

Understanding the Research Process

Understanding the Research Process

Key concepts, steps, and best practices for conducting solid scholarly or professional investigations.

1. What Is Research?

Aspect	Description
Definition	A systematic, organized effort to discover new knowledge, verify existing information, or solve a specific problem.
Purpose	• Generate new insights • Test theories or hypotheses • Inform policy, practice, or further study
Types	• Basic/Fundamental – expands theory • Applied – solves practical problems • Quantitative – numerical data & statistical analysis • Qualitative – non-numeric data (e.g., interviews, observations)
Ethical Core	Respect for participants, honesty in reporting, proper attribution, and data integrity.

2. The Research Process – Step-by-Step Overview

1. Identify a Research Problem

- Spot a gap, contradiction, or need in the literature or practice.
- Refine into a clear, answerable question (e.g., “What is the effect of X on Y?”).

2. Conduct a Literature Review

- Search databases, books, conference proceedings, gray literature.
- Summarize what is known, note methodological trends, and locate the gap your work will fill.
- Use a citation manager (Zotero, Mendeley, EndNote) to track sources.

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3. Formulate Objectives & Hypotheses

- **Objectives:** Broad goals (e.g., “Assess the relationship between...”)
- **Hypotheses** (if applicable): Testable statements (e.g., “H?: There is no difference...”)

4. Choose a Research Design

Design	When to Use	Key Features
Experimental	Causal inference, controlled settings	Random assignment, manipulation of independent variable
Quasi?experimental	Field settings where randomization is impossible	Comparison groups, pre?post measures
Descriptive / Survey	Mapping characteristics, attitudes	Structured questionnaires, cross?sectional or longitudinal
Case Study	In?depth exploration of a single unit	Multiple data sources, contextual analysis
Ethnography / Grounded Theory	Understanding cultural or social processes	Participant observation, iterative coding

5. Develop a Methodology

- **Population & Sample:** Define target group, sampling frame, sampling technique (probability vs. non?probability).
- **Data Collection Instruments:** Surveys, interview guides, sensors, archival records.
- **Procedures:** Step?by?step protocol for gathering data, including pilot testing.
- **Ethical Approval:** Submit to an Institutional Review Board (IRB) or equivalent.

6. Collect Data

- Follow the protocol meticulously.
- Keep a detailed **field log** (date, time, conditions, deviations).
- Ensure data security (encrypted storage, anonymization).

7. Analyze Data

- **Quantitative:** Descriptive stats ? inferential tests (t?test, ANOVA, regression, multilevel modeling). Use software such as R, SPSS, Stata, or Python.

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- **Qualitative:** Coding (open, axial, selective), thematic analysis, discourse analysis.
Tools: NVivo, ATLAS.ti, MAXQDA.
- **Mixed?Methods:** Integrate numeric and narrative findings (