



Research Methodology

Chapter 3 Methodology

1.1 What is Research Methodology

- The system of collecting data for research projects is known as research methodology.
- Research methodology is a way to solve the research problem systematically .
- Research methodologies are generally used to test hypotheses or theories.

1.2 Why Research Methodology

- Research methodology is the process to find out the problem.
- Different research methods are compatible with different situations.
- Therefore it is important to know which method is best suitable for use with a particular hypothesis or question.
- If an unsuitable research method is used, it could render the research useless.

1.3 Research Approaches

- The method you choose will affect your results and how you conclude the findings.
- There are two main approaches to a research problem:

- Quantitative Research
- Qualitative Research



QUANTITATIVE

- Generally deals in numbers, logic and the objective.
- uses experimental, inferential and simulation approaches to research.



QUALITATIVE

- Generally deals in words, images and the subjective.
- Uses techniques like in-depth interview, focus group interviews.
- Originated in the disciplines of anthropology, psychology, and sociology.



Qualitative: Non-Experimental Research

- Non-experimental research is often called **correlational research**.
- Because it seek causes of behavior by looking for correlations among variables.
- Correlation does not prove causation.

Example:

- Doctors have noticed that people who drink red wine have better health.
**This does not mean that red wine necessarily improves health. OR
- Healthy people prefer to drink red wine. OR
- People with enough money to drink red wine can also afford healthy diets.

Varieties of non-experiment research

a) Observation Research – researcher simply observes and records on-going behavior but does not attempt to change it.

Example: television monitoring of people in a store.

i. Naturalistic observation: observation is made in the environment where the behavior naturally occurs (used in animal study).

ii. Unobtrusive research: another term of naturalistic observation (used in social science study).

iii) Participant-Observer Research – the observer participates in a group to record behavior.

b) Archival Research – researcher examines existing records to test hypotheses about the causes of behavior.

Example: Study crime statistics in different countries to see if there is a correlation between capital punishment and the murder rate.

C) Case Study – to study the problems and intensive description of an event, person, or animal.

D) Survey – assessing public opinion or individual characteristics by the use of questionnaire and sampling methods.

- **Open-ended question:** permits the respondents to answer in their own words completely and reveal the reasoning behind their answer.

- **Closed-ended question:** limits the respondents to certain alternatives.

General types of quantitative methods

1. Experiments

- an investigator manipulates and controls one or more independent variables and observes the dependent variable for variation concomitant to the manipulation of the independent variables.
- **True experiment:** research procedure in which the scientist has complete control over all aspects.
- **Quasi experiment:** is an experiment in which the investigator lacks the degree of control over the conditions.

General types of qualitative methods

1. Case Studies

- It gives very detailed information by an outside observer about individuals/ group/ community or phenomenon through a variety of data collection procedures over a sustained period of time.

2. Ethnographic Studies

- The researcher studies the relationships between natural behavior and culture or social group over a specific period of time.
- A cultural group can be any group of individuals who share a common social experience, location, or other social characteristic of interest.

3. Developmental Studies

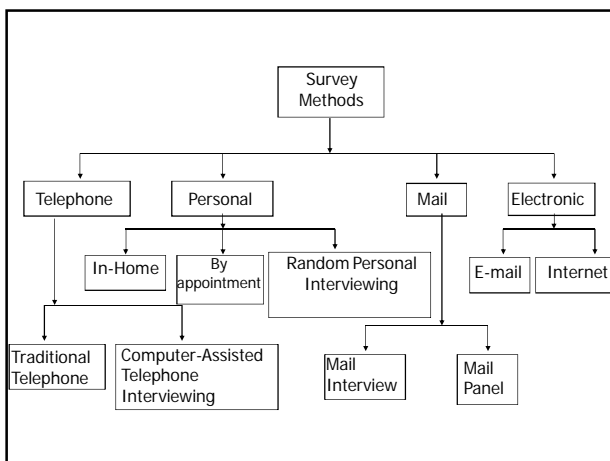
- research on the development of individuals/ group/ institution/ community intensively over a long period of time.
- The goal is to understand the 'lived experience' of the individuals/ group/ institution/ community being studied.

4. Historical Studies

- to gain information on an event, development or previous educational experience.
- Involve studying previous situation, checking on current situation, and to predict if the same situation will occur again.
- Conclusion on previous event is done based on collected facts and evidences, to answer why and how the event and repercussions occurred

5. Surveys

- using questionnaires or interviews for data collection with the intent of estimating the characteristics of a large population of interest based on a smaller sample from that population.



1.4 Formulate

(a). Formulating the research Problems

Identify a broad field or subject area of interest to you.

Dissect the broad area into sub-areas.

Select what is of most interest to you.

Raise research questions.

Formulate objectives.

Assess your objectives.

Considerations in selecting a research problem:

These help to ensure that your study will remain manageable and that you will remain motivated.

1. **Interest:** a research endeavour is usually time consuming, and involves hard work and possibly unforeseen problems. One should select topic of great interest to sustain the required motivation.
2. **Magnitude:** select a topic that you can manage within the time and resources at your disposal. Narrow the topic down to something manageable, specific and clear.
3. **Measurement of concepts:** Make sure that you are clear about the indicators and measurement of concepts in your study.

4. **Level of expertise:** Make sure that you have adequate level of expertise for the task you are proposing since you need to do the work yourself.
5. **Relevance:** Ensure that your study adds to the existing body of knowledge, bridges current gaps and is useful in policy formulation.
6. **Availability of data:** Before finalizing the topic, make sure that data are available.
7. **Ethical issues:** ethical issues and ethical problems should be thoroughly examined at the problem formulating stage.

(b). Formulating The objectives

- Objectives are the goals you set out to attain in your study.
- Inform a reader what you want to attain through the study.
- It is extremely important to spell out objectives clearly and specifically.

Objectives should be listed under two headings:

- a) main objectives (aims)
- b) sub-objectives.

(I). MAIN OBJECTIVE

- Is an overall statement of the thrust of your study.
- It is also a statement of the main associations and relationships that you seek to discover or establish.

(II). SUB-OBJECTIVES

- Are the specific aspects of the topic that you want to investigate within the main framework of your study.
- They should be numerically listed.
- Use action oriented words or verbs.
- Wording should clearly, completely and specifically.

The objectives should start with words such as:

- To determine ...
- To find out ...
- To ascertain ...
- To measure ...
- To explore ...
- To compare ...
- To investigate ...
- To analyze ...

Example:

- 1) To analyze the influence of cell structure on the thermal and acoustic properties of open-cell aluminium foams manufactured by the infiltration process.
- 2) To examine the evaluations of amplitudes of the simulated footstep sounds and of the soundscapes, as well as of their combination.

The wording of objectives determines the type of research (descriptive, correlational and experimental).

❖Descriptive studies

- To describe the types of incentives provided by Hotel XYZ to employees in Mumbai.
- To find out the opinion of the employees about the medical facilities provided by five star hotels in Mumbai.

❖ **Correlational studies**

- To ascertain the impact of training on employee retention.
- To compare the effectiveness of different loyalty programmes on repeat clientele.

❖ **Hypothesis –testing studies**

- To ascertain if an increase in working hours will increase the incidence of drug/alcohol abuse.
- To demonstrate that the provision of company accommodation to employees in Mumbai hotels will reduce staff turnover.

1.5 Design

- Design is the basic plan for a piece of empirical research.
- Design is connecting the research questions to data:
 - a) Showing how the research questions will be connected to the data.
 - b) What tools and procedures to use in answering the research questions.

- Design includes four main ideas:

- a) **Strategy.**
- b) **Conceptual framework.**
- c) **Who or what will be studied (sample).**
- d) **The tools (instruments) and procedures to be used for collecting data and analyzing empirical materials.**

(a) Strategy

- Quantitative or Qualitative study?
- In **quantitative** research: *Experiment*
- In **qualitative** research : *Ethnography; grounded theory; discourse analysis; life history, etc.*
- Whether quantitative or qualitative, the researcher needs to:
 - ✓ Identifying the strategy in general terms (case study, ethnography, survey or experiment).
 - ✓ Describe how to execute the planned strategy.

(b) Conceptual Framework

- Is the conceptual status of the things being studied, and their relationship to each other.
- Pre-specified research questions are often accompanied by a clear conceptual framework.
- Developing and describing the framework can help in clarifying the research questions.

(c) Sample

- All empirical research involves sampling.

"You cannot study everyone everywhere doing everything."
Miles and Huberman (1994)
- The researchers need to think through the sampling aspects of the study in preparing the proposal.
- Needs to fit into the study's logic.
- The appropriate sampling plan depends very much on what the study is trying to find out.

(I). FOR QUANTITATIVE STUDY

The proposal should indicate:

- 1) The sampling strategy, whether it is purposive (to study a relationship between variables), representative, or both.
- 2) How big the sample will be.
- 3) How sample will be selected.

(II). FOR QUALITATIVE STUDY

The proposal should indicate:

- 1) The sampling strategy.

TABLE 5.1 *Sampling strategies in qualitative inquiry*

Type of sampling	Purpose
Maximum variation	Documents diverse variations and identifies important common patterns
Homogeneous	Focuses, reduces, simplifies, facilitates group interviewing
Critical case	Permits logical generalization and maximum application of information to other cases
Theory based	Finding examples of a theoretical construct and thereby elaborating and examining it
Confirming and disconfirming cases	Elaborating initial analysis, seeking exceptions, looking for variation
Snowball or chain	Identifies cases of interest from people who know people who know what cases are information-rich

Extreme or deviant case	Learning from highly unusual manifestations of the phenomenon of interest
Typical case	Highlights what is normal or average
Intensity	Information-rich cases that manifest the phenomenon intensely, but not extremely
Politically important case	Attracts desired attention or avoids attracting undesired attention
Random purposeful	Adds credibility to sample when potential purposeful sample is too large
Stratified purposeful	Illustrates subgroups; facilitates comparisons
Criterion	All cases that meet some criterion; useful for quality assurance
Opportunistic	Following new leads; taking advantage of the unexpected
Combination or mixed	Triangulation, flexibility, meets multiple interests and needs
Convenience	Saves time, money and effort, but at the expense of information and credibility

Source: Miles and Huberman (1994: 28)

- 2) How big the sample will be.
- 3) How sample will be selected.

(d) Data Collection (Instruments)

QUANTITATIVE DATA

- from counting, scaling or both.

Instrument:

- Questionnaires.
- Standardized measuring instruments.
- Ad hoc rating scales.
- Observation schedules.

QUALITATIVE DATA

- Most likely to be words.
- Example: documents, diaries, journals, audio-visual materials, artifacts, etc.

Instrument:

- Questionnaires with open-ended questions.
- Interview.

(d) Data Collection (Procedures)

- Procedure is the actual process of data collection.

If tests or rating scales are to be used:

- How will they be administered?

Face-to-face, one-to-one, group administered,
by mail, by telephone, by internet

If interview are involved:

- Where will the interviews be conducted?

Office, home, somewhere else.

- When will they be done?

Working hours, outside working hours.

- How will the recording be done?

By taking notes, by reconstruction after the
interview, by tape recorder.

If observation is involved:

- Will it be overt or covert?
- How will you do it?
- How will observational data be recorded?

(d) Data Collection (Analysis)

- Quantitative data analysis involves statistics.
- Qualitative data analysis are now many different data analysis varieties and possibilities.

For the proposal, should indicate:

- What analytical techniques you propose to use.
- What computer programs (if any) will be used in the analysis.

Summary

Questions

- Will my study use quantitative methods and data, qualitative methods and data, or both?
- What strategy(ies) will my study use?
 - If the study is quantitative, which quantitative strategy is proposed?
 - If qualitative, which qualitative strategy is proposed?
 - If there is a combination of quantitative and qualitative approaches, what is the proposed mixture of strategies?
- Does my study have a conceptual framework?
 - Can this be shown in a diagram?
 - Is this an initial version, for modification as the study progresses?
 - Will my study develop a conceptual framework?
- Who or what will be studied?

- From whom will data be collected? Whether quantitative or qualitative:
 - What is the sample plan?
 - How big will the sample be (and why)?
 - How will sample units be selected?
- How will I collect the data?
 - If existing instruments are to be used, what is known about them?
 - If data collection instruments are to be developed, what steps will be followed?
 - If qualitative fieldwork is involved, what is the data collection plan?
 - What data collection procedures will be used?
- How will these procedures ensure that data of the best quality will be obtained?
- How will I obtain consent and access to the people, situations and/or information required for the research?
- What ethical issues are involved in the proposed data collection procedures and how will they be handled?
- How will I analyse my data?
 - What computer packages (if any) are involved?
