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Methods Outline
LPP Comp Preparation

- 1) Research Strategy
 - a) Cross-section
 - b) Time series
 - c) Case-control
 - d) Panel

- 2) Research Design
 - a) Experiments
 - i) Random assignment
 - ii) Manipulation
 - iii) Matching
 - iv) Balance and confounding
 - v) Lab or field
 - b) Quasi-experiments
 - i) No randomization
 - ii) Manipulation (active or passive)
 - iii) Comparison groups
 - iv) Temporal comparison
 - c) Correlational (non-experimental) study
 - i) Statistical control
 - d) Design validity
 - i) Internal validity
 - (1) History
 - (2) Maturation
 - (3) Testing
 - (4) Instrumentation
 - (5) Statistical regression
 - (6) Selection
 - (7) Research mortality
 - (8) Interactions w/ selection
 - ii) External validity
 - (1) Reactive effects of testing
 - (2) Interaction effect of selection bias and the intervention.
 - (3) Reactive effects of treatment arrangements
 - (4) Multiple treatment interference

- 3) Sampling
 - a) Sampling frame
 - i) Physical v. Virtual
 - b) Yield issues

- c) Non-probability sampling
 - i) Accidental sample
 - ii) Quota sample
 - iii) Purposive/Judgmental sample
 - iv) Snowball sample
 - d) Probability sampling
 - i) Simple random sample
 - ii) Systematic random sample
 - iii) Stratified random sampling
 - (1) Proportionate stratified sampling
 - (2) Disproportionate stratified sampling
 - iv) Multi-stage sampling
 - (a) Probability proportionate to size (PPS)
- 4) Measurement
- a) Unit of observation
 - i) Aggregation bias
 - b) Levels of measurement
 - i) Nominal
 - ii) Ordinal
 - iii) Interval/ratio
 - (1) Equal-appearing ordinal
 - c) Constructs
 - i) Operational definitions
 - ii) Indicators
 - d) Scales
 - i) Likert
 - ii) Thurstone, Guttman, Multi-dimensional
 - e) Indexes
 - i) Unweighted
 - ii) Weighted
 - f) Reliability
 - i) Equivalence
 - (1) Parallel forms
 - (2) Split half
 - (3) Inter-rater
 - (4) Item analysis
 - (a) Cronbach's alpha
 - ii) Stability
 - (1) Test-retest
 - g) Validity
 - i) Face validity
 - ii) Content validity
 - iii) Criterion validity
 - (1) Concurrent validity
 - (2) Predictive validity

- iv) Construct validity
 - (1) Convergent validity
 - (2) Discriminant validity
- 5) Data collection
 - a) Observation
 - i) Unstructured
 - ii) Structured
 - b) Non-reactive (unobtrusive) measures
 - c) Surveys
 - i) Interviews
 - (1) Face-to-face
 - (2) Computer-assisted
 - (3) Telephone
 - (a) Random digit dialing (RDD)
 - ii) Questionnaires
 - (1) Mailed
 - (2) Group administered
 - (3) Internet-based
 - iii) Anonymity and confidentiality
 - iv) Question content
 - (1) Open v. closed-ended questions
 - (2) Double-barreled questions
 - (3) Leading questions
 - d) Content analysis
- 6) Errors in data
 - a) Sampling error
 - i) Random
 - b) Non-sampling error
 - i) Selection bias
 - ii) Non-response
 - c) Response error
 - i) Random
 - (1) Memory
 - (2) Telescoping
 - ii) Non-random
 - (1) Concealment
 - (2) Sensitive questions
 - (3) Non-response bias
 - (4) Social desirability effect
 - (5) Interviewer effects
 - d) Response sets
 - i) Halo effect
- 7) Analytic issues

- a) Categorical v. scale variables
- b) Characteristics of distributions
 - i) Central tendency
 - ii) Dispersion
 - iii) Skewness
 - iv) Kurtosis
- c) Parameters v. statistics
- d) Estimation
 - i) Point estimate
 - (1) Accuracy (bias)
 - ii) Interval estimate
 - (1) Precision (reliability)
 - (2) Standard error
- e) Testing
 - i) Parametric v. Non-parametric approaches
 - ii) Testing differences v. testing associations
 - iii) Null and research hypotheses
 - iv) Type I and Type II error
 - v) Statistical Power
 - vi) Sample size selection
 - vii) Statistical significance v. effect size
- f) Causality
 - i) Establishing association
 - (1) Necessary v. sufficient conditions
 - ii) Temporal order
 - (1) Lagged effects
 - iii) Spuriousness
 - iv) Direct v. indirect causes
- g) Additive effects v. Interaction
- h) Some pitfalls
- i) Lack of variability
 - i) Multicollinearity
 - ii) Aggregation bias (ecological fallacy)
 - iii) Attenuation
 - (1) Correction for attenuation
 - iv) Missing data
 - (1) Missing completely at random (MCAR)
 - (2) Missing at random (MAR)
 - (3) Non missing at random (NMAR)