Non-Experimental Designs

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PSY 6217 – Research Design

Observation – Quantifying Behavior

- Developing Behavioral Categories
- Counting frequencies of behavior
- Measuring duration of behavior
- Interval measures for behavior
  - Rare events – does the behavior occur in a given interval of time?
- Behavioral sequences
  - Developmental milestones

Sampling Methods for Behavioral Observations

- Time sampling
- Individual sampling
- Event sampling
- Recording behaviors from a permanent record
  - Video or audio tape
  - Advantages
    - Accuracy of measures
    - Detail of data recorded
    - Establishing reliability of observers
  - Disadvantages
Reliability of Observers

**Measures of Reliability**

- **percent agreement**
  - .875 for both examples
- **Cohen’s Kappa**
  - \( K = \frac{P_{o} - P_{c}}{1 - P_{c}} \)
  - Case 1: \( K = .383 \)
  - Case 2: \( K = .709 \)
- **correlation coefficients**
- **Cronbach’s alpha**
  - This procedure is useful when there are 3 or more judges

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Multiple Observers

- **Use for establishing reliability of observations**
- **How to use the data generated?**
  - Primary observer for data analysis – secondary observer for reliability assessment
  - Average values from each observer
  - Refine scores by resolving disagreements before data analysis

Sources of Observer Bias

- **Expectations of the observer**
  - Blind observation conditions
- **Record interpretations instead of objective observations**
  - Anthropomorphism in observation of animal behavior
Qualitative Observations

- Examples of qualitative data
  - Verbal descriptions of reactions
  - Narratives of experiences (e.g., journal entries)
- Data analysis
  - Extract common themes or elements
  - Develop frequency counts of the use of these themes

Naturalistic Observation

- Unobtrusive observations
  - Hidden observers
  - Habituate participants to observation
  - Indirect measures of behavior
    - Measure artifacts of behavior – physical traces left as a result of behavior
    - Accumulation measures
    - Erosion measures

Ethnography

- Participant observer studies
  - Overt observation
    - Guides & informants
    - Focus groups
  - Covert observers
    - Ethical issues
  - Problems of reactivity
    - Observer effects
    - Loss of observer objectivity
### Other Techniques

- **Sociometry**
- **Case History**
- **Archival Research**
  - Consider how records are created in the archive
- **Content Analysis**
  - How will information be acquired for study?
  - How will content be defined and measured?
  - Control of reactivity & reliability of measures

### Meta-Analysis

- **Quantitative approach to a literature review**
- **Identification of variables to examine**
  - Research domain must have some common measures across studies
  - Consider similarities of methods used in studies compared
- **Locate relevant literature**
  - Problem of inability to access null results that never get published
  - Variability in the editorial review of different journals

### Meta-Analysis

- **Meta-analysis**
  - Compare the results of studies
    - Significance levels attained
    - Effect sizes reported
  - Combine studies with similar methodologies
    - Average effect sizes
    - Significance testing with combined samples
- **Difficulty of combining studies with slightly different methodologies**
- **Weighing the quality of different studies**