Research Strategies and Methods

Research Basics: Learning Outcomes

1. Research Overview
   1. Identify steps in the research process.
   2. Differentiate between research strategies, designs, and methods.
   3. Differentiate between research strategies (e.g. descriptive, correlational, quasi-experimental, experimental).
   4. Interpret correlational coefficients.
   5. Explain why researchers must be caution about making causal claims with correlational data.
   6. Identify key variables (i.e., independent variables, dependent variables, predictor variables, criterion/outcome variables, quasi-independent variables, confound variables, and incidental variables) in research studies.
   7. Distinguish between levels and conditions for independent variables.
   8. Explain how researchers are able to make causal claims in experimental research that cannot be made in correlational research.
2. Internal and External Validity
   1. Distinguish between internal and external validity.
   2. Differentiate between the threats to internal validity (i.e., assignment bias, history, maturation, testing effects, instrumentation, statistical regression, experimenter bias, and experimental mortality, etc.)
   3. Differentiate between the threats to external validity related to generalizing across participants (e.g., selection bias, college samples, voluntary bias, participant characteristics, and cross-generalizations), generalizing across the features of a study (e.g., novelty effect), and generalizing across the features of measures (e.g., sensitization).
   4. Compare reactivity and demand characteristics. Explain how these threats can be reduced.
3. Defining and Measuring Variables
   1. Define a variable
   2. Explain what a hypothetical construct is and give several examples.
   3. Differentiate between conceptual and operational definition. Generate examples of both.
   4. Identify characteristics of a quality operational definition.
   5. Compare and contrast quantitative and qualitative measurements.
   6. Explain the four types of measurement (e.g., self-report, behavioral) and generate examples of each.
   7. Distinguish between scales/levels of measurement (i.e., nominal, ordinal, interval, and ratio scales) and generate examples of each.
   8. Define and differentiate between reliability and validity. Describe the relationship between them.
   9. Identify sources of error (e.g., environmental, testing) that may influence reliability.
   10. Describe the methods used to assess reliability (i.e., test/retest, parallel/alternative forms, internal consistency/split-half, interrater/interjudge reliability).
   11. Describe the methods of assessing validity (i.e., face, content, criterion/concurrent, criterion/predictive, discriminant). Be able to apply these terms.
4. Sampling Participants
   1. Explain the relationship between a population and a sample.
   2. Differentiate between non-probability and probability samples. Explain how representativeness and sample size relate to each.
   3. Differentiate between the following sampling methods and provide examples of each: simple random, systematic random, stratified random, proportionate stratified, cluster, multi-stage, convenience, quota, and snowball sampling.