

# SCIENTIFIC WRITING AND PRESENTATION

## ENT-402

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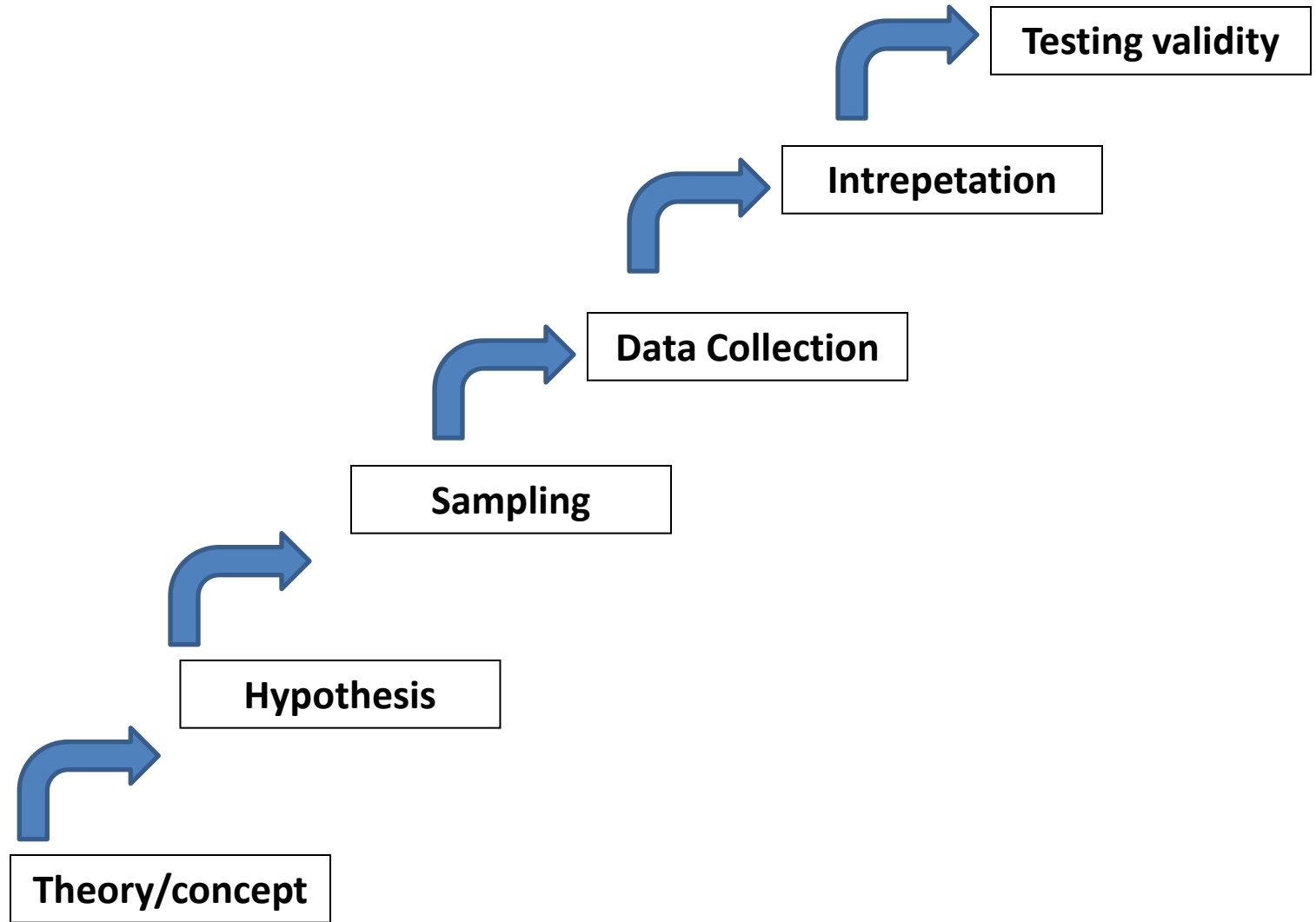
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# Data Collection

# LINEAR MODEL FOR RESEARCH PROCESS



# DATA

- Data can be defined as a systematic record of a particular [quantity](#).
- Collection of facts and figures to be used for a specific purpose such as a survey or analysis
- Individual observation of an experiment
- Data is a collection of facts, such as numbers, words, measurements, observations or even just descriptions of things
- Data is all around us. But what exactly is it?

# Types of Data

- Data may be qualitative or quantitative.

## **Qualitative Data:**

- Represent some characteristics or attributes.
- For example, data on attributes such as [intelligence](#), [honesty](#), wisdom, a description of colours, texture

## **Quantitative Data:**

- Can be measured
- They can be numerically represented and calculations can be performed on them.
- Number of dead insects after insecticides application

## **Categorical Data**

- Puts the item you are describing into a category: For example, the condition “used” would be categorical and also categories such as “new”, “used”, ”broken” etc

## **Discrete Data**

- Is numerical data that has gaps in it: e.g. the count of golf balls. There can only be whole numbers of golf ball (there is no such thing as 0.3 golf balls).

## **Continuous Data**

- Is numerical data with a continuous range: e.g. size of the golf balls can be any value (e.q. 10.53mm or 10.54mm but also 10.536mm). In continuous data, all values are possible with no gaps in between.

# Data

Depending on the source, it can classify as primary data or secondary data. Let us take a look at them both.

## Primary Data

- Data that are *collected for the first time* by an investigator for a specific purpose. Primary data are ‘pure’ in the sense that no statistical operations have been performed on them and they are original.

## Secondary Data

- Data that are *sourced from someplace* that has originally collected it.
- Kind of data has already been collected by some researchers or investigators

# Primary Data - Examples

- Surveys
- Questionnaires
- Personal interviews
- Experiments and field study





# Primary Data - Limitations

- Do you have the time and money for:
  - Designing your collection instrument?
  - Selecting your population or sample?
  - Administration of the instrument?
  - Entry/collation of data?

# Secondary Data – Examples of Sources

- District health departments
- Vital Statistics – birth, death certificates
- Hospital, clinic, school nurse records
- Private and foundation databases
- Federal and State governments
- Federal agency statistics
- Dept. of Environment

# Secondary Data – Limitations

- When was it collected? For how long?
  - May be out of date for what you want to analyze.
  - May not have been collected long enough for detecting trends.
- Is the data set complete?
  - There may be missing information on some observations
- Is the information exactly what you need?
  - In some cases, may have to make certain adjustments to suit your data requirements. Are they reliable? Is there correlation to what you actually want to measure?

# Data Collection Techniques

Observations,

Tests,

Surveys,

Document analysis

Experiments

# Basic Issues

- **Main questions:**
  - \* Study objectives?
  - \* What is being investigated?
  - \* Attributes & variables involved?
  - \* Variable measurement?
  - \* Method of data collection?
- **Main problems with data:**
  - \* Sufficient amount but irrelevant
  - \* Relevant but insufficient
  - \* Too much data, some useless
- **Implications:**
  - \* Waste of resources
  - \* Loose analysis
  - \* Non-fulfilling objectives
  - \* Unresolved research questions
  - \* Lack of quality thesis

