SIT 227: RESEARCH METHODS

Definition of research

Research may be very broadly defined as **systematic gathering** of **data and information** and **its analysis** for **advancement of knowledge in any subject.** Research attempts to find answer intellectual and practical questions through application of systematic methods.

Research methodology is a way to systematically **solve the research problem**. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is necessary for the researcher to know not only the research methods/techniques but also the methodology.

Researchers not only need to know how to develop certain indices or tests, how to calculate the mean, the mode, the median or the standard deviation or chi-square, how to apply particular research techniques, but they also need to know which of these methods or techniques, are relevant and which are not, and what would they mean and indicate and why. Researchers also need to understand the assumptions underlying various techniques and they need to know the criteria by which they can decide that certain techniques and procedures will be applicable to certain problems and others will not. All this means that it is necessary for the researcher to design his methodology for his problem as the same may differ from problem to problem. Thus, when we talk of research methodology we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.

Research involves the following components:

1. It is systematic. Research attempts to solve problems whether social, economic, political, cultural or health-related in a systematic way. It is systematic in that a general system is followed. This involves the Identification of the problem, review of related literature and data collection. The process of data collection requires proper organization and control so

that the data will enable valid decisions to be made about the research problem at hand. This is followed by data analysis, conclusions and recommendations.

2. It is objective. Research attempts to find an objectives unbiased solution to the problem. Research involves gathering new data from primary sources (first hand) and secondary sources (using existing data). It attempts to find an objective unbiased solution to the problem.
3. It is based on observable experience or empirical evidence. It demands accurate observation and description.
4. It employs carefully designed procedures and rigorous analysis.

Types of Research

Research can either be qualitative or quantitative.

Qualitative Research

This is a form of research that involves description. Qualitative research seeks to describe and analyze the culture and behaviour of humans and their groups from the point of view 0f those being studied. Examples of qualitative research include case studies of communities and institutions. Qualitative research uses the natural setting, for instance, a classroom setting and not a laboratory. This means the scenario is not artificial. Qualitative research relies on a research strategy that is flexible and interactive. This includes interviewing, focus group discussions and questionnaires. In qualitative research, feelings and insights are considered important (Orodho and Kombo, 2002). Sometimes qualitative research is called naturalistic inquiry or field studies.

APPLICABILITY

Qualitative research is appropriate inkier the following conditions:

When the subject matter is unfamiliar. For example, when one wants to know the causes and effects of a certain phenomenon and the answer is unfamiliar to the researcher. For example, The effect of free primary education on school accessibility and retention or The effect of price increases on commodity consumption.

- When a researcher wants to relate particular aspects of behaviour to the wider context. For example when one wants to find out the effects of abortion on academic performance, a few

schools and students will be sampled. The findings of the study will be applicable to a wider context.

- When meanings rather than frequencies are sought. For example when analyzing the effect of abortion on education, the researcher may be more interested in why students procure abortions and the effect abortion has on their education. The emphasis will be on the causes and impact of abortion.
- When flexibility of approach is needed to allow for discovery of the unexpected and in depth investigation of particular topics. for example in finding out the effect of abortion on education, the researcher may interview those who have carried out an abortion and are willing to be interviewed. Focus group discussions may be used. The researcher can also change a research instrument depending on the respondents. For example, a researcher may have planned to use a questionnaire written in English but may discover the majority of respondents are semi-illiterate. The researcher may therefore choose to interview and use the language which the respondents are most comfortable in. The researcher may also want to determine if there is any relationship between the academic performance of a student prior to and after the abortion.
- This method is used for studying selected issues, cases or events in depth and detail (Orodho and Kombo, 2002).

FORMS OF QUALITATIVE RESEARCH

Qualitative research include the following:

Ethnographies, which are observations of groups.

- Phenomenological studies which study subjects over a period of time through developing relationships with them and reporting findings based on research experiences.
- Case studies which use various data to investigate the subject over time and by activity.

Quantitative Research

Quantitative research relies on the principle of verifiability. That means confirmation, proof, corroboration or substantiation. Knowledge emerges from what can be proven by direct observation. The researcher's values, interpretation and1 feelings are not considered. Objectivity

is reinforced. This approach1 is mainly applicable in scientific studies. In quantitative research, the researcher tries as much as possible to be detached from the subject of study or respondent. This research establishes the cause-effect relaitj05in Quantitative research focuses on measurement i.e. the of numerical events according to rules. The numbers are specified, for example, sex: male or female.

APPLICABILITY

Quantitative research is applicable under the following conditions:

- When the research incorporates the Statistical (how many?) element, designed to quantify the extent to which a target group is aware of, thinks this, believes that or is c1ined to behave in a certain way.
- When frequencies are sought to meanings. The quantitative approaches involve the collecti0 of numerical data in order to explain certain phenomena.
- When control of approach is needed to allow for discovery of the unexpected and in-depth investigati0 of particular topics. For example in finding out the effect, control of one phenomenon of interest is needed. Rigid methodological and all procedures must be specified before the beginning of data collection and followed in an unalterable course.
- When data analysis is mainly statistical (deductive process).
- When the scenario is artificial, for instance in a laboratory.

QUALITATIVE AND QUANTITATIVE RESEARCH

Qualitative and quantitative approaches to research are complimentary. Where appropriate, they should be combined to maximize the strengths and minimize the limitation of each. For example, in a study on the effect of abortion on education, a researcher can first use qualitative research and interview respondents to find out their views on the effect of abortion. The researcher can then segregate one group of students who have terminated their pregnancies, and another group that has not terminated pregnancy and observe them keenly based on specific psychological tests. The researcher can therefore make deductions on the effect of abortion on education.