Research Design

The Basics of Social Research
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Chapter Outline

- Three Purposes of Research
- The Logic of Nomothetic Explanation
- Necessary and Sufficient Causes
- Units of Analysis
- The Time Dimension
- How to Design a Research Project
- The Research Proposal
Introduction

According to Babbie what is scientific inquiry?

- Observation
- Interpretation

“The process by which scientists ask questions, develop and carry out investigations, make predictions, gather evidence, and propose explanations.” - NIH
Three Purposes of Research

According to Babbie, what are the three purposes of research?
Three Purposes of Research

1. Exploration
2. Description
3. Explanation
Three Purposes of Research

Two points Babbie does not mention, but which are purposes of research are

- Prediction and
- Control
Purpose of Exploratory Studies

What is the purpose of an exploratory study?
Purpose of Exploratory Studies

- To satisfy researchers’ curiosity and desire for better understanding.
- To test the feasibility of undertaking a more extensive study.
- To develop methods to be employed in a subsequent study.

What is the main drawback of an exploratory study?
Purpose of Exploratory Studies

Exploratory studies do not provide satisfactory answers to research questions, because the participants in the study may not be representative of the larger population you are trying to generalize about.
Criteria for Nomothetic Causality

1. **Correlation.** A statistical correlation between at least two variables.
2. **Time order.** The cause takes place before the effect.
3. **Nonspurious.** There is no third variable that can explain away the observed correlation as spurious.

What is an example that does **not** meet each criteria?
Criteria for Nomothetic Causality

Examples of unmet criteria:

- **Uncorrelated:** If equal percentages of Democrats and Republicans supported an issue, party affiliation could not be identified as a cause for supporting the issue.

- **Reversed time order:** A child’s religion is not generally the cause of the parents’ religion.

- **Spurious:** Ice cream sales do not cause death by drowning, although they may be correlated.
False Criteria for Nomothetic Causality

- Research can determine some causes, but it cannot determine complete causation.
- Exceptions do not disprove a causal relationship.
- Causal relationships can be true even if they don’t apply in a majority of cases.

What are necessary causes?
What are sufficient causes?
Necessary and Sufficient Causes

- Necessary cause - a condition that must be present for the effect to follow.
- Sufficient cause - condition that, if present, guarantees the effect will follow.
Necessary and Sufficient Causes

Necessary Cause

Male | Female
-----|-----

Sufficient Cause

Took Exam | Did Not Take
-------|-------
F      | F      | F      | F

PREGNANT

A | C | B | A
B | A | A
Units of Analysis

What are units of analysis?

Things we examine to create summary descriptions of all such units and to explain differences among them.

What are some examples?
Units of Analysis

What or whom to study:
- Individuals
- Groups
- Organizations
- Social artifacts

What is a social artifact?
What are some examples of them?
Social Artifact

Any product of a social beings or his or her behavior is a social artifact.

- A social artifact implies a set of all objects of the same kind: all children’s books, all biographies, all press conferences.
- Social interactions such as weddings, friendship choices, court cases, traffic accidents, and so on, are also social artifacts.

What is the ecological fallacy?
Units of Analysis and Faulty Reasoning

- **Ecological fallacy** – assuming something learned about an ecological unit says something about the individuals in that unit.

What’s an example of it?

- To assume younger voters tend to vote for female candidates, because precincts with younger voters gave female candidates a greater proportion of the vote.

What is misguided reductionism?
Units of Analysis and Faulty Reasoning

- **Misguided Reductionism** – Reducing something to a simple explanation when in reality it is complex.

What are cross-sectional studies?
The Time Dimension

- **Cross-sectional Studies**
  Observations of a sample or cross-section of a population or phenomena that are made at one point in time. (1980 U.S. Census)

What are longitudinal studies?
The Time Dimension

- **Longitudinal Studies**
  Observations of the same phenomenon over an extended period.

What would be an example?
- Field-research projects

What are trend studies?
Longitudinal Studies

- **Trend Studies**
  A type of longitudinal study that examines change within a population over time
For example?

What are cohort studies?
What are panel studies?
Longitudinal Studies

- **Cohort Study**
  Examines specific subpopulations, or cohorts, as they change over time.

- **Panel Study**
  Examines the same set of people each time (e.g., interviewing the same sample of voters every month during an election campaign).
The Research Process

- **Interest**
  - Conceptualization
  - Operationalization
  - Research Method
  - Observations
  - Data Processing
  - Analysis
  - Application, Dissemination

- **Idea**

- **Theory**
  - Population, Sampling
How to Design a Research Project

What are the steps involved in designing a research project?
How to Design a Research Project

1. Define the purpose of your project.
2. Specify exact meanings for the concepts you want to study.
3. Choose a research method.
4. Decide how to measure the results.
5. Decide whom or what to study.
6. Collect empirical data.
7. Process the data.
8. Analyze the data.
9. Report your findings.
Research Design in Review

What is triangulation?

- **Triangulation** – The use of several different research methods to test the same finding.

What are the elements of a research proposal?
Elements of a Research Proposal

1. Problem or objective
2. Literature review
3. Participants for study
4. Measurement
5. Data-collection methods
6. Analysis
7. Schedule
8. Budget