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Research Design and Research Problem

Concept of Research Design :

After the identification of research problems the preparation of research design followed subsequently. The research design is concerned about the mechanism as to how the research is to be conducted. It is a management regarding the collection and analysis of data, relevant to research work by appropriate and economic method.

Research design means a process by which the researcher will be in position to understand the structure of the research and the various steps to be taken in the process of research. Researcher is supposed to understand the type of data required for the research. The area of the study and the time frame during which research is required to be completed. As such it naturally indicate outline of the research work and its operational application.

Definition :

Research Design has been defined by different social scientists in different terms.

Vimal Shah has said that," The design is the plan of study and as such it is planned in every study uncontrolled as well as controlled and subjective as

well as objective".

To quote PV Young, "The design results from controlling general scientific model into varied research procedure".

According to EA Suchaman, "Research design represents a compromise dictated by the many practical considerations that go into social research.... A research design is not a highly specific plan to be followed without deviation but rather a series of guide posts to keep one in the right direction".

As Selluz, Jahoda, Deutsch and Cook state, "A research design is the arrangement of conditions from collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure".

"Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance".

"The challenge of a research design is to translate the general scientific model into a practical research operation. Research design will refer to the entire process of planning and carrying out a research study".

The other important factors which naturally be related to sample which will be needed in research work and method to select such samples in relation to the collection of analysis of the data. Taking into consideration the above referred decisions the Research design can be classified as under :

Classification of Research Design :

- 1) **Sample Design** : It relates to the method of selecting items for the purpose of study.
- 2) **Observation Design** : This relates to the condition under which observation are made.
- 3) **Statistical Design** : This relates to the information and data to be



collected which is further required to be analysed.

4) **Operational Design** : This deals with certain techniques carried out in the process of research.

Features of Research Design :

- 1) Research design is a plan which specifies that which types of information will be relevant to the research study.
- 2) The collection and analysis of the data requires the strategy to be specified which will be used for research study.
- 3) Research design has main emphasis on time period involved and financial outlay required. The research activity may suffer if these aspects of time and finance develops as constraints.

There for research design there should be :

- a) Proper understanding of research problem.
- b) Data collection producers.
- c) Population to be studied.
- d) Data analysis methods.

Why Research Design ?

The research design has its own importance in the process of research methodology. It is required for the following reasons :

- ★ For smooth conduct of the research activity.
- ★ For relevant collection and analysis of data.
- ★ It provides strong and firm base for the research work.
- ★ It helps researcher to organise his ideas in relation to research activities and it also helps to avoid flow and inadequacy.

- ★ In absence of proper research design comprehensive review of the research study is impossible.

PV Young presents a summary of the main contents of an ideal Research design :

- ★ Sources of information to be tapped.
- ★ Nature of study
- ★ Objectives of the study
- ★ Social logical context of study.
- ★ Geographical areas to be covered by the study.
- ★ Periods of time to be encompassed.
- ★ Dimensions of the study.
- ★ The basis for selection of data.
- ★ Techniques to be used for gathering data.
- ★ Specification of time schedule for completing the research.

All these features are to be present in a research design. While formulating a research design a researcher has to take decisions with respect to the following :

What is the study about and the types of data that are needed ?

Why is the study being made ?

Where can the needed data be found ?

Where or in what areas, will the study be carried on ?

When, and on what periods of time will the study be included ?

How much materials for how many cases will be needed ?



What techniques of gathering data will be adopted ?

Decisions on all these questions lead to the formulation of a research design which are put into black and white by the researcher if only really enters into the universe office research project for data collection and analysis.

Factors for appropriate research design :

- (1) The methods for obtaining necessary information for the research study.
- (2) The ability and skill of the researcher and his associates in conduct of research study.
- (3) The objectives of the research problems are required to be properly studied.
- (4) The nature of the research problems also requires due consideration.
- (5) The availability of funds and the time period available are the important factors for the purpose of research study.

It is necessary to understand various concept of Research design for conducting research study. These are :

- A) Variables
- B) Extraneous Variable
- C) Restruction on extraneous variables
- D) Confaunded Relationship
- E) Hypothesis Relationship
- F) Testing of Hypothesis
- G) Testing group in conditions
- H) Testing conditions

I) Testing process

J) Testing units

Nature of Research Design :

Research design is the framework of research methods and techniques chosen by a researcher. ... The design of a research topic explains the type of research (experimental, survey, correlational, semi-experimental, review) and also its sub-type (experimental design, research problem, descriptive case-study).

Research Problem

Introduction/Concept of Research Problem :

In research process the first and foremost step happens to be that of selecting and properly defining a research problem. The term problem comes from the Greek Proballein which means anything thrown forward; a question proposed for solution; a matter is stated for examination. RS Woodsworth defines problem as " a situation for which we have no ready and successful response by instinct or by previously acquired habit. We must find out what to do". John Dewey writes, " the need of clearing up confusion, of straightening out an ambiguity, of overcoming obstacles, of covering the gap between things as they are and as they may be when transformed, is, in germ, a problem". Broadly speaking any question that you want to be answered and any assumption or assertion that you want to challenge or investigate can become a research problem or a research topic for your study.

What is a Research Problem ? :

As we have earlier discussed about it it a research problem, in general, refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain solution for

the same. Generally, we say that a research problem does not exist if the following conditions are met with :-

- ★ There must be an individual or a group which has some difficulty or the problem.
- ★ There must be some objectives to be attained.
- ★ There must be alternative means for obtaining the objectives. This means that there must be at least two means available to a researcher.
- ★ There must remain some doubt in the mind of a researcher with regard to the selection of alternatives. This means that the researcher must answer the question concerning the relative efficiency of the possible alternatives respectively.
- ★ There must be some environment (s) to which the difficulty pertains.

Thus, a research problem is one which requires a researcher to find out the best solution for the given problem.

Consideration or developing a Research Problem :

The research problem undertaken for study must be carefully selected. While selecting a research problem/topic, number of considerations are to be kept in mind. These help to ensure that the study will be manageable and that the researcher will remain motivated. Ranjit Kumar (1999) has discussed these consideration in his book entitled "Research Methodology". These are interest, magnitude, measurement of concepts, level of expertise, relevance, availability of data and ethical issues.

(I) Interest : Select a research problem that really interests you : that is one of the most important considerations. Because a research endeavour is usually time-consuming, and involves hard work and possible unforeseen problems. On the other hand, if you select a a topic/research problem which does not greatly interest you, it could become extremely difficult to

sustain the required motivation, and hence the completion time could be affected.

(II) Magnitude : Researcher should have sufficient knowledge about the research process, and may be able to visualise the work involved in completing the proposed study. Therefore it is extremely important to select a topic that you can manage within the time schedule and resources at your disposal.

(III) Measurement and Concepts : If you are using a concept in your study, make sure you are clear about its indicators and their measurement also. Thus researcher must kept in mind about the measurement of concepts.

(IV) Level of Expertise : Make show you have an adequate level of expertise for the task you are proposing. Allow for the fact that you will learn during the study and may receive help from your research guide or other professionals, but remember you need to do most of the work yourself.

(V) Relevance : The study should add to the existing body of knowledge, bridges, current gaps or should be useful in policy formulation. This will help you to sustain interest in the study.

(VI) Availability of data : If the topic requires collection of information from secondary sources, before finalizing the topic, make sure that the data are available and in the format required.

(VII) Ethical Issues : Another important consideration in formulating a research problem is the ethical issues. in the course of conducting a research study, the respondent may be adversely affected by some of the questions (direct or indirect); deprived of an intervention, expected to share sensitive and private information; or expected to be simply experimental 'Guinea pigs'. How ethical issues can affect the study population and how ethical problems can be overcome should be truly examined at the problem formation stage.

Kothari CR (1997) has given following tips to researchers while choosing a

research problem :

- ★ Subject for research which is over done should not be normally chosen for it will be difficult ask to throw any new light in such a case.
- ★ Controversial subject should be avoided choose new and non controversial subject for research study.
- ★ Too narrow or too vague problems should be avoided. Try to choose simple and specific problems for study.
- ★ The subject selected for research should be familiar and feasible so that the related research material are within one's reach.
- ★ The importance of the subject, the qualifications and the training of a researcher, the costs involved, the time factor are few other criteria that must also be considered in selecting a problem. In other words before the final selection of a research problem is alone, a researcher must ask himself the following questions :
 - (i) Whether he is well equipped in terms of his background to carry out the research?
 - (ii) Whether the study falls within the budget he can afford ?
 - (iii) Whether the necessary cooperation can be obtained from those who much participate in research as subjects.
- ★ The selection of a problem must be preceded by a preliminary study full stop this may not be necessary when the problem requires the conduct of research closely similar to one that has already been done full stop but when the field of enquiry is relative Lene you and does not have a set of well developed techniques a brief feasibility study must always be undertaken.

Steps in the formulation of a Research Problem : These are under :

1. Identify a broad area of interest in your academic professional field.



2. Dissect the broad area into sub- areas (hold a brain storming session with yourself, press, professionals and others to identify the sub-areas).
3. Select a sub- area or areas in which you would like to conduct your research. Start with a process of elimination.
4. Raise research questions that you would like to answer through your study.
5. Formulate objectives :- Researcher should formulate main and sub-objectives of the study.
6. Assess to ascertain the feasibility in the light of the time, resources for undertaking it. Ask yourself : am I really enthusiastic about this study and do I really have enough resources for it ?

Answer these questions carefully if the answer to any one of the questions is no re-assess your objectives.

References :

- (1) Research Methodology (1st edition) : Dr Vijay Upagade & Dr Arvind Shende (S Chand Publications, Delhi)
- (2) Research Methodology (4th edition) : CR Kothari (New Age International Publications)