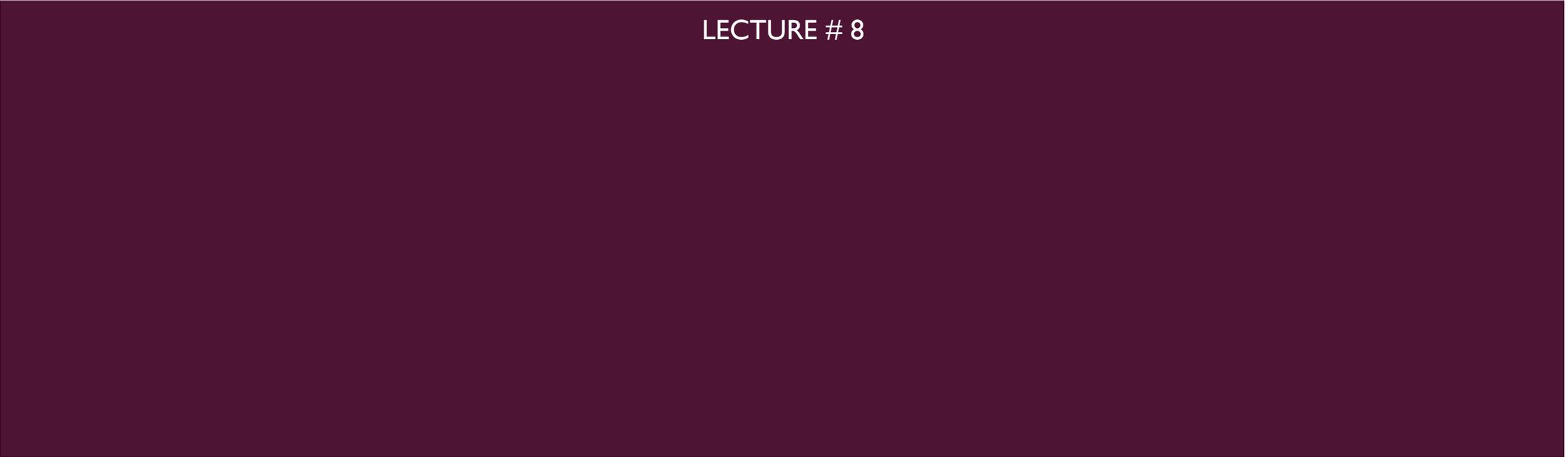




THE RESEARCH DESIGNS

LECTURE # 8



WHAT IS A RESEARCH DESIGN?

- A traditional research design is a **blueprint** or **detailed plan** for how a research study is to be completed—**operationalizing variables** so they can be measured, **selecting a sample** of interest to study, **collecting data** to be used as a basis for testing hypotheses, and analyzing the results.

WHAT IS A RESEARCH DESIGN?

- A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems.
- The plan is the complete scheme or programme of the research.
- It includes an outline of what the investigator will do from writing the hypotheses and final analysis of data.

THE FUNCTIONS OF A RESEARCH DESIGN

- The previous definitions suggest that a research design has two main functions.
- The first relates to the identification and/or development of procedures.
- The second emphasises the importance of quality in these procedures to ensure their validity, objectivity and accuracy.

THE RESEARCH DESIGN

- One of the most important requirements of a research design is to specify everything clearly so a reader will understand.
- What procedures to follow and how to follow them. A research design, therefore, should do the following:
 - i. Name the study design i.e 'cross-sectional', 'before-and-after', 'comparative', 'control experiment' or 'random control'.

THE RESEARCH DESIGN

Provide detailed information about the following aspects of the study:

- i. How will the study population be identified?
- ii. Will a sample or the whole population be selected?
- iii. If a sample is selected, how will it be contacted?
- iv. What method of data collection will be used and why?
- v. In the case of a questionnaire, where will the responses be returned?
- vi. How should respondents contact you if they have queries?
- vii. In the case of interviews, where will they be conducted?
- viii. How will ethical issues be taken care of?

HOW TO CHOOSE A RESEARCH DESIGN

- Does it adequately test the hypothesis?
- Does it identify & control extraneous factors?
- Are results generalizable?
- Can the hypothesis be rejected or retained via statistical means?
- Is the design efficient in using available resources?

STUDY DESIGNS IN QUANTITATIVE RESEARCH

- Some of the commonly used designs in quantitative studies can be classified by examining them from three different perspectives.
 - i. The number of contacts with the study population;
 - ii. The reference period of the study;
 - iii. The nature of the investigation.

STUDY DESIGNS

Based on the number of contacts

- Cross-sectional studies;
- Before-and-after studies;
- Longitudinal studies

THE CROSS-SECTIONAL STUDY DESIGN

- Cross-sectional studies, also known as **one-shot** or **status studies**, are the most commonly used design in the social sciences.
- They are useful in obtaining an overall **'picture'** as it stands at the time of the study.
- They are 'designed to study some phenomenon by taking a cross-section of it at one time'
- A cross-sectional study is extremely simple in design. You decide **what you want to find out about**, **identify the study population**, **select a sample** (if you need to) and contact your respondents to find out the required information.

EXAMPLES

- For example, a cross-sectional design would be the most appropriate for a study of the following topics:
 - i. The incidence of HIV-positive cases in Australia.
 - ii. The reasons for homelessness among young people.
 - iii. The quality assurance of a service provided by an organization.
 - iv. The relationship between the home environment and the academic performance of a child at school.
 - v. The health needs of a community
 - vi. The attitudes of students towards the facilities available in their library.

THE CROSS-SECTIONAL STUDY DESIGN

- As these studies involve only one contact with the study population, they are **comparatively cheap** to undertake and **easy to analyze**.
- However, their biggest disadvantage is that they cannot measure **change**.
- To measure change it is necessary to have at least two data collection points – that is, at least two cross sectional studies, at two points in time, on the same population.

THE BEFORE-AND-AFTER STUDY DESIGN

- The before and after study design also known as **the pre-test/post-test** design.
- The main advantage of the before-and-after design is that it can **measure change** in a situation, phenomenon, issue, problem or attitude.
- It is the most appropriate design for measuring the impact or effectiveness of a programme.
- A before-and-after study is carried out by adopting the same process as a **cross-sectional study** except that it comprises two cross-sectional data sets, the second being undertaken after a certain period.

SHORTCOMINGS

- As two sets of data must be collected, involving two contacts with the study population, the study is more expensive and more difficult to implement.
- It also requires a longer time to complete.
- It is possible that some of those who participated in the pre-test may move out of the area or withdraw from the experiment for other reasons.
- It measures *total change*, you cannot ascertain whether independent or extraneous variables are responsible for producing change in the dependent variable.

EXAMPLES

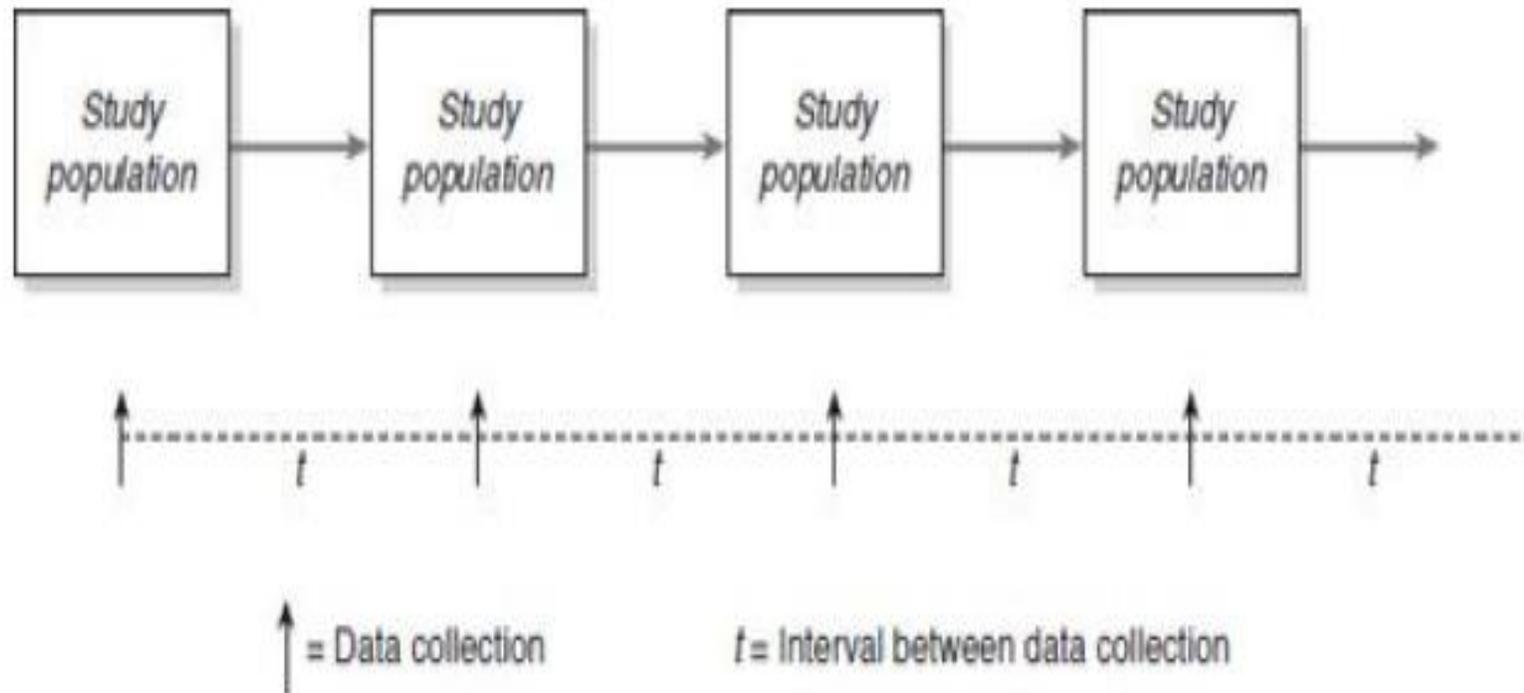
The following are examples of topics that can be studied using this design.

- i. The impact of increased funding on the quality of teaching in universities.
- ii. The effect of an advertisement on the sale of a product.

THE LONGITUDINAL STUDY DESIGN

- To determine the pattern of change in relation to time, a longitudinal design is used.
- In longitudinal studies the study population is visited a number of times at regular intervals, usually over a long period, to collect the required information.
- The data collected is from the same study population, it may or may not be from the same respondents.
- Follow up issues arise, if the same respondents are contacted frequently.
- The main advantage of a longitudinal study is that it allows the researcher to measure the pattern of change.

CONTINUE...



STUDY DESIGNS BASED ON THE REFERENCE PERIOD

The retrospective study design:

- Retrospective studies investigate a phenomenon, situation, problem or issue that has happened in the past.
- They are usually conducted either on the basis of the data available for that period or on the basis of respondents.
- For example i.e.
 - i. A historical analysis of migratory movements in” India” between 1915 and 1947.
 - ii. The relationship between levels of unemployment and street crime in Pakistan “Karachi”

THE PROSPECTIVE STUDY DESIGN

- Prospective studies refer to the likely prevalence of a phenomenon, situation, problem, attitude or outcome in the future.
- Such studies attempt to establish the outcome of an event or what is likely to happen.
- Experiments are usually classified as prospective studies as the researcher must wait for an intervention to register its effect on the study population. i.e
 - i. To measure the effects of a change in migration policy on the extent of immigration in Australia.
 - ii. To establish the effects of a counseling service on the extent of marital problems.

THE RETROSPECTIVE–PROSPECTIVE STUDY DESIGN

- Retrospective–prospective studies focus on past trends in a phenomenon and study it in to the future.
- Part of the data is collected retrospectively from the existing records before the intervention is introduced and then the study population is followed to ascertain the impact of the intervention.
- A study is classified under this category when you measure the impact of an intervention without having a control group.i.e
- The effect of an advertisement on the sale of a product.

EXPERIMENTAL & NON EXPERIMENTAL STUDY

There are two ways of studying this relationship.

- The first involves the researcher introducing the intervention that is assumed to be the 'cause' of change, and waiting until it has produced – or has been given sufficient time to produce – the change.
- The second consists of the researcher observing a phenomenon and attempting to establish what caused it. In this instance the researcher starts from the effect(s) or outcome(s) and attempts to determine causation.

CONTINUE...

- If a relationship is studied in the first way, starting from the cause to establish the effects, it is classified as an **experimental study**.
- If the second path is followed – that is, starting from the effects to trace the cause – it is classified as a **non-experimental study**.

SEMI-EXPERIMENTAL

- A **semi-experimental study or quasi-experimental** study has the properties of both experimental and non-experimental studies; part of the study may be non-experimental and the other part experimental.

LONGITUDINAL DESIGNS

- A longitudinal design collects data over long periods of time.
- Measurements are taken on each variable over two or more distinct time periods.
- This allows the researcher to measure change in variables over time.

TIME SERIES DESIGN

- A **Time Series Design** collects data on the same variable at regular intervals in the form of aggregate measures of a population.
- Time series designs are useful for:
 - establishing a baseline measure
 - describing changes over time
 - keeping track of trends
 - forecasting future (short term) trends

TIME SERIES DESIGN

- **Advantages:** data easy to collect, easy to present in graphs, easy to interpret, can forecast short term trends
- **Disadvantages:** data collection method may change over time, difficult to show more than one variable at a time, needs qualitative research to explain fluctuations, assumes present trends will continue unchanged

PANEL DESIGNS

- **Panel Designs** collect repeated measurements from the same people or subjects over time.
- Panel studies reveal changes at the individual level.
- **Advantages:** reveals individual level changes, establishes time order of variables, can show how relationships emerge
- **Disadvantages:** difficult to obtain initial sample of subjects, difficult to keep the same subjects over time, repeated measures may influence subjects behavior