

Module II: Sampling and Research Design

8. Choosing the Appropriate Research Design - Exploratory, Descriptive, and Conclusive Research, Experimental Research Designs

Research Design

Meaning of Research Design: Research Design is the overall plan, structure, and strategy prepared for conducting research. It serves as a blueprint that guides the collection, measurement, and analysis of data.

It specifies:

- What information is needed
- From whom information will be collected
- How data will be collected
- How data will be analyzed

A well-designed research design increases the reliability and validity of research findings.

Example: A company studying customer satisfaction decides to survey 500 customers using questionnaires and analyze the responses statistically. This entire plan is the research design.

Choosing the Appropriate Research Design

Selecting the appropriate research design depends on:

Nature of Problem

Complex problems may require exploratory research, well-defined ones require descriptive/conclusive.

Research Objectives

The design should help achieve the objectives of the study.

Information Availability

Availability of existing information influences design selection.

Time and Cost

Some designs require more resources than others.

Required Accuracy

Higher accuracy often requires more structured designs.

Example: A researcher studying a completely new market trend may choose exploratory research, whereas testing customer satisfaction levels may require descriptive research.

Types of Research Design

Exploratory Research

Meaning: Conducted when the researcher has little knowledge about the problem and seeks preliminary understanding. Its purpose is to explore ideas, discover insights, and identify possible causes.

Objectives: Gain familiarity, generate ideas, identify variables, develop hypotheses, clarify concepts.

Characteristics: Flexible/unstructured, qualitative, small sample, focuses on understanding.

Methods Used: Literature review, Expert interviews, Focus groups, Observation.

Pros/Cons: Helps define problem, requires less cost. Findings may not be conclusive/generalizable.

Example: A company experiencing declining sales conducts interviews with customers to explore possible reasons.

Descriptive Research

Meaning: Describes characteristics of individuals, groups, situations, or phenomena. It answers questions such as: Who? What? When? Where? How?

Objectives: Describe characteristics, measure frequency, estimate proportions, determine associations.

Characteristics: Structured design, large sample size, quantitative, fact-finding approach.

Methods Used: Surveys, Observation, Questionnaires.

Pros/Cons: Provides detailed info, facilitates comparisons. Does not establish cause-and-effect.

Example: A survey measuring customer satisfaction levels among smartphone users.

Conclusive Research

Meaning: Conducted to test specific hypotheses and assist managerial decision-making. Provides reliable and precise information.

Objectives: Test hypotheses, evaluate relationships, support business decisions.

Characteristics: Formal/structured, quantitative, large sample, generalizable results.

Pros/Cons: Produces reliable findings. More expensive, requires careful planning.

Example: Studying whether customer satisfaction influences customer loyalty.

Experimental Research Designs

Meaning: Used to establish cause-and-effect relationships. The researcher manipulates one variable and observes its effect on another variable.

Basic Elements

- **Independent Variable:** Manipulated by researcher.
- **Dependent Variable:** Whose changes are observed.
- **Experimental Group:** Receives treatment.
- **Control Group:** Does not receive treatment.

Pros & Cons

- **Advantages:** Establishes causality, High control.
- **Limitations:** Expensive, Difficult to conduct in some situations.

Experimental Process

Independent Variable → Treatment Applied → Observation → Dependent Variable

Example: Testing whether a new advertisement increases product sales.

Comparison of Research Designs

Exploratory	Descriptive	Conclusive
Explores problems	Describes characteristics	Tests hypotheses
Flexible	Structured	Highly structured
Small samples	Larger samples	Large samples
Qualitative	Quantitative	Quantitative
Generates ideas	Provides information	Supports decisions

9. Qualities of a Good Research Design

A good research design ensures that research objectives are achieved accurately, efficiently, and economically. It minimizes bias and maximizes reliability.

Objectivity

Free from personal opinions and bias.

Reliability

Results consistent if study is repeated.

Validity

Accurately measures what it intends to.

Flexibility

Allows modifications when necessary.

Simplicity

Easy to understand and implement.

Economy

Minimizes cost and effort.

Accuracy

Research findings should be precise.

Control

External influences minimized.

Generalizability

Applies to the broader population.

Example: A well-designed customer survey provides accurate results while minimizing bias.

Importance of a Good Research Design

- Improves quality of findings
- Saves time and resources
- Enhances reliability
- Reduces research errors
- Facilitates effective analysis

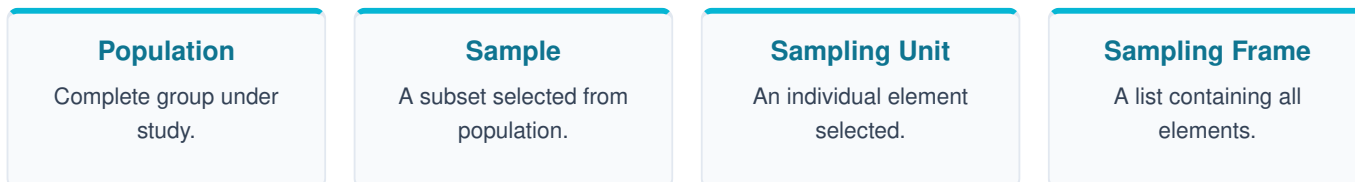
10. Sampling: Sampling Procedure

Sampling

Sampling is the process of selecting a subset of elements from a population to represent the entire population. Since studying the entire population is often impractical, researchers use samples.

Example: Selecting 500 customers from a customer base of 50,000.

Key Concepts in Sampling



Sampling Procedure



Advantages of Sampling

- Saves time and Reduces cost
- Easier administration
- Allows detailed study

Limitations of Sampling

- Possibility of sampling error
- Risk of bias
- Results depend on sample quality

11. Types of Sampling Techniques (Probability and Nonprobability)

Sampling techniques are methods used to select samples from a population. Classified into: Probability and Non-Probability.

Probability Sampling

Every member of the population has a known and non-zero chance of selection. **Characteristics:** Scientific, Less biased, Representative.

Simple Random Sampling

Every element has an equal chance.

Example: Lottery method.

Systematic Sampling

Every nth element is selected.

Example: Every 20th customer entering a store.

Stratified Sampling

Population is divided into strata; samples selected from each.

Example: Selecting students from each academic department.

Cluster Sampling

Population divided into clusters, selected clusters are studied.

Example: Selecting certain schools from a district.

Non-Probability Sampling

Selection depends on researcher judgment rather than random methods. **Characteristics:** Faster, Less costly, Greater risk of bias.

Convenience Sampling

Selection based on availability.

Example: Surveying people in a shopping mall.

Judgment Sampling

Researcher selects based on expertise.

Example: Interviewing senior managers.

Quota Sampling

Selection according to predetermined quotas.

Example: Equal numbers of males and females.

Snowball Sampling

Existing respondents help identify additional respondents.

Example: Research involving hidden populations.

Probability vs Non-Probability Sampling

Probability Sampling	Non-Probability Sampling
Random selection	Non-random selection
Less bias, More representative	More bias, Less representative
Suitable for statistical analysis	Suitable for exploratory studies
More expensive	Less expensive

12. Sample Size, Sampling Errors, Reliability and Validity in Research

Sample Size

Sample size refers to the number of elements included in the sample. A suitable size increases accuracy.

Factors Affecting Sample Size

- Population size
- Research objectives
- Desired accuracy
- Available budget & Time

Importance

- Improves representativeness
- Increases reliability
- Reduces sampling errors

Example: A survey of 500 customers generally provides more reliable results than a survey of 20 customers.

Sampling Errors

Sampling error is the difference between sample results and actual population characteristics. Occurs because only a portion is studied.

Causes

- Small sample size
- Poor sampling technique
- Non-representative sample

Methods to Reduce

- Increase sample size
- Use probability sampling
- Improve sampling procedures

Example: Surveying only urban consumers may not represent the views of rural consumers.

Reliability in Research

Reliability refers to the consistency and stability of research results. If repeated, it should produce similar results.

Methods of Assessing Reliability: Test-Retest Reliability, Split-Half Reliability, Internal Consistency.

Example: A questionnaire producing similar results when administered twice.

Validity in Research

Validity refers to the extent to which a research instrument measures what it is intended to measure.

Content Validity

Measures whether all relevant aspects are included.

Construct Validity

Measures whether the concept is accurately represented.

Criterion Validity

Measures how well findings correspond with external standards.

Importance: Improves accuracy, Enhances credibility, Ensures meaningful conclusions.

Example: A customer satisfaction questionnaire should measure customer satisfaction, not product quality alone.

Reliability vs Validity

Reliability	Validity
Consistency of results	Accuracy of measurement
Focuses on repeatability	Focuses on correctness
Can exist without validity	Usually requires reliability
Produces stable results	Produces meaningful results

Example: A clock that is always 10 minutes slow is reliable because it consistently shows the same error, but it is not valid because it does not show the correct time.

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