

Non-Experimental Designs

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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

- ♦ $K = P_o - P_c / (1 - P_c)$
- ♦ Case 1: $K = .383$
- ♦ Case 2: $K = .709$

☞ correlation coefficients

☞ Cronbach's alpha

- ♦ This procedure is useful when there are 3 or more judges

		Judge 1		
		Smile	Frown	
Judge 2	Smile	33	4	37
	Frown	1	2	3
		34	6	40

		Judge 1		
		Smile	Frown	
Judge 2	Smile	25	3	28
	Frown	2	10	12
		27	13	40

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
