Research design

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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 Methods in Social Sciences, 1962, p. 50

- It constitutes he blueprint for the collection, measurement and analysis of data.
- An outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data.

Research Design

What is the study about?

What will be the sample design?

Why is the study being made?

What periods of time will the study include?

Where will the study be carried out?

What techniques of data collection will be used?

Where can the required data be found?

How will the data be analysed?

Research Design

Important concepts relating to research design:

1. Dependent and independent variables:

- A concept which can take on different quantitative values is called a variable. As such the concepts like weight, height are all examples of variables.
- Phenomena which can take on quantitatively different values even in decimal points are called 'continuous variables'.
- If it can only be expressed in integer values, they are non-continuous variables or in statistical language 'discrete variables'.
- If one variable depends upon or is a consequence of the other variable, it is termed as a dependent variable, and the variable that is antecedent to the dependent variable is termed as an independent variable.
- For instance, if we say that height depends upon age, then height is a dependent variable and age is an independent variable.

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2. Extraneous variable:

- Independent variables that are not related to the purpose of the study, but may affect the dependent variable are termed as extraneous variables or confounding variables.
- Whatever effect is noticed on dependent variable as a result of extraneous variable(s) is technically described as an 'experimental error'.
- A study must always be so designed that the effect upon the dependent variable is attributed entirely to the independent variable(s), and not to some extraneous variable or variables.

3. **Control:**
   - One important characteristic of a good research design is to minimise the influence or effect of extraneous variable(s).
   - The technical term 'control' is used when we design the study minimising the effects of extraneous independent variables.
   - In experimental researches, the term 'control' is used to refer to restrain experimental conditions.
4. **Experimental and control groups:**
   - In an experimental hypothesis-testing research when a group is exposed to usual conditions, it is termed a 'control group', but when the group is exposed to some novel or special condition, it is termed an 'experimental group'
5. **Treatments:**
   - The different conditions under which experimental and control groups are put are usually referred to as 'treatments'.

Research Design

Different Research Designs

- Different research designs can be conveniently described as:
  - Exploratory Research Design
  - Descriptive and Diagnostic Research Design
  - Hypothesis-testing Research Design/Experimental Research Design

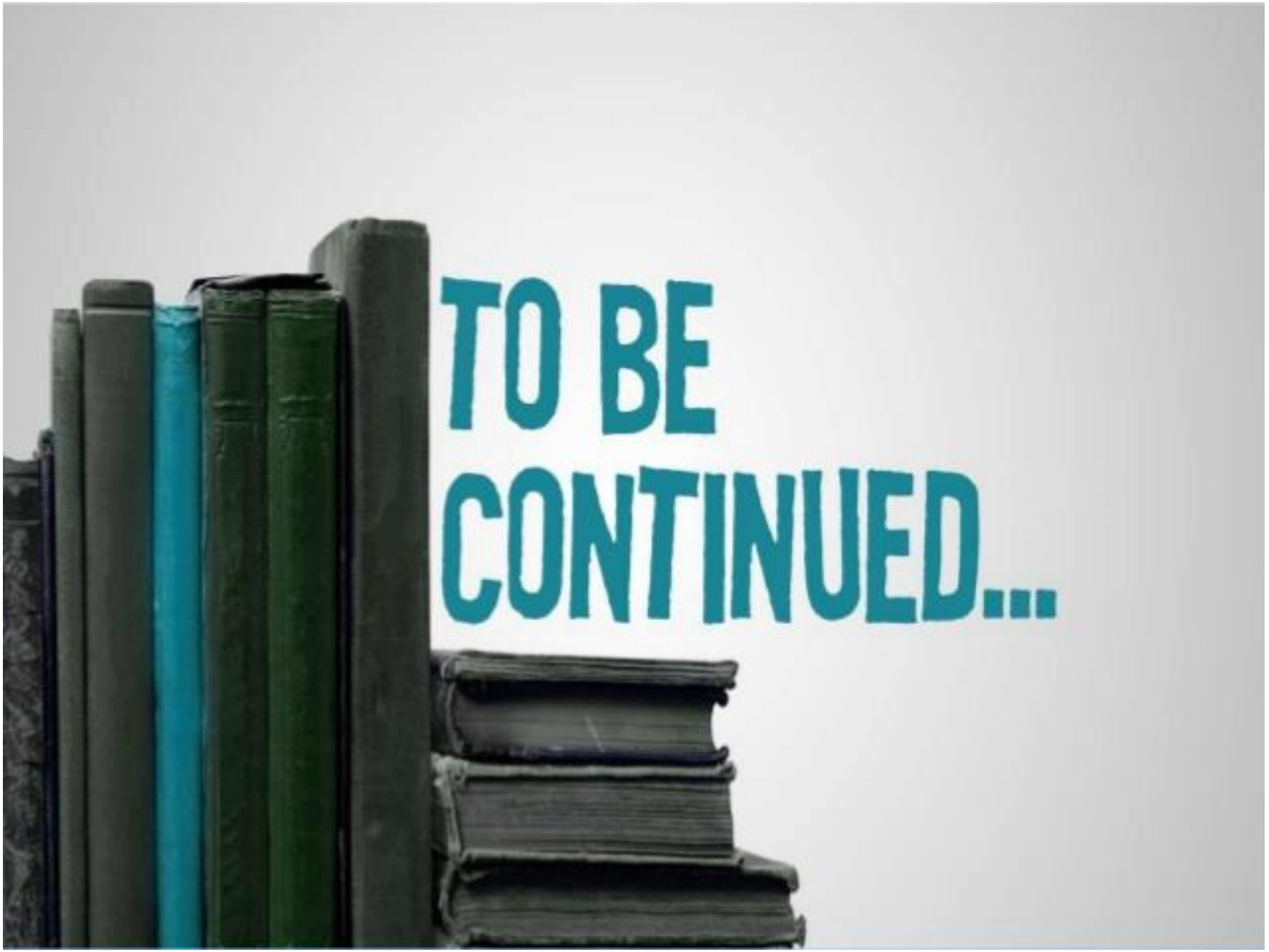
Criteria of Good Research

- **Good research is systematic: Research is structured with specified steps to be taken in a specified sequence in accordance with the well'defined set of rules.**
- **Good research is logical: Research is guided by the rules of logical reasoning**
- **Good research is empirical: Research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity.**
- **Good research is replicable: This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions.**

Development of Working Hypothesis

Characteristics of hypothesis: Hypothesis must possess the following characteristics:

- Hypothesis should be clear and precise. If the hypothesis is not clear and precise, the inferences drawn on its basis cannot be taken as reliable.
- Hypothesis should be capable of being tested.
- Hypothesis should be limited in scope and must be specific.
- Hypothesis should be stated as far as possible in most simple terms so that the same is easily understandable by all concerned.
- Hypothesis should be amenable to testing within a reasonable time. One should not use even an excellent hypothesis, if the same cannot be tested in reasonable time for one cannot spend a life-time collecting data to test it.
- Thus hypothesis must actually explain what it claims to explain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