

IMPORTANCE OF DESIGNING STAGE IN SOCIAL SCIENCES RESEARCH ENTERPRISES: A SOCIOLOGICAL APPROACH

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Abstract

The quality of any social sciences research is dependent on the quality of its research design. Research design entails the definition of the conditions for the collection of data bearing in mind the resources at the disposal of the researcher. A design is therefore a plan or structure of any aspect of research endeavour. Research design gives shape, form and identity to the research activity. Research design simply means a comprehensive plan or blue print showing how the researcher intends to go about solving the already identified research problem. This study is using sociological approach to examine the importance of research design in research enterprises in sociology. The question of research design in research enterprises remain one of the central issues in sociological researches. The aim of this paper therefore is to provide an overview of the importance of research design in sociology. This study suggests that researcher design is positively linked to good research in sociology and yet many researchers do not make use of research design effectively.

Keywords: Research, Design, Designing stage, Enterprise, Sociological Approach

Introduction

Meaning of Research Design

Science is an enterprise that is dedicated to development of theory. No matter what you want to find out, there are likely to be a great many ways of doing it. Research design addresses the planning or scientific inquiry, strategy for finding out something. According to Obasi, (1999), research design is a term used to describe a number of decisions which need to be taken regarding

the collection of data before ever the data are collected. Nkpa (1997) emphasized that research design is the structure or plan of a research – what to do and how to do it. It involves the structuring of variables in a manner that enables their relationships to be determined.

Research design is far more than just choosing a data gathering method. Design is the whole ball of wax-everything that you must do to get the basic information needed to solve a problem. Design integrates both data gathering and data analysis. Herbert (1990) observes that in deciding upon a research design, a basic purpose must first be examined. The research design allows you to understand what causes the problem and what can be done about it?

According to Obikeze (1990,43) the term design simply means a comprehensive plan or a blue print showing how the researcher intends to go about solving the already identified research problems. The research design is therefore the planning stage when the researcher works out on drawing board who then research participants are, their number, where they are, how to contact them, by who, when, what information to elicit from them and how to analyse such information. Activities at this stage include:

- (a) Specification of key variable
- (b) Formulation of research hypothesis
- (c) Identification of study population
- (d) Determination of sample and sampling Procedure
- (e) Designing, preparing and pretesting a research instrument, and
- (f) Specifying the analytical procedures

Madu (1997) states that design is the plan, structure and strategy of investigation developed so as to obtain answers to research

questions and control variance. The plan refers to the overall scheme while the structure is an indication of the outline, the scheme, the paradigm of the operation of the variables. Strategy in the context of research design refers to the methods to be used in gathering and analyzing the data. Research design demands carefulness such that dependable and valid answers to the questions imposed by the research are obtained.

Oji and Chukwuemeka (1999) said that research design is a plan of investigation that specifies the sources and types of information relevant to the research question, it is strategy or blue print specifying which approach will be used for gathering and analyzing the data, incorporating both time and budget costs.

According to Eboh (1998, 20) research design can be defined as the strategy or approach to be used in conducting a scientific enquiry. It implies essentially the different approaches to collecting information. Principles of research design according to Eboh (1998) refers to the rules and code of conduct that guide the development of a research design while techniques of research design refers to the procedures, methods and actions employed to develop a research design.

Design tells us the researcher's plan of work. The idea of design suggests a plan, arrangement, a blue print for a proposed action. Plan is a very important aspect of research. Design is the most crucial stage of study. It goes all the way from conceptualization of study down to operationalization and down to hypothesis, to

instrument, field work, to data analysis and to report.

Types of Design:

According to Ali (1996,53) there are two types of research design namely;

(a) Descriptive and

(b) Experimental design

(a) Descriptive design are mainly concerned with describing events as they are without any manipulation of what is being observed. Case studies, survey, historical research, correlational research, evaluative research as well as developmental studies can be categorized as descriptive design. For example, a study which is to find out the attitude of teachers toward free education is a descriptive.

(b) Experimental Design: The experimental design differ from descriptive design mainly because it follows the idea and process of experimentation, and manipulation of independent variables. There are some uses in social sciences such as laboratory experimental design and field experimental design.

The laboratory experiments are the same as the ones used in pure science. Experiment in non laboratory situation is done in field work. According to Oji and Chukwuemeka (1999), there are two broad major research designs – surveys and experimental. Under surveys, we have different designs, example population study, sample study, case study etc. We can also talk about historical research as part of descriptive research design. Another type of research design is the documentary research (archival) or desk-top research. This kind of design entails the

close examination of records or documents and may have nothing to do with eliciting of information.

Eboh (1998) listed types of research design are given below:

- (a) Exploratory (or rapid appraisal) studies
- (b) Descriptive studies: case studies, sample survey, census, aerial survey.
- (c) Comparative (analytical) studies: cross sectional comparative studies, case control studies, and cohort studies.
- (d) Experimental studies
- (e) Quasi experimental studies.

(a) **Exploratory (or Rapid Appraisal) Studies:**

This category encompasses a wide variety of investigation techniques that are used to obtain quick, not very precise and sometimes qualitative information on development issues in local communities. It is more or less a small scale study of relatively short duration which is carried out when little is known about a situation or a problem. For development issues and problems, such a rapid appraisal study may provide sufficient information to take action. Rapid methods are used in situations either when time and resources are short but limited information is still of value, or when no or little information are initially available and a quick preliminary enquiry is needed to guide further study. Exploratory studies contain added explanatory value if the problem is approached from different angle at the same time, thereby leading to plausible assumptions about the causes of the problems. Rapid studies of this nature are called exploratory case studies, especially if they are small scale. If the problem and its contributing factors are not well defined, it is

advisable to conduct an exploratory study. Typically, rapid methods involve a researcher or multidisciplinary team working in the study area, observing the characteristics of interest. The observation may be direct, indirect or alternatively by interviewing informants (local leaders, elders or those knowledgeable about the subject of study) or by the group interview techniques (group interview or focus group discussion). Exploratory study is applied under a variety of names, including rapid rural appraisal, pilot study or preliminary study.

(b) **Descriptive Studies:**

A descriptive study entails the systematic collection and presentation of data to give a clear picture of a particular situation. It can be carried out on a small or large scale. Descriptive studies can be a case study, a sample survey, a census or an aerial survey.

Case Study:

This is an enquiry in which a limited number of study units or 'case' are investigated in-depth. The focus of a case study is on the detailed structures, patterns or inter-relationships observed within each individual case included in the study.

The unit selected may be on a random basis, but by possession of certain desired characteristics or may in fact be selected to cover a range of different type of study units. Case studies can provide insight into a problem and are very common in social sciences and management sciences. Finding out whether the results of a case study pertain to the larger population requisite a more comprehensive sample survey of the population.

Sample Survey:

This is an investigation in which only part of sample of the population is studied and the selection is made such that the sample is representative of the whole population. Information gathered must be able to be generalized to the whole population and thus a sample survey is useful for development and planning purposes. Sample survey can be cross-sectional or time-series in approach. Cross sectional surveys aim at collecting information, cover physical characteristics of people, materials or environment, socio-economic economic characteristic of people, behavior of people as well as the knowledge, attitudes, beliefs and opinions that help to explain that behavior, events and practices that occurred or are occurring in the population. Time series survey, on the other hand aim at variables over a period of time. There is a type of sample survey that combines cross-sectional and time series approaches to data collection. It is called panel survey. It means collecting data periodically from the same sample over time. Every unit of a selected sample is observed at a point in time and the observation is repeated periodically over time.

Census:

This is an enquiry which covers every individual unit in the population being studied. For instance, there is the national censures of population and of social phenomenon which are conducted by many countries on a regular basis. However, a census may be defined for a much smaller specific population, for example, a population of all farmers in village, a population of school children in a village. A census is appropriate when the population under study is small and readily identifiable but fairly heterogeneous so that including the

whole of the population in the study will be practicable and instructive. Many countries do census of varying degrees, levels and forms in order to obtain information for general planning.

Aerial Survey:

This type of survey involves an aircraft flying over the whole or part of an area of interest, gathering information about the ground below. The information gathering can be by taking photographs or by an observer recording observations while in the air. Aerial survey is important for gathering information on topics which can be investigated by direct observation without interviewing or otherwise contacting a respondent. Aerial surveys are usually carried out on patterns that are distinctive enough to be visible from the air. Examples are cattle and wildlife, land use patterns, settlement patterns. Aerial surveys are very expensive in terms of money, manpower, skills and equipment of as such it cannot be handled by a single researcher.

(c) Comparative (Analytical) Studies

A comparative study is type of scientific enquiry which attempt to establish causes of or contributory factors to a problem by comprising two or more groups, some having the problem and some not having it. Comparison is a fundamental research strategy to identify variables that help to explain why one group of persons or objects differ from each other. The common types of comparative study include; cross-sectional comparative studies, case control studies and cohort studies.

Cross-Sectional Comparative Studies:

These focus on comparing as well as describing groups. An example is a survey

on malnutrition which attempted to establish the percentage of malnourished children in a certain population, socio-economic, physical and other variable influencing food availability feeding practices, the knowledge, beliefs and opinions influencing these practices. In addition to describing these variables, the researcher can be comparing malnourished and well-nourished children, attempt to determine which socio-economic, behavioral and other independent variables contribute to malnutrition.

Case-control Studies:

In case-control studies, the investigator compares one group among whom a problem is present with another group called a control or comparison group where the problem is absent to ascertain what factors have contributed to the problem.

For both cross sectional comparative and case-control studies, the researcher has the control for confounding or intervening variables. Case control studies use stratification as well as matching to control for confounding variables. Matching means ensuring that the cases and controls are similar with respect to the distribution of one or more of the potentially confounding variables. Cross sectional comparative studies and cross-control studies are relatively quick and inexpensive to undertake. With cross-sectional comparative studies, the number of stratifications the researcher can make is limited by the size of the study, the major problem with case control studies is the selection of suitable control groups.

Cohort Studies:

A cohort study is usually the investigative method in mostly public health. In the

context of public health research a cohort study is a type of enquiry whereby a group of individuals that in exposed to the risk factor (study group) is compared with a group of individuals in exposed to risk factor (control group). The researcher monitors both groups over time and compares the occurrence of the problem expected to be related to the risk factor in the two groups, so as find out whether a greater proportion of those with the risk factor are actually affected. Where it is impossible to select a cohort for division into a study group and a control group, the researcher may choose two cohorts, one in which the risk factor is present (study group) and one in which it is absent (control group). Both the study group and control group should be selected at the same time and both should be followed with the same intensity. Even though cohort studies are a sound way to establish causal relationships, they take longer than case-control studies and are labour intensive and expensive. Major difficulties with cohort studies include: the identification of all cases in a study population particularly for problems with a low incidence and the inability to monitor all persons included in the study over a number of years because of population movements. For financial and practical reasons, therefore, cross-sectional comparative studies or case-control studies are usually preferred to cohort studies.

(d) **Experimental Studies:**

An experimental study is a type of enquire in which a stimulus is applied to a subject and the effect observed. In an experimental design, a researcher allocates randomly selected individuals to at least two groups. One group is subjected to an intervention of treatment while the other group (control group) is not. The effect of the treatment can

be assessed by comparing the two groups. The classical experimental study has three integral requirements, manipulation or treatment or intervention, control and randomization. Manipulation means that the researcher does something to one group of subjects in the study. Control implies that the researcher introduces control groups to compare with the experimental group. Randomization means that the researcher ensures that each subject is given an equal chance of being assigned to either group. By this, the researcher endeavours to hold all other factors constant so that differences between the control and experimental groups can be linked to the treatment intervention being applied. An experimental design is virtually the only sure way to prove causation and its strength lies in the fact that, the researcher is able to randomize the subjects and hence eliminate or at least minimize the effects of confounding variables.

(e) Quasi Experimental Studies:

A quasi-experimental study is a type of enquiry in which event though at least one characteristic of a true experiment is missing, must always include manipulation of an independence variable that serves as the treatment or intervention. The missing characteristic is either randomization or the use of a separate control group. A common quasi-experimental design uses two or more groups – one serving as control group and the other is study group – but the subjects in both groups have not been randomly selected or allocated. For example, a researcher undertakes the study of effect of agricultural extension education on the level of participation of a village population in the adoption of new technologies. The researcher selects one village in which

agricultural extension education will be given and another village that will not receive agricultural extension education to serve as control. A survey is then conducted to find out if adoption rate in the village where agricultural extension education was introduced is significantly different from the control village which did not receive agricultural extension education. The study is quasi-experimental because the subjects were not assigned to the control or experimental group on a random basis.

Studies categorized under exploratory, descriptive and comparative sub-headings, are often referred to as non-intervention studies because the researcher merely describes and analyze the research problem. On the other hand, experimental and quasi-experimental studies are collectively known as intervention studies because the researcher manipulates objects or situations and measures the outcome of the manipulations.

Importance of Research Design and Associated Problems

A design takes care of such practical problems as the selection of objects for the experimental and control groups, how observations are to be made, the type of statistical instrument to be used for data analysis and interpretation, the way variables are to be manipulated and how the extraneous variable should be controlled.

According to Obasi (1999,50), a research design is essential because it performs the following functions:

1. It provides the researcher with a blue print for studying research problems
2. It dictates boundaries of research activity and enables the researcher to

- channels his energies in specific directions.
3. It enables the researcher to anticipate potential problems in the implementation of the study.
 4. It helps to provide some estimate of the cost of the research, possible measurement problems, and the optimal allocation of resources.

A design will tell a researcher everything he/she is going to do. Research design guides the study. It leads to accomplishment of purpose of study. According to Ali (1996) research design is important in terms of the fact that it provides the researcher the information leading to his knowing what kind of method to be used or planned for use.

A careful design takes care of extraneous variables which may be responsible for the observed levels of dependent variables. Such variables are referred to as confounding variables since they invalidate the answer to the research question.

According to Herbert (1990) design concerns determining what questions or observations are going to be asked or made of, whom, and when. As such design is the bridge between conceptualization and data gathering. The objective of proper design is to obtain as much valid and reliable information as quickly as possible for a little cost as possible.

Eze (1996,34) emphasized that importance of research design are numerous and include the following:

- (a) It provides answers to research questions and validity
- (b) It tells the research what observation to make

- (c) It tells the researcher the type of statistical analysis to be used.
- (d) It acts as instructional procedure guide for research persons.
- (e) It helps to control error
- (f) It helps to control external variables.
- (g) It helps the researcher to argue for the validity.

Ezeah (2004) pointed out the designing stage enables the researcher to indicate the steps to be taken in carrying out his research project. In this regard the research methods to be used will be stated, followed by a description of the respondents and population to be studied, sample size, sampling technique, various sources of data and the procedures used in gathering them. Also the research design indicates the tools to be used in the analysis and treatment of data to be collected. In fact, it is the design that guides the methodology. When the design is wrong, the methodology will also be wrong or fail to achieve the intended goals.

Nachmias and Nachmias (1992, 97) stressed that designing stage is important in that it guides the researcher in the process of collecting, analyzing and interpreting observations. It is a logical model proof that allows the researcher to draw inference concerning causal relations among the variable, under investigation. The design also defines the domain of generalizability, that is, whether they obtained interpretations can be generalized to a larger population or to different situations.

Nachmias and Nachmias (1992,98) further emphasized the importance of design stage, stating that any researcher who is about to test a hypothesis faces some fundamental problems that must be solved before the

project can be started: whom shall we study? What shall we observe? When will observations be made? How will data be collected? The design is the blue print that enables the researcher to come up with solutions to these problems. It is a logical model of proof that guides the researcher in the various stages of the research.

Similarly, Eboh (1998,20) observed that designing stage is the enabling operational paradigm of the scientific enquiry. It gives shape, form, and identity to the research activity. Designing stage is useful because it expresses the type of data we need and how we collect it. A good design must be adequate in all respects to provide answer to all research questions.

Conclusion:

In conclusion, research design relates to the general approach to be adopted in executing the study. What is required here is for the researcher to specify the type of design he/she is to follow in the study. It describes a number of decisions which need to be taken regarding the collection of data before ever the data are collected. The research design you develop whether it involves a survey, use of available data, social experimentation or whatever – must not be constructed simply because it seems to be the best way of obtaining data. Data for data sake should be avoided. The research design must provide a way of understanding the causes of the problem. A research is easily executed when it is guided by a design

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