Research Methods in Psychology

Chapter 4:
Observation

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A fast review on the chapter 😊

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You should know that researchers cannot observe:

- All the behaviors of all people
- All the behaviors of a person

For this reason researchers observe:

- Samples of individuals
- Samples of behavior at particular times
- Samples of different settings and conditions
Goal of sampling
- Choosing a representative sample that reflects:
  - Behaviors of larger population
  - People of larger population
  - Settings and conditions of larger population

Example:
- How many hours of television did you watch last week?
  - These hours show how much you typically watch TV?
  - Is the average for the number of hours of TV watched by:
    - all students on university?
    - all students on college?
    - all people?

Use data from a sample to represent the population
- "Generalize" the findings from sample to population
- Sample must be similar to population

External validity
- Extent to which a study’s findings may be used to describe people, settings, conditions beyond those used in the study.
External validity depends on:
• How behavior is sampled. Look at the below methods:

Two methods
• Time sampling
• Situation sampling

Goal: obtain representative sample of behavior

Time Sampling
• Choose time intervals for making observations
  • Systematic (8:30, 10:30, 12:30)
  • Random (selecting few times randomly during a time period)

Don't use time sampling for observing behavior during rare events (e.g., hurricane)!!! because you will lose the beginning and end of an event!

Use Event sampling

Situation Sampling
• Choose different settings, circumstances, conditions to observe a behavior (e.g., animals behavior in zoo & jungle).

It improves external validity
Use subject sampling to observe only some individuals within a situation.
**Observational Methods**

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<th>Observation without Intervention</th>
<th>Observation with Intervention</th>
<th>Physical Traces</th>
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<td>- Observation in natural (real-world) setting</td>
<td>- No attempt to intervene or change situation</td>
<td>- Describe behavior as it normally occurs.</td>
<td>- Use when ethical considerations prevent experimental manipulation.</td>
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**Naturalistic Observation**
- Observation in natural (real-world) setting
- No attempt to intervene or change situation
- (Example, observing school students behaviors).

**Goals**
- Describe behavior as it normally occurs.
- Examine relationships among naturally occurring variables.
- Establish external validity of lab findings.
- Use when ethical considerations prevent experimental manipulation.

**Direct Observation without Intervention**

**Direct Observation with Intervention**

**Most psychological research follow direct observation.**

- Give us more control over observations.

**Three methods in natural settings**

1. Participant observation
   - Disguised > Participants do not know that they are under observation.
   - Undisguised > Participants know that they are under observation.

2. Structured observation
   - less control, less intervention than experimental research.
   - Example, Mother-child interactions.

3. Field experiment
Problem of reactivity
- People change their real behavior when they know they’re under observation.
- Goal: observe people’s usual behavior
- Avoid reactivity

Indirect Observational Methods
- These methods test evidence of past behavior.
  - Benefit > Non-reactive > people do not react toward them.
- Two types of methods
  - Physical traces
    - Use traces (natural or controlled) > E.g., Cigarettes, Clock settings, Chips color.
    - Products > E.g., paintings, music, tools.
  - Archival records:
    - Public and private documents describing activities of individuals, groups, institutions and governments.
    - Running records > continues and updated documents > school grades.
    - Episodic records > specific events in specific times > marrying document.

Indirect Measures
- potential problems in archival records
  1. Selective deposit > when some information is selected to be presented but other information no!
    - Example: self-image in Facebook profile.
  2. Selective survival > when some records or documents are missing or incomplete!
    - Example: family photo albums.
  3. Spurious relationships > when evidence indicate falsely that two or more variables are associated!
    - Example: Crime & ice cream.
- Solution > Seek converging evidence using multi-method approach.
Recording Behavior

- **Comprehensive record**
  - Video, audio recordings; written field notes

- **Select specific behaviors**
  - Checklists, ratings

Our method for recording behavior determines how results are measured, summarized, analyzed, reported.

Measurement Scales

- **Nominal**
  - Categorize behaviors, events. Example: gender.

- **Ordinal**
  - Rank-order. Example: educational degrees.

- **Interval**
  - Specify distance on a dimension. Example: intelligence.
    - Rating scales are treated as interval scales

- **Ratio**
  - Specify distance plus meaningful zero. Example: weight

Analysis of Observational Data

- **We choose a method for analysis depends on**
  - Goal of the study.
  - How data are recorded: Selected or comprehensive...
  - Measurement scale: nominal, ordinal, ....

- **Two types of analysis**
  - Qualitative: When we record comprehensive behaviors using archival records.
  - Quantitative: When we record selected behaviors using a measurement scale.
Qualitative Analysis

- Data reduction is the process of abstracting and summarizing behavioral data.
- Data reduction occurs when researchers verbally summarize information.
- Content analysis
  - Identify relevant source
  - Obtain representative sample from the source.
  - Code content using descriptive categories.

Content Analysis

- Coding: identify units of behavior using specific criteria.

Quantitative Analysis

- Is a statistical summary of observations.
- Descriptive statistics depend on measurement scale:
  - Nominal: relative frequency
  - Ordinal: rank percentages
  - Interval and ratio: mean, standard deviation

Inter-observer reliability

- Measure of agreement between observers
- Measurement scale is:
  - Nominal: percent agreement
  - Ordinal: Spearman rank-order correlation
  - Interval and Ratio: Pearson correlation
### Analysis of Observational Data

**Factors that affect inter-observer reliability**

- **Characteristics of the observers**
  - Bored, tired, amount of experience
  - Train observers and provide feedback
- **Clearly define events and behaviors to be observed**
  - Provide examples
  - Clear operational definitions

### Thinking Critically About Observational Research

**Problems in observational research**

- Influence of the observer on behavior
- Observer bias

**Influence of the Observer**

- **Reactivity:** people change their usual behavior when they know they're being observed.
- **Demand characteristics:** people pay attention to cues and information in the situation to guide their behavior.
Thinking Critically About Observational Research

- **Controlling reactivity**
  - Hiding observer
  - Disguised participant observation
  - Use indirect observation
  - Adapt participants to observer
    - Habituation
    - Desensitization
  - Limit the information of participants about study

  Reactivity is a potential problem in most psychological research.

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Thinking Critically About Observational Research

- **Ethical issues when controlling reactivity**
  - Privacy and informed consent
    - Observe people without their knowledge

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Thinking Critically About Observational Research

- **Observer bias**
  - Observers often have expectations about behavior.
    - Example: expectations based on research hypotheses.
  - Expectations can lead observers to look at only particular behaviors.
  - Observer bias: systematic errors in observation that result from expectations
    - Also called experimenter expectancy effects