

Introduction to Research Methodology

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(A concise, structured guide for students and beginners)

1. What Is Research Methodology?

Aspect	Definition
Research	Systematic investigation aimed at generating new knowledge or solving a problem.
Methodology	The overall strategy, logic, and rationale that guides the selection and use of specific research methods.
Method	The concrete tools and techniques (e.g., surveys, experiments, interviews) used to collect and analyze data.

Key Idea: *Methodology = the “why” and “how” behind the choice of methods.*

2. Core Components of a Research Design

1. Research Problem / Question

- Clear, focused, and researchable.
- Often expressed as “What...?”, “Why...?”, or “How...?”

2. Literature Review

- Critical summary of existing knowledge.
- Identifies gaps, justifies the study, and frames hypotheses.

3. Theoretical Framework

- Set of concepts and propositions that anchor the study.
- Guides variable selection and interpretation.

4. Research Objectives / Hypotheses

- **Objectives:** Broad goals (e.g., “to assess...”)

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- **Hypotheses:** Testable statements (e.g., “H?: X positively affects Y”).

5. Research Strategy / Design

- **Qualitative, Quantitative, or Mixed?methods.**
- **Cross?sectional, Longitudinal, Experimental, Descriptive, etc.**

6. Sampling Plan

- **Population ? Sample**
- Techniques: probability (simple random, stratified) vs. non?probability (convenience, purposive).
- Sample size considerations (power analysis, saturation).

7. Data Collection Methods

- Instruments: questionnaires, interview guides, observation protocols, archival records.
- Mode: face?to?face, online, telephone, sensors.

8. Data Analysis Procedures

- **Quantitative:** descriptive stats, inferential tests (t?test, ANOVA, regression, SEM).
- **Qualitative:** coding, thematic analysis, content analysis, grounded theory.
- **Mixed:** integration of numeric and narrative results.

9. Validity & Reliability / Trustworthiness

- **Quantitative:** internal/external validity, reliability (Cronbach’s ?).
- **Qualitative:** credibility, transferability, dependability, confirmability.

10. Ethical Considerations

- Informed consent, anonymity, confidentiality, risk minimization, Institutional Review Board (IRB) approval.

11. Reporting & Dissemination

- Structure: Introduction, Methods, Results, Discussion, Conclusion.
- Formats: journal article, thesis, conference paper, policy brief.

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3. Types of Research Approaches

Approach	Purpose	Typical Methods	Example
Quantitative	Test hypotheses, measure relationships	Surveys, experiments, secondary data analysis	Survey of 1,000 consumers to test price elasticity
Qualitative	Explore meanings, develop theory	Interviews, focus groups, participant observation	Ethnographic study of workplace culture
Mixed? Methods	Combine strengths of both	Sequential explanatory, concurrent triangulation	Survey followed by focus groups to explain unexpected findings

4. Common Research Designs

Design	When to Use	Key Features
Descriptive	To describe characteristics of a population	Cross?section