

Research Design- An Introduction

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WHAT IS RESEARCH DESIGN ?

- Decisions regarding **what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design.**

Meaning of research design

- *A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.*

Research design have following parts

- Sampling design
- Observational design
- Statistical design
- Operational design

Sampling Designs

- Which deals with the methods of selecting items to be observed for the study.

Observational design

- Which relates to the condition under which the observation are to be made.

Statistical Design

- Which concern the question of the of **How the information and data gathered are to be analyzed ?**

Operational design

- Which deals with techniques by which the procedures satisfied be carried out.

Features Of A Good Research Design

A research design appropriate for a particular research problem, usually involves the consideration of the following factors.

- The means of obtaining information.
- The availability and skills of the researcher and his staff, if any.
- The objective of the problem to be studied.
- The nature of the problem to be studied .
- The availability of time and money for the research work.

Important Concepts relating to Research Design

- A concept which can take on different quantitative values is called a variable.
- A phenomena which can take on different qualitatively values even in decimal value are called continues.

Dependent and Independent Variables:

- If one variable is depend on another variable it is termed as a dependent variable.
- The variable that is antecedent to the dependent variable is an independent variable.
- Ex. Height is dependent on age.

Extraneous Variables

- That are not related to the purpose of the study but may effect on the dependent variables are termed as the extraneous variables.

Example of this

- Suppose a researcher want to test the hypothesis that there is a relationship between children gains in social studies achievement and their self concept.
- In this case self-concept = independent variable
- Social studies achievement = dependent variable
- Intelligence may as well affect on the social achievement.
- But it is not related to the study undertaken by the researcher so it is a Extraneous variable

Control

- One important characteristic of a good research is to minimize the influence or effect of extraneous variables .
- The technical term 'control' is used when we design the study minimizing the effect of extraneous independent variable

Confounded Relationship

- When the dependent variable is not free from the influence of extraneous variables the relationship between the depended and independent variables is said to be confounded by an extraneous variable

Research Hypothesis

- When a prediction or a hypothesised relationship is to be tested by scientific methods, it is termed as a research hypothesis.
- *The Research Hypothesis is a predicative statement that relates an independent variable to dependent variable.*

Experimental and Non-experimental Hypothesis Testing

- Research in which the independent variable is manipulated is termed as Experimental hypothesis testing research.
- Research in which the independent variable is not manipulated is termed as non- Experimental hypothesis testing research.

Experimental and Control Groups

- When a group is exposed to usual conditions, it is termed as a **control group**.
- But when the group is exposed to be some special condition, it is termed as **Experimental group**

Treatments

- The different conditions under which experimental and control groups are put up usually referred to as treatment.

Experiment

- The process of examining the truth of a statistical hypothesis, relating to some research problem, is known as an Experiment.

E.g.:- We can conduct an Experiment to examine the usefulness of a certain newly developed drug.