the structural function theory, which views

society as analogue to the human body with every part having a vital function. Such theory could be used as a theoretical frame of a study, which tries to describe the interrelatedness among some observed phenomena. Another theory is the conflict theory, which conceives social groups, and societies as composed of units that are often engaged in some kind of struggle for power.

RESEARCH PROPOSAL

As a pre-requisite for a good research expected of students in higher institutions, a research proposal is expected from students. This is a well written statement of intent about the desired research project (Meekyaa, 1991). It is a down plan of what the researcher wishes to do and is usually skeletal in content.

Before a research proposal is written, the researcher and the supervisor are expected to work together and agree on the plan and commences as soon as the topic of the research has been decided.

A good research proposal would require some initial but wide reading (exploratory reading) and preliminary inquiries to enable the researcher acquire information that would enable him plan the proposal. At this point, it is the source of information and materials that may be useful during the research work.

The scope of the proposal covers the choice of topic, the statement definition of the problem, the aims and objectives of the study, as well as justification of the stud)" The proposal also contains the hypothesis, methodology to be adopted (i.e. nature, sources, techniques and instrument data collection and analysis), limitations and time budget. A research proposal is supposed to guide the researcher through experimental journey and so must not to be taken for granted.

As a matter of fact, it is a major hallmark in a research work so that if written, means, a significant proportion of the work has been done, as the proposal now serves as a tool-box for the rest of the project. The research proposal therefore, must NOT be hurriedly done because in a good academic set up proper supervision is organized, students may face

the risk of re-writing research proposals several times. In some cases where good work is done at the initial stage, such a proposal easily metamorphoses into the first few chapters of most research reports.

MAJOR PROBLEMS OF RESEARCH IN NIGERIA.

Numerous factors hinder research efforts in Nigeria and some parts of developing world. Some of the major problems include:

(a) **ILLITERACY**: Considerable proportions of the population in Nigerian communities are illiterates. It is difficult for people who cannot read and write to appreciate the need to supply relevant research information.This adverse condition or state promotes secrecy. More often, the state of illiteracy brings about disbelief: issues on death, sex, age, income, etc; are regarded as taboos and as such resented.

During the planning stage, adequate plans should be formulated to minimize the effect of such problems by having well trained investigators, interviewers, proper publicity, etc.

(b) **Paucity of Data:** Many policy makers in Nigerian communities consider conducting research a time-wasting venture, especially where there are inadequate transport, housing, water, etc. They fail to realize that scholarly research would identify the lack of such amenities and to suggest ways or means to provide the amenities. A good research helps to bring about meaningful data or figures which could be utilized for good planning.
For example, if a national government does not conduct national surveys and censuses, there will always be an under-estimation or overestimation of the populace and the number of schools, hospitals, houses, roads needed in various parts of the country and the provision of such would either be inadequate or in excess.

(c) **Finance:** Due to the poor economic and financial situation Nigeria find herself in, policy matters cannot provide adequate fund for research. Therefore, efforts should be made to solicit International assistance from friendly Governments.

(d) **Inaccessibility to Geographic Areas:** Particularly in the rural areas, some villages and towns are inaccessible due to their location on hill tops, across rivers and lakes, etc. Often, it is difficult to get there. Another reason may also be due to bad roads. Because of these, the inhabitants are often neglected in the development planning process.

(e) **Religious Practices:** Certain religious practices inhibit the participation of a certain gender in research activities especially when the research activities coincide with the time of their religious ceremony. Example of these includes, the women in Purdah in the Islamic religion. If adequate planning is not carried out, a lot of information depending on their size may be excluded from any major study or research.

CHAPTER THREE
RESEARCH DESIGN

MEANING

Research design (method) refers to the plan or strategy necessary in accomplishing the research problem, aims and objectives and test of hypotheses in the study. Afolabi (n.d) defines it as the operational blue print, which the researcher plans to employ in accomplishing the objectives of the study. Nwana (n.d) defines research design as a number of decisions which need to be taken regarding the collection of data before ever, the data are collected.

Thus, from the above, designing a research means preparing a mental plan or scheme of attack for solving a research problem in a systematic manner within the circumstance of the researcher.

In deciding on the research design, the researcher need to consider the practical problems or limitations which he may encounter in the area of time availability, money and availability of data. In any case, the design is meant to guide the researcher to his problem. Thus, a design can be altered at any time the researcher discovers that the initial design does not help to accomplish the goals of the hypothesis or research questions.

DECIDING THE RESEARCH DESIGN:

In deciding the research design in a study, the following considerations are important:

1. What constitute the participants/subjects (i.e. the population of the study). The population is usually the target of any study, which must be, clearly identifies and defined. Population can refer to people, places, things or events. Whichever the case, there is need to explain clearly who or what this target population include from the onset.
2. The researcher must also know if every member of the

population should be included in the study. Otherwise, it is necessary to pick a portion of the population known as sample.

3. The researcher should also decide whether the population would be studied in the natural or under simulated/experimental condition.

4. The researcher has to decide, especially in an experimental study which variable(s) to control. This is necessary to enable the researcher attribute the result to some particular variables.

STRUCTURE FOR GENERATING RESEARCH DESIGN:

Below are some suggested generalized outlines of the order of the elements in the method.

1. Major variables to be covered in the study. The researcher should list the variables and state which ones are:
   (a) To be controlled.
   (b) Observed or manipulated i.e. with particular references to experimental studies. The evidence provided in previous studies hould give the researcher clues for those considered likely, unlikely or ambiguous. If the options are to be controlled, what are the options for control, randomization and statistical control?

2. Participants/Subjects: Identify and describe the participants/subjects of the study. The research questions or hypotheses are the clue to the participants/subjects of the study. Factors .like cost, accessibility, nature of question, and nature of group to whom the answer is addressed and convenience to subject determine why the entire population cannot be employed.

3. Source of data: The researcher should make possible sources of

data. Some of these sources includes: interviews, questionnaire, observation, documents, (books, journals, newspapers, magazine, government publication or gazettes, manuscripts etc) statistics, test scores, panel rating etc.

However, the following criteria could be employed after completing the list of source of data.

(a). **Accessibility:** The data meant for research should be readily available to the research. When data are not available to the researcher, it is advisable to abandon the research work for other research areas.

(b). **Recency:** How recent is the data. It is of no use to use old data for studies that are not historical in nature. In most behavioural science and educational researches, recency of data is essential to enable the research to be relevant and useful to contemporary issues and problems.

(c) **Validity:** The essential characteristics of the update of research methods, instruments and data to measure what is intended to be measured is known as validity. When phenomena are observed in their natural setting and the observation recorded, validity of data collected tends to be high.

(d). **Reliability**: This term refers to stable, consistent and dependable research methods, instruments, data or results. When studies are repeated, the reliability of previous research data can be tested. When this concept is applied to test, it means that a test is consistent.

(e) **Efficiency**: This term is used to characterize data that are able to produce the desired result in a research.

(f) **Political Consideration:** Data that may generate

political controversy should be handled with utmost care in their collection, analysis and interpretation. In collecting such data, researchers may encounter difficulties. Some of these difficulties may include; refusal of officials to release the relevant document and also to grant interviews.

(g) **Ethical Consideration:** This refers to the right steps to be taken by the researcher and the wrong steps to be avoided in the data gathering process. The researcher should consider the following four considerations:

i. **The right to non-participation:** A Participant in a research has the full right not to participate in the research. It is important for researchers to understand individuals' right to non-participation in information given in data collection in a research. Hitherto, researchers should not take their Participants for granted thinking that once a questionnaire is given, then it becomes a must to respond to the questionnaire by all means.

ii. **The right to privacy:** A person who is a Participant in a study has the right to privacy. It should be noted that a person has the right to keep from the public information about himself or herself or personal information that is considered confidential. Therefore, to ensure the privacy of persons, the researcher should:

- Avoid asking unnecessary questions
- Avoid recording individual responses.

iii. **The right to remain anonymous:** Participants in a

research involving human being have the right to remain anonymous. Researchers can ensure anonymity of Participants through the following ways:

a. Since researchers are interested in group data instead of individual data, the scores obtained from individual in a study should be pooled or grouped and reported as averages.

b. Participants are usually identified by numbers rather than by names,

iv **The right to confidentiality:** Participants in a research have the right to insist that information or data gathered from them should be confidentially treated. Assurance to them to be treated confidentially, should accompany or be indicated in the letter accompanying the questionnaire distributed.

(h) **Representatives or Diversity:** This refers to the inclusion in the research of members of groups that constitute the target population. Representatives or diversity relates to sampling from a population.

TYPES OF METHODOLOGIES IN RESEARCH

There are about ten major types of research methods globally used. Therefore, before conducting a research, the researcher should indicate in his or her research proposal the method to be employed in conducting his or her research. In each research method, hypothetical research situation are used.

(a). **Experimental Research Method:** The method involves controlling the conditions that will prevail in the research, manipulation of one or more independent variables and the effect of the manipulation on the values of the dependent variable with regard to one or more experimental groups is observed. The steps involved in the use of this method (the classical pretest- post test-control group experimental design) are:

1. Establish the problem statement
2. Define terms or variables
3. Formulate hypothesis
4. Select sample from a well defined population
5. Assign subjects randomly to the control group and the experimental group using a table of random numbers or some other methods of randomization.
6. Measure the dependent variable of both groups in 5 above, (known as pretest).
7. Introduce the treatment to the subject in the experimental group only.
8. Measure the dependent variable again for both groups (known as posttest).
9. Test the hypothesis by using appropriate statistical methods.
10. Conclude the study with reference to the hypothesis tested.

(b). Survey Research Method: The method involves gathering of data about the target population from a sample, and generalizing the findings obtained from an analysis of the sample to the entire population. In surveys that have to be in the field, data are derived through the use of questionnaire, interview and participant observation. The steps involved in this research method are outlined as follows:

1. Identify a historical problem
2. Gather information about the problem
3. State research questions or formulate hypotheses.
4. Pre-test the questionnaire and any other instrument among Participant that are similar to the population to be studies.
5. Before dispatching the questionnaire to the respondents, include warm, friendly and professional covering letter explaining the purpose and the professional, social, practice and scientific value the research as well as indicating a deadline for the return of the completed questionnaire.
6. Stamped, self-addressed envelopes should be provided to enable the Participants return the completed questionnaire. The survey research method has the advantage of saving time and money, as well as ensuring efficiency.

(c). Historical Research Method: This type of research is concerned with how past events actually occurred rather than how events should have occurred. This sort of studies enable us to understand the past, build on what is known and be able to predict the future. The steps involved in these methods are:

1. Identify a historical problem
2. Gather information about the problem
3. State research question or formulate hypotheses.
4. Collect extensive evidence (primary and

secondary sources) on the problem; organize the evidence and validate the authenticity of the sources (external criticism)

5. Select, organize, and analyze the most pertinent collected evidence and draw conclusions.
6. Conclude the study with reference to the research questions or hypothesis in a meaningful narrative manner.

(d). Evaluative Research Method: The method involves collecting data about programme in order to determine and describe its relative effectiveness in terms of standard, goals and objectives.

The steps involved in this method are:

1. Determine what is to be evaluated and the reasons for the evaluation
2. Establishing the desired level of performance of the object of the evaluation with reference to relevant standards, goals and objectives.
3. Selecting appropriate instruments for gathering data.
4. Measuring or testing Participants (or objects) to determine actual level(s) of performance
5. Comparing the programme goals with its objectives (i.e. determining the extent to which goals were achieved).
6. Evaluate programme on the basis of analyzed data.

(e) Comparative Research: The method could be a comparative analysis of store management" in public sector and that of private sector in Nigeria. Such analysis is aimed at understanding similarities and differences and to explain the differences in order to attempt at arriving at valid generalizations and principles.

Steps taken in conducting such research using this method

include:

1. The research objects to be compared are explicitly identified and described.
2. Data about the research objects are then gathered an analyzed.
3. Relevant terms and variables are defined and described.
4. The research question is stated.
5. Compare observed phenomena, explain differences, draw conclusion and establish principles.

(f). **Content Analysis**:- It is a method designed to facilitate the object analysis of the appearance of words, phrases, concepts, themes, characters even sentences and paragraphs contained in printed or audio visual material Benard Buredson described the method as " a research technique for the objectives, systematic and quantitative description of manifest content communication"

Steps involved in conducting this research are:

1. Formulate topic/title of the research
2. Define terms and variables
3. State research questions and/or formulate hypotheses
4. Identify and select materials to be analyze. If possible select sample of the target documents or media.
5. Analyze relevant documents according to the defined categories.
6. Qualify and order the categorized units
7. Analyze the derived data statistically and relate the findings to research questions or hypotheses to establish whether research questions are answered or the hypotheses tested.
8. Interpret the data analyzed in terms of the research

questions hypotheses

(g) Documentary Research Methods: Documentary refers to studies into printed tools such as books, journals government white papers and indexes in order to shed light on an objective, quantitative analysis of words in the texts of documents. The steps involved in this research method are:

(1) Establishment of the problem statement.

(2) Definition of terms and variables.

(3) Stating research questions or formulating hypotheses.

(4) Identify and select the sources to be analyzed.

(5) Analyze the selected documents according to the defined categories.

(6) Qualify and order the categorized units

(7) Analyze the derived data statistically, relate findings to research questions or hypotheses and interpret findings.

(8) Conclude the inquiry.

(h) Product Development Research: This method, quite often used in environmental studies aim at designing and validating products as well as translating the research findings into useable forms. The steps involved in this method are:

(1) Examine previous studies

(2) Establish goals and objectives

(3) Develop the product

(4) Test it in the field

(5) Revise or re-test it

(6) Evaluate it in relation to the research objectives.

(I) Case Study Research Method: This method is interested in a single search object. This method has the advantage of affording the opportunity for thorough and detailed examination and analyses of a research object so that the findings of such a study will have direct application on the object studied. Steps involved in method include:

(1) Establish the research problem

(2) State the research questions or formulate hypotheses (more often than not case studies are based on research question than hypotheses).

(3) Define relevant terms and variables.

(4) Gather information about the research object using a variety instruments and analyze them.

(5) Carefully observe the object of the study and if necessary, casual factors associated with the observed phenomena identified.

(6) If sufficient data are collected, the investigator should be able answer the research question or test the research hypotheses.

(j) Correlational Research: This investigation determine if there is an relationship between one variable a d another. The correlation coefficient, which is a statistical tool designed to express in mathematical term the degree relationship between any two variables being studied.

The correlation co-efficient will be + 1.00 if the relationship is perfectly positive, while it will be -1.00 if the relationship is perfectly negative. However, there is no relationship; the co-efficient will be zero. Thus the correlation co efficient is a precise way of determining whether relationship

exist between the two variables. Steps involved in this research method include:

1. Identification of the variables to be studied
2. Selection of Participants from a clearly defined population
3. Collection of data using:
    a. Standardized tests,
    b. Questionnaire
    c. Interviews,
    d. Observations.
4. Analyzing and interpreting data.

GENERAL PROCESSES INVOLVED IN SOCIAL SCIENCE RESEARCH

A general illustration of the various processes or steps involved in the execution of research includes:

a. The identification and formulation of research problem.

b. Identification of research questions, objectives, and or formulation of hypothesis.

c. Review of relevant literature to the research topic and problem; discussion of appropriate theories and discoveries of other authors including points of similarities and deviations.

d. Formulation of suitable design regarding the purpose, time and unit of analysis. It also includes identification of appropriate methods for data collection, description of data gathering tools and an explanation of analytical techniques proposed for analyzing the data.

e. Data collection, organization and analyses and presentation of results.

f. Finally, is the interpretation of results making necessary generalization and inferences in consideration of original research questions, objectives, and hypotheses. Due consideration is also given to literature review whether findings are in concordance with others or that differ and in which areas.

g. Make suggestions for further research in view of your limitations (Osuala, 1990).

Ibanga (1992) condensed the research processes into three (3) phases or stages. These include: theory, methodology and findings. Each stage or phase has several sub-components as:

1. Theory or problem phase.

a. Problem identification including elaboration

b. Study objectives, including statement of hypotheses.

c. Theoretical frame of reference.

2. Methodologies or Research Phase:

a. Research design including sampling.

b. Measurement including operationalization of variables and data collection.

c. data analysis-classification, organization of variables and data collections.

Findings

a. Interpretation of findings

b. Theoretical discussions

c. Recommendations/Policy options.

dimension of the subject, so that the topic can even be reduced to a manageable proportion.

Although the above facts may be considered the basis of literature survey in research, it is important to note that the review should be done in context. Literature should not be a collection of summary information from works referred to without tracing and extracting the relevance of the works, or without highlighting the flaws of the works, or their contributions.

PURPOSE OF LITERATURE SURVEY

1. It familiarizes the researcher with existing body of research already done in the area of his study.
2. It helps the researcher to locate the tests and other measuring devices used in other studies, which may be suitable for the subject that the researcher wishes to use as his sample.
3. It offers the researcher the opportunity to discover important variables, which may be related to the research problem. It helps to add, remove or modify the hypothesis as it is determined by the variables.
4. Literature review helps to sharpen and clarify the statement the problem of the study. At first, the topic chosen by the researcher may look broad and shallow. The researcher may not be clear of the theoretical base and in some cases, he may not sufficiently limit the sub-problem. It is only when a thorough literature survey has been done that solution to these problem are found.

5. It helps the researcher establish the significance of the problem. This is achieved when the researcher cites literature that described a theoretical framework which provides significance to the problem.

6. Finally, literature survey set current research into perspective by showing the state of the art in the subject area of the problem being investigated. It also enables the reader of the review to relate current research to the one being investigated.

TECHNIQUES OF REVIEW OF LITERATURE

There are many techniques used when student researchers engage in reviewing relevant literature. The most common techniques are presented below:

1. **Searching**:-This is the first useful technique and it presupposes looking for the pieces of information which the student cannot supply by himself In that case, he may go to the library to pick up a journal to see whether it contains some materials, which can answer his question. In this case, his whole attention is focused on certain details, which are relevant. Itexpected under this circumstance to look purposely for certain feature thus ignoring or hurrying over anything not pertinent to his problem (s).

2. **Documentation**:- Means citing of any statement for which the student is indebted to the work of another person or an author.

3. **Coding:** This techniques assign numbers to the references made

of material, reviewed and used, this is for the purpose of retrieval of the source used and logical presentation of the materials.

4. **Extraction:** This technique requires the student researcher to pull out some section of a source material for the purpose of quotation, especially direct quotation.

APPLICATION OF LITERATURE IN RESEARCH.

In most project works, the literature review occupies a chapter, although such a review in some cases is an end in itself. In other words, it does not link the theme of the work, thereby existing as a hanging material quite unconnected with the study.

Literature occupies a central place in project writing from the formulation, through data collection, analysis and final presentation. At all these stages, the literature must be used to compose, extend and validate the work or complement it.

The researcher should, from his survey of the existing literature in the field, select studies that have a direct bearing on his research and highlight the relevance of the reviewed material to his problem of study in terms of a theoretical bases and methodologies.

COMMON DEFICIENCIES IN LITERATURE SURVEY.

The following are some of the commonly found deficiencies in literature review of a research study or proposal.

a. The review that excludes landmark (guide) studies

b. The review that largely covers outdated materials

c. The review that is periodical (narrow) in perspectives e.g. institutional, disciplinary, knowledge sources etc.

d. The review that overemphasize description of material in terms of the finding of the study.

e. The review that is not critical

f. The review that does not relate the identified materials to the research being conducted.

g. Review that is not properly organized.

h. Review that does not discriminate between relevant materials.

i. The specialist review or the review that is meant to be read by a few People.

j. The review that is not related to the problem being investigated.

CRITERIA FOR A GOOD LITERATURE REVIEW

The researcher should note the following steps:

a. Identify key words and major concepts or terms involved in the study.

b. Consult preliminary sources such as indexes, abstracts, catalogues, however, the main sources include; textbooks, theses, journal articles, conferences and seminar papers, etc.

c. Locate the actual sources of literature

d. Make notes while you read through.

e. Compile all the reviewed notes in form of a report. It is important to note that the hypothesis or research questions formulated determine the literature to be reviewed. Thus, there must be harmony between literature review, hypothesis/research questions and the conclusion.

CHAPTER FIVE

TECHNIQUES OF DATA COLLECTION

INTRODUCTION

A social scientist requires a science of man that uses methods comparable to those of the physical sciences since the subject of discourse is science. It uses all the scientific techniques in gathering data. These, includes: Observations Techniques.

- Experimentations Techniques.
- Introspection or retrospection Techniques.
- Clinical Techniques.
- Differential (survey) Techniques.

THE OBSERVATION TECHNIQUE

These sources of information are the reports of persons other than the individuals who are the participants of the study. This process may be done within the natural setting and the participants may or may not be aware of the observer.

The limitations of this technique of data collection are:

- Only behaviour which is manifested in a number of activities is collected; this does not provide information on the mental process.
- Subjectivity of interpretation of observations.
- Subject to errors, e.g. observer is not familiar with the total situation of the subjects.

THE INTROSPECTION/ RETROSPECTION TECHNIQUE

This technique relies on memories, sensations, and experiences, past and present, reported by the subjects. William James as quoted in the work of Chauhan (1963), say "an introspective observation is what we have to rely on first and always....so far as I know, the existence of such states has never been doubted by any critic, however skeptical in other respects he may have been"

This technique is said to be the easiest and is readily available to the individual. No cost and no apparatus needed. It generates research, which results gradually in the development of more objective technique.

The limitations of introspection include influence of preconception, and hence bias, thus rendering the data unreliable.

THE CLINICAL METHOD TECHNIQUE

This uses such techniques as interviews, projective tests with the aim of understanding the motive of the individual. The limitations of this technique include:

- The accounts given by the individual or relative may not be true, since the disadvantages of crude observation are involved. Information is not verifiable and is highly subjective. There is nothing about the technique to minimize common sources of errors.

THE EXPERIMENTAL TECHNIQUE

This technique sets up controlled conditions variables for study. The experimental techniques are the most systematic procedure of solving problems. It provides reliable information. The findings of this technique are verifiable by other experimenters. Limitations of this technique include:

- Some of the tests cannot be used on human beings
- Apparatuses or tools cannot make sufficiently discriminating measurements of individual differences.
- Results of experiments only produce statements of probability.

THE SURVEY TECHNIQUE:

Where observation' are difficult, questionnaires or interviews

may be us to determine general opinions. The limitations here are that the sample of subjects may not be true representation of the population.

There may be lack of cooperation of the subjects, answers may not be honestly responded to.

With the aforementioned, no one approach to solving a problem is completely perfect. Men are however said to be highly inventive beings just as explanations and approaches to different studies are being invented based on new information. It is therefore, hoped that more persons will come up with new approaches that will have less limitations.

TYPES OF DATA COLLECTION

There are two types of data useful in research: primary and secondary data.

Primary Data: These are data collected by means of personal interview, mail questionnaire, observation method, etc. for a specific purpose. It is the collection of facts and figures about a population or sample of the population e.g. census figures, survey data, etc.

Secondary Data: This is a compilation or use of data already collected for other purposes, be it administrative or otherwise, e.g. published books, statistical bulletins, hospital records, school registers, etc.

DATA COLLECTION TOOLS/ INSTRUMENTS

(a) Questionnaire

It is a collection of questions and statements. It is a tool for collecting data by:

(i) Asking people questions

(ii) Asking people to agree or disagree with statements representing different points of View.

It is used with many modes of observation or various

data collection methods such as survey and experiment methods.

It is designed to gather data for answering the research questions, testing the research hypothesis, as well as attaining the research objectives. Therefore, students must ensure that all questions in the questionnaire are related or relevant to the study objectives, questions and the hypothesis (if any). On the average, the number of questions can range between 20-30 and more details study.

Questionnaires may be administered as:

(i) Self-administered, sent to the respondent to complete by himself.

(ii) Interviewer administered. The interviewer reads the question items on questionnaire to the respondent and records the answers.

There are three major types of questionnaire form: open ended (open), closed ended (fixed alternative) and the matrix format.

1. **Open-ended questions**:

These are those that do not indicate a list of alternative responses. The respondent is asked to provide his own answer to the question e.g. how do you store your drinking water? .....

Advantages

It encourages detail responses

- Does not limit the respondents thought.
- Quite valuable within the context of discovery.

Disadvantages

- Difficult to code
- Processing is time consuming.

(2) Close ended:

It is the one in which the respondent is forced to select appropriate answer from among a list of responses provided by the researcher e.g. which of the following family planning methods do you use?

1. Injection ( ) 2. Condoms ( ) 3.Pills ( ) 4.others ( )

Advantages

- Uses space efficiently
- Faster to complete, save time
- Pro-coded responses are even faster to Process.

Disadvantages

- Superficial, without probe, they do not get beneath the response surface
- Irritate respondents who finds none of the alternatives suitable

3. **Matrix Question Format:**

A set of answer categories is applied to several questions at the same time. It often uses the Likert Scales. E.g. Beside each of the statements presented below, please indicate whether you strongly agree; Agree; disagree; strongly disagree or don't know

SA	A	D	SD	DK
1	2	3	4	5

Advantages

- Faster to Complete
- Save time

Disadvantages

- Encourages respondents to structure responses so that it fits the matrix.
- It foster a response set pattern such that respondents may develop a pattern agreeing or disagreeing with all the statements.

(b). Interview

It is typically done in a face-to face encounter. The interviewers ask the questions orally and record respondent's answers. The interview can be structured and unstructured.

(i) The unstructured interview technique is the informal, and non-directive in which the interviewer often keeps the subjects' comments focused on some topics. The respondent has control over how much information he wants to volunteer.

(ii) The structured interview on the other hand is usually accompanied with an interview schedule and the interviewer reads the questions directly to the respondent and records the answers.

Advantages

- There is higher response rate.
- The presence of an interviewer usually decreases the number of

"Don't know" and "no answers".

- Illiterate subjects can be accommodated easily.

- The interviewer can observe and ask questions.

Disadvantages

- It requires only trained interviewers.
- Promotes fatigue
- It introduces person bias from the interviewer.

(c). Telephone

This is another tool for data collection used along with a structured interview. It is often used in small surveys, opinion related; advertisement of commodities; most popular soap operas, etc.

Advantages

- It save money and time
- It is easier to probe

Disadvantages

It is limited to people who have telephone only. The non-response rate may be high.

CLASSIFICATION AND DATA ORGANISATION.

At the end of data collection exercise, you have a body of raw data. The data in this form seem meaningless, unless they

are processed and re- arranged in such a way that one can derive some meaning out of them, you can begin the processing by editing and coding.

Editing: It involves the examination of data to detect errors that may cause inconsistency if they are used for analysis in their original form.

Coding: This is the assignment of numerical value to qualitative responses on the questionnaire, particularly open-ended questions. In some major national surveys, a coding-manual is developed Coding enables the researcher to group responses into limited number of classes or categories. Data can be organized in three ways: array, table or graph.

CHAPTER SIX
STATISTICS AND RESEARCH

INTRODUCTION

This chapter leads the students to understand and appreciate numbers. The research conducted is finally reduced to numbers to enable the researcher test his hypothesis. A simple approach is presented, so that the students interestingly master the uses of statistics of the social sciences. The student is however, advised to practice solving problems instead of cramming formulae.

MEANING

Statistics is defined as the methods of collecting, processing, presenting, analyzing and interpreting numerical information to aid us in arriving at meaningful decision-making.

It is refers to any recording whether numerical or categorical. Any set of numbers that have recorded is a set of observation. In statistics, we are concerns with the chances outcome of action(s) from the previous experience. The chances outcomes are the ones that have not been predetermined before the planned investigation. The statisticians are interested in a numerical data and categories in which these actions(s) fall, e.g. to study the statistics of the number of motor accidents in Plateau State,

Say, from Jan -April, 1999

i.e. Jan	Feb	March	April.
3	5	10	2Or

The weight of certain objects

i.e.,	Yams	Rice	Tomatoes	Pepper
	1.8gm	3.0gm	3.6gm	2.2gm
	etc.			

All the above examples indicate numerical count. The criterion or categorical measurement is simply an answer to a situation or event i.e. 'Yes' or 'No'; 'Fair' or 'Unfair'; 'Like' or 'Dislike'; etc.

The functions of statistics in research are basically two, i.e. descriptive, and inferential.

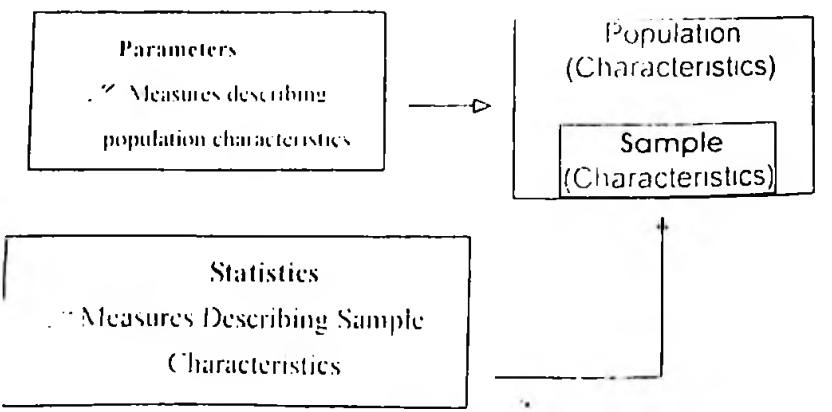
(i) The descriptive statistics

It allows us to gather information, organized them, analyzes them, summarized them and present them in a simpler form, e.g. a large number of people, objects or events can be presented in a smallest table, chart, graph, etc. The simpler form is now the advent of large information on a smallest piece of paper or microchips.

(ii) The Inferential statistics

It is the science of making decisions in the face of uncertainty, it helps to analyze a sub-set of data and lead to prediction or generalization about the total population. Decision-making cannot be possible (or save time and cost) for a large population, unless a sample of such population is made and the bold statements or inferences can be made.

In sum, this inferential statistics can be seen in the diagram below:



Statistics Estimate the Parameters

- Measures describing characteristics of a population is called parameter.
- Measures describing characteristics of a sample is called statistics.
- Research population is the totality of an infinite or finite figure. This is refers to groups of people, animals and objects. Therefore, population is the consistent of observation of certain things, and a set of observation of population is defined as a population size.
- Research sample is the sub-set of numbers of a population in a study. Consistent over-observation or under-observation of sample characteristics is said to be bias.

Therefore, it is desirable to use simple randomization of sampling. This is the one that every sub-set of an observation of a population has the same probability of been selected for a study to make generalization for the population which they have been chosen. Methods include the use of:

1. Fisher bowel
2. Table of random numbers
3. Calculator/computer numbers.

VARIABLES

Variables are characteristics of population, which change from person to person, object to object, or subject, etc. depending on a population of study. e.g. sex, language, culture, social class, age, education, marital status, geographical area, etc. In the variables, we have dependent and independent variables.

Dependent variables are those that vary after the changes of the independent variable, e.g. income and the rate of spending, rainfall and the output of crops, Economy and the rate of development, etc. income, rainfall, economy are independent variables, while rate of spending, output of crops, rate of development

are dependent variables.

SCALES OF MEASUREMENT

Measurement is the assignment of values to objects, events and/or variables. It is the level which we use in operationalizing or translating quantitative variables into easy analysis.

There are various scales of measurement, viz:

1. **Nominal Scale**

In this scale, numbers or symbols are used for describing an item or characteristics. Numbers have 'no' numerical meaning, they are just for identification. i.e. categories are identified and individuals or objects or events may be classified according to their categories. These categories are mutually exclusive (belonging to different categories) but they may have equal relationship.

2. **Ordinal Scale**

This is also called 'rank level'. It is one step above the nominal level. It enables us to do an addition. In this case, individuals or objects are arranged in a particular order ranging from the lowest to the highest or vice versa. Ordinal numbers are used to indicate rank order. The subjects are usually ranked ordered sign e.g. 1, 2, 3, 4 and 5 or 5, 4, 3, 2 and 1.

The interval between the scales is not necessarily equal. In nominal Scale, we only arrange them so as to differentiate, but, we do not arrange them numerically. While in the ordinal level, we arrange them numerically e.g. ranking in the array position in association, result of an education examination/test.

3. **Interval Scale**

It has a specific boundary, and is orderly in size. It contains all the characteristics of the ordinal in that it has some kinds of orderliness. But in addition, it has a specific point on the scale.

4. Ratio Scale

It is expressing the relationship between the intervals starting from absolute zero value to ..... Absolute zero is non occurrence of a particular variable, e.g. Variable such as income; age and weight are ratio measures.

DATA ANALYSIS/USE OF STATISTICS TECHNIQUES.

Generally, research is meant to generate data for analysis and this result in a large volume of statistical information. In order to use the data for the objectives of a hypothesis, the data would have to be reduced to manageable dimensions. This implies the application of statistical techniques which are of two broad categories:-

i. Descriptive Techniques

The descriptive statistical techniques deal with the distribution of the variables of study such as the background characteristics or profiles of the respondents. Descriptive techniques include the use of the following:

- Percentages
- Measures of central tendency (mean, median and mode)
- Measures of dispersion (range, variance and standard deviation).

ii. Inferential Techniques

Often a student, having collected the data from the field or experiment in the laboratory, and having summarized them to obtain the means and standard deviation, might want to generalize the results of research with confidence. In such a case, the student has to go beyond mean and standard deviation to prove that the results obtained are to a certain extent, expected but, not by chance. The inferential statistics is mostly employed. This includes the use of t-test Statistics, Correlations analyses, Chi-square and Analysis of Variance (ANOVA).

SELECTING APPROPRIATE STATISTICAL TESTS FOR DATA ANALYSIS

According to Dagona (2004), to select the kind of inferential statistics appropriate for your data, the student is advised to look well into his data then ask himself the following questions:

(1). Is the data a frequency count?

(i). If yes, employs a chi-square statistics on it.

(ii). If no, finds still if you are trying to establish a relationship between the variables?

(iii). If yes, you should use correlation to obtain the relationship index.

Or

(2). Are you trying to establish differences?

(i). If yes, ask yourself, how many independent variables do you have? If they are two only, use 2-way ANOVA.

(ii). If there is one independent variable, further inquiry into how many levels of this variable you are interested in? If there are two levels, ask still, if the levels are related? If yes, use related t- test, if unrelated, use unrelated t-test

(iii). if however, the variable has three or more levels 1-way ANOVA would be suitable.

The following diagram presents the above:

Data

↓

1. Frequency count? Use Chi-Square (x2)

↓

2. Relationship use Correlations analyses

↓

3. Test of difference

* How many variables?
2 (Use 2 way ANOVA)
1 * How many levels?
3 or more (Use 1 way ANOVA)
2 * Related? (Use related t-test or mean whitney sign test
* Unrelated? (Use unrelated t-test or willcox sign test

CHAPTER SEVEN

WRITING AND PRESENTATION OF EXPERIMENT REPORTS

EXPERIMENT REPORT

The report is divided into sections, each one reflecting the various stages of the experimental task. These sections are:

1. The title
2. The abstract (this is a very brief summary of the report, which is in fact the last section to be written, but it comes at the beginning to give the reader an idea of what the experiment is all about).
3. The introduction.
4. The method.
   (a) Design
   (b) Participants
   © Materials/Apparatus
   (d) Procedure.
5. Results.
6. The discussion.
7. The conclusion, which sometimes comes in the discussion section.
8. The list of reference.

You should leave the first two sections to the end since it is only then that you are in a position to write a concise summary of the experiment and to arrive at a most appropriate title.

Apart from these two sections, all the others can be written as you go along.

THE INTRODUCTION

The introduction serves the purpose of setting the experiment within its particular topic. A critical appraisal should be made of previous experiments within the area, drawing attention to their importance in the context of the present experiment.

The findings of past research should lead on to a statement of the experimental hypothesis predicting the outcome of the experiment. Sometimes the experimental hypotheses are specifically stated in a separate section at the end of the introduction.

The introduction can be thought of as a link between the general context to which the piece of research belongs and the specific problems under study. The crucial point to get is why you think the experimental hypothesis you are testing is important and why your experiment is a good test of that hypothesis. The introduction need not be very long, and lengthy descriptions of past experiments should be avoided.

THE METHOD

This section is subdivided into various headings, the order of which varies from report to report in the literature. However, you may find the order suggested here useful as a guide.

(a) DESIGN

In this section you should describe the type of design chosen for the experiment; i.e. the number of experimental conditions, whether you are using the same, matched or different Participants in each condition, and a brief reference to the type of statistical tests you are going to use. It is important that readers can grasp the essential points of the experimental design you are using to test the experimental hypothesis.

(b) PARTICIPANTS:

You should give a brief description of the participants who took part in the experiment i.e. the number of participants, the population from which they were drawn, age and sex. Whenever these are considered to be important variables, give adequate information about them and any other which may have an important effect e.g. whether they are native speakers of English in an experiment involving English words or sentences.

(c) MATERIALS/APPARATUS

A description of the materials/Apparatus should be given here, e.g. Rating scales, lists of words, stopwatches,

stethoscope, timers, keys, computers, etc. in other words, all the aids necessary to carry out the experiment.

(d) PROCEDURE

Of all subsections of the method, the procedure is usually the longest for you have to give precise details of what your Participants were required to do. The text of the instructions you gave your Participants should usually be included. You should also give details about the number of trials Participants had to do in each experimental condition, the order in which the trials were presented, the times for each trial and between trials how the performance of the Participants was measured and how you recorded the results.

The procedural aspects of the experiment are very important. For example, changes - however slight in the instructions given to Participants may produce quite considerable variations in the results. The time taken for each trial or block of trials is also an important variable since fatigue and distraction may affect the results. Hence the need for a faithful record of exactly what happened so that you can bring out any good or bad points about the experimental design when you assess the results of your experiment.

THE RESULTS

The section should present very clearly the scores produced by the Participants in your experiment. Experimenters often fail to present their data in clearly labeled tables and graphs, or give means for all the different conditions; what differences in scores have actually occurred. It is essential that readers should be able to extract from your tables the essential information about whether your results have supported your experimental hypothesis or not. You should always state the statistical

tests, which you used to analyze the results section. You should also indicate in a concise manner the outcome of the experiment.

THE DISCUSSION

Supported by the results of the statistical analysis, this section should start by interpreting any significant results of the experiment in terms of the research problem. It should analyze the various findings in relation to psychological theories and relate them to past research, also mentioning any implications for future research. In this section it is appropriate to discuss the design and procedure of the experiment emphasizing factors, which were overlooked and may be necessary to control in future experiments. Write the implication/significance of the research results to a particular theory. Draw policy implications of the results.

THE CONCLUSION

You may choose to reiterate very briefly the experimental findings in a separate concluding section. You may, however, prefer to do this in the last paragraph of your work.

THE REFERENCES

At the end of your report you must provide a full list of all the books you have cited in your work, giving the names of authors in alphabetical order, followed by details of the publication (name of book or journal), the year of publication, volume number in the case of journals, publishers in the case of books, and page references.

CHAPTER EIGHT
WRITING AND PRESENTATION OF FINAL YEAR PROJECT REPORT

REQUIREMENT OF THE PROJECT MANUSCRIPT

Writing a final year project for submission constitutes a significant stage in the process of any project work. It serves as a hallmark in the project work and requires the student to carefully present his findings with unity, coherence and clarity (Lester, 1976).

Unity in writing demands of the student to explore one topic in depth, and with each paragraph carefully expanding upon a single aspect of the topic. Coherence on the other hand ensures that controlling ideas and research details and evidence follow together and function as an interrelated whole. In context, quotations and paraphrases are expected to be logical extensions of the writing and not intrusions or mere padding. Coherence also demands for the logical progression of ideas by the "repetition" of key words, the exact usage of pronouns and synonyms, and the application of traditional or conventional and phrases, for example, the use of such words as: also, furthermore, nevertheless, in addition, and thus(Lester, 1976: 55-61).

Research writing is exact writing, featuring well-balanced sentences proper subordination of minor elements and at the same time employing con specific words. This is what gives the project write-up clarity. Clarity is thus achieved through the use of precise prose that avoids excessive rhetorical splendor. It is presumed that students engaging in project work and write up have acquired all necessary writing skills they need to produce coherence grammatical prose.

In settling down to write in order to achieve unity, coherence

and clarity, the student is expected, among others:

I) To examine the project topic or problem and outline to see that they provide him with a well-rounded, logically organized plan of procedure;

(ii) To examine the tone to see that it suits the topic, purpose and theme; and

(iii) To examine the notes to see that support for the ideas is abundantly supplied.

In summary, therefore, before a student sends his work for typing and submission, he must ensure that his ideas in the final draft are logical, coherent, clear, comprehensible and communicable. The student must also adhere to the rules and ethics of formal writing, especially of the project type (see Persons, 1973). This concluding chapter, therefore, outlines the contents and requirements of such writing and format of presentation for students' assistance

ORGANIZATION OF THE PROJECT

The standard outline of parts of a project report contains the sections presented below, in this order, each of the parts has been explained, and its content and requirement outlined.

Outline Parts of a Project Report

1. Title Page
2. Certification
3. Dedication
4. Acknowledgment

5. Table of contents
6. List of Abbreviations or Glossary
7. List of tables
8. List of illustrations (or Figures/Diagrams)
9. Abstract or synopsis
10. Body of Report (in Chapters and/or Sections)
11. List of References/Bibliography
12. Appendices

THE CONTENT OF THE COMPONENT PARTS TITLE PAGE

This should contain the topic of the project investigation, student name, Matriculation or Registration Number, and the Institution; the purpose for which the work has been written and the date of completion. An example of a layout of the Title page is shown below.

N.B. The title page is immediately followed by the certification or declaration and dedication; and contained on full separate pages.

The declaration is an attestation that the project has not been submitted for any other degree and that the project is the effort of the candidate, It has a provision for the student, and the department (Supervisor, Head and/or Dean) to sign.

EFFECT OF SOCIAL ENVIRONMENTAL FACTORS ON STUDENTS ACADEMIC PERFORMANCE IN UNIVERSITY CAMPUS, KEFFI

ADEJOH V. ATTAH

Mat. Number (NSU/SS/007/04/05)

A final year project submitted to the Department of Psychology in partial fulfillment of the requirement for the award of Bachelor of Science (B.Sc. Hons.) Degree in Psychology, Faculty of Social Sciences, Nasarawa State University, Keffi, Nigeria.

August, 1989

CERTIFICATION

I certify that this project was carried out by (**Name of Student**) of the department of (**Name of Department**) of the (**Name of University/College**) under my supervision.

Sign

_____ _____

Name of Project Supervisor Date

Sign

_____ _____

Name of Head of Department Date

(Qualification) Head of Department

Sign

_____ _____

Name of Dean of Faculty Date

(Qualification)

Sign

_____ _____

EXTERNAL EXAMINER Date

DEDICATION

This study has been dedicated to Name(s) of person(s) or society/societies or organization(s) to which the project has been dedicated.

TABLE OF CONTENTS

This lists the chapter headings and may include the main sub-divisions under each, with page numbers where these are found in the text. The Table of Contents is chronological/categorical summary of the project.

THE SUMMARY, ABSTRACTS/SYNOPSIS

These three terms, though often used interchangeably, are different in scope and content.

The summary is a survey of the ground covered in the report. It is brief, but sufficiently indicates the area and depth of the study, and whether its objectives have been accomplished. The summary should not be more than ten per (10%) of the length of the report. It should not contain material not mentioned in the report. The summary is usually presented in the last chapter of the project.

The abstract or synopsis on the other hand, is a recapitulation of the main points of the project. It often is referred to as an extended title, highlighting the aims of the study, methods of study, and results achieved. It should be about 200-250 words on an A4 or quarto double space page.

ACKNOWLEDGMENTS

This part of the project should recognize help and guidance received in undertaking the project: persons interviewed, special Staff assistance: library cartographic, secretarial, and data supply institutions.

LIST OF ABBREVIATIONS

Abbreviated words and symbols, or unfamiliar terms used in the text should be explained in the page set for this purpose.

LIST OF ILLUSTRATIONS

These are diagrams (maps, figure, plates or photographs) and tables used in the text to clarify points made. Original illustrations rather than those extracted from other books are preferable, particularly in the analysis section.

THE BODY OF THE PROJECT

This should be divided into parts, usually chapters and sections of chapters, after which the list of appendices and references or bibliography should follow.

(a). Communication

There is an accepted mode of communication and presentation of material in a research project, which can be called **"dos and don'ts"** The first objective in writing a project is to pass your message to the reader, therefore, the writing should be simple and clear, logical and orderly presented. Spellings, grammar, labeling of diagrams, referencing style or compilation of bibliography and appendices, should be examined to ensure that they are correct.

To ensure that you are communicating in a project report, avoid

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To ensure that you are communicating in a project report, avoid

the use of gobbledygook (Ward, 1981); rather, translate your jargon into plain English (see also Floyd. 1981). Five questions useful in checking if communication has been effected in a research project include:

(i) How readable is the research report?

(ii) How many unfamiliar words are in the sentences?

(iii) How long are the sentences?

(i) How logical and coherent is the research report?

(v) Do headings convey messages and content?

To ensure that you are communicating in the project report, avoid the use of very long sentences but strive to restrict sentences to below 17 words; and also use more words of less than two syllables. One must also avoid the use of strange words in a bid to impress the reader. Use of the direct speech style is also preferable. The headings in the project report should be specific and illuminating rather than indicative.

(b). TYPING AND FINISHING

Good presentation is very important. A finished work containing a lot of mistakes discredits the quality of work; and all efforts put in the work are rendered futile. The typist, the supervisor and the student should follow the rules of the game. It is imperative that the manuscript be typed by someone who has experience in typing theses, dissertations and other formal works of writing, and who is familiar with these accepted conventions.

PAPER

The original and photocopies of the project should be printed on good quality paper, such as the international A4 size or quarto.

MARGINS

A margin of not less than 40mm should be provided at the left hand side of the page to allow for binding; and at least 20mm on the right and top and bottom of the page to permit trimming.

SPACING

The text of the manuscript should be double-spaced; indented quotations (those exceeding two lines) and footnotes should be single-spaced.

DIVIDING WORDS

Do not divide words of one syllable; only divide words at the end of a syllable. At the same time do not divide a word at the end of a page.

HEADINGS AND TITLES

Chapter and/or major headings should be in upper case (capital letters) 2nd centered. A chapter should begin on a new page. Sub-division headings should be typed from the left hand margin in lower case and underlined. A major should normally be typed in upper case, centered on the page on which subdivision text commences. The titles of Tables and Charts should also be capitalized, centered and placed above and next to the material to which they refer.

TABLES, GRAPH AND DIAGRAMS

Tables in the manuscript should be placed as near as possible to that part of the text to which they refer. Short tables can be included in the body of the text, but the table number and title must be separated from the text by two or three spaces above and below the table. The

standard method is to type the heading in capitals (Parsons, 1973). Explanatory notes to a table should be accompanied by an asterisk; where several are used, small letters are used. The notes should be placed immediately below the table, and not with other notes at the bottom of the page. The source of any primary and secondary tables should be placed immediately below the table preceded by the word; 'Source'.

Do not break tables in your work; if need be use adhesive to join the table, but unnecessarily long tables covering more than two pages should be put in the appendices. Very long table could also be photo reduced to A4 or quarto size.

Very large charts, maps and diagrams may be placed in a jacket at the end of the report or submitted in a separate container, but, in general, all illustrative material should be bound with the project. Unlike tables, the titles of diagrams, graphs, charts, photographs and plates are written below the illustration and not above. These are also sourced where required.

PAGINATION

Pages of the project are numbered only after the whole document has been typed, as during the preparation, it may be necessary to alter parts or add Pages to the text. Removal or addition of pages may be achieved through use of letters, for example, sheets inserted between pages 20-21 should be numbered 20a, 21a. This practice should not be overdone to keep within recommended departmental project lengths. The text, including the references/bibliography and appendices are numbered in Arabic numerals, while the preliminary page (content page, acknowledgment, etc) may be numbered in Roman numerals (i ii iii x). Parsons (1973) opines that it is usual to place the numbered at the center bottom of the page. Whichever practice you adopt you must be consistent.

NUMBERING

Different orders of numbers can be used to indicate the different degree of sub-headings. The common practices include starting the initial numbering with Roman Numerals (I, II, III, IV, V). The sub-divisions could be in Arabic numerals (1,2,3,4,5,6), then small letters (a, b, c, d, e) and finally, Roman, numerals in lower case (i, ii, iii, iv, v), or the chapter number written in full and bolded e.g.

CHAPTER ONE

Alternatively, the decimal system is adopted; in this case starting with a 1.0 and numbering succeeding headings or sections as 1.1, 1.2, example, 1.1.1, 1.1.2..., and so on. The numbers 1.1.2 serve as the position and level of importance of the section in research. Do not over number, (for example 1.1.2.1) as this loses lucidity and clarity. The same purpose could be achieved by combining letters, for example, (a), (b), ©.

Some other common don'ts about numbering in a research project include:

(a) Do not use numerals at the beginning of a sentence;

(b) Do not use number in a succession in your text (for example, 20, 4 cylinder engines should be 20, four cylinder engines; or 120, 200 level students is inappropriate and confusing, and should be 120, Two Hundred level students.

(c) Do not use numerals for round number estimates (except in tables), or ordinals; rather use approximately, for example, approximately 200 parts for 198.50 parts.

(d) Do not use numbers less than ten in your text, but use words.

(e) Use numerals for all page numbers, dates, figures, plates or photographs diagrams, and addresses.

REFERENCING

Referencing should be considered generically as including text citation: footnoting, referring to another part of the text, acknowledgment of secondary information and the final bibliography. Each of these follows some standard format.

Referring to information already used or ahead in your text may simply be done by writing "see section x or page x" and the whole put in bracket. If the idea is a secondary one, the author's name and year of publication of the sourced material are put in bracket after the idea has been used in the text, for example, (Ajaegbu, 1983). The specific page or pages when the idea has been reported verbatim are included, following the year by a colon or p, and the page number, and as usual the whole put in bracket, for example (Ajaegbu, 1983:5 or Ajaegbu, 1983, p. 5).

Direct quotations, paraphrased material and statements that are insufficiently explained in the text may require footnotes. But footnotes are not required for background or common knowledge information, or for opinions, interpretation, or from students' conclusions except where they are borrowed from an author. As a function, the footnotes are supposed to clarify or expand a particular point or statement.

In the typescript, place the number of the footnote, without any punctuation, raised one-half space at the end of the material to which it refers, for example: 1; numbers in parentheses (1), (2) may also be used. The corresponding number and the citation are then placed at the bottom of the page. Alternatively, all the footnotes are grouped together at the end of

the chapter, or in separated notes' (to chapters' section) after the main body of the text, but before the bibliography or references.

Footnotes are numbered consecutively throughout each chapter; a new series is started for each chapter. It is sufficient to include the name of the author (Or authors), full title of work quoted, date of publication and the page of reference. The complete information is provided in the bibliography. Where two or more works are cited as authorities of the same statement, both or all the citations are placed in the same footnotes separated by a semi-colon or semi-colons.

If the footnotes themselves are set at the bottom of each relevant page, at least four spaces should be left between the bottom of the text and the footnotes and separating line typed part or all the way across the page, two spaces below the text. The footnotes themselves should be typed single-spaced.

Full reference, as distinct from footnotes; follow a different method of citation. The commonest referencing style is the Harvard system following America Psychological Association (APA) style. In this method, the author's name, the dates of publication and page or pages (where necessary) are given in the body of the text in brackets, for example, (Mabogunje, 1968, p.5). The full details of this are presented in the bibliography or referencing including title of text and place of publication. The Harvard style however, does not use footnotes, unless an explanatory note is needed. You may also refer to Turabian's (1973) Manual for more guides on footnotes, references, bibliographies and styles of presentation.

THE BIBLIOGRAPHY

In the bibliography or reference compilation, all sources consulted are listed. Works read and found useful in formulating ideas presented, though not cited, may also be included. The bibliography is organized as a single alphabetical list or grouped into two or more lists in the following ways (Parsons, 1973; Anon, n.d.)

(i) Unpublished/published sources.

(ii) Primary/secondary sources, and

(ii) Books/Articles, or alternatively in this order
   (a) Books;
   (b) Bulletins and Pamphlets;
   (c) Periodicals;
   (d) Newspapers; and
   (e) Other sources; Oral Information; Theses and Dissertations.

When these sub-divisions are used, the alphabetical order must be maintained under each sub-division. This format of compiling the bibliography is recommended. Books and pamphlets should be noted in this sequence:

(i) Author's or editor's surname, followed by initials or forenames; all names of multiple authors must be given.

(ii) Full titles are underlined, foreign titles are followed by their transaction in brackets.

(iii) Edition

(iv) Place of Publication.

(v) Publisher.

(vi) Date of Publication.

Where no date is available, the abbreviation "n.d." is used, and where this date is approximated, it is preceded by "c", or "ca" (Crica). Date of publication may alternatively immediately follow the author's name. Whichever is adopted, it must be used consistently. Examples are presented below:

Example 1: Books:

(a) Bohannan, P., Tiv Economy Evanston, North Western University Press, 1968.

(b) Bohnnan, P. (1968), Igala Economy Evanston, North Western University Press.

© Ayeni, B., "Spatial Aspects of Income Distribution in the Nigerian Urban Sector". The Political Economy of Income Distribution in Nigeria.Bienen, H. and Diejomah, V.P. (eds.), London, Holmes & Meier Inc. 1981, pp.237-268.

The citation (c) shows a contributed Chapter in a Book. The article or chapter heading is in quotes; the title of the book is, as usually, underlined, and the names of editors are given in full; the pages covered by the chapter are specified.

(d) Bulmer, M., and Warwick, D.P., (Eds.) (1983).

Chichester, John Wiley and sons Ltd.

(e) Bums, L.S., Tighe, B.K. and Healey, R.G. (1970). Housing: Symbol andShelter, University of California Press.

The use of et al, employed, as a shortened version in multiple authors should not be used in the full list of references or bibliography. The full names of all authors should be given.

Example 2: Periodical Articles

These are compiled in the sequence:

(i) Author's or authors' name(s) in full

(ii) Title of article (as in books except that it must appear in double quotation marks).

(iii) Full title of periodical, and underlined. Number of issue.

(iv) Date of publication.

(v) Inclusive page numbers.

(a) Abiodun, "Central Place Study in Abeokuta Province, South Western Nigeria".

Journal of Regional Science, Vol. 8 No. 1, 1968, pp. 51-76.

Example 3: Unpublished works, conference papers, theses, dissertations and corporate reports are presented as follows:

(a) Adepetu, A., "Promoting Rural Development through Population Resettlement: The case of Langtang/Shendam Resettlement Scheme", Proceedings, 21st Annual Conference, Nigeria Geography Association. University of Jos, 1978, pp. 192-211

(b) Agboola, S.B. "The Building Industry in Osogbo, Nigeria: A study Of theTransformation of the industry in the process of Development" Unpublished PhD., University of Pennsylvania

(c) (c) Benue State Government, The Makurdi Capital Development Board Edict, No. 12, Benue State of Nigeria, Gazette, No. 21, Vol1 September, 1976.

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