Research Methodology Measurement Comprehensive Exam Study Guide

References


Outline

- GENERAL CHARACTERISTICS OF TESTS
  - measurement, testing, evaluation
  - objectivity of scoring
  - standardization
  - verbal vs. performance tests
  - power vs. speed tests
  - norm-referencing vs. criterion-referencing
  - attitude scale development
- NORM-REFERENCING
  - percentile ranks
  - linear standard scores
  - grade-equivalent scores
  - norm development procedures
  - types of norm groups
  - interpreting scores using norms
  - limitations of norm-referencing
- CRITERION-REFERENCING
  - concept of criterion-referencing
  - uses of criterion-referenced tests
  - methods for setting passing score
- RELIABILITY
  - true, error, and observed scores
  - sources/types of error in scores
  - reliability coefficients and ways to estimate them
  - factors that increase/decrease reliability
  - interpreting reliability data
  - meaning of, ways of estimating, and interpreting the standard error of measurement
• VALIDITY
  o meaning, use, and interpretation of different types of validity evidence
  o factors, such as, measurement error, speed and restriction in range, that affect validity and correlation coefficients
  o standard error of estimate
  o multiple regression and multiple cutoff procedures for prediction and selection
  o validity and test bias
  o ethical procedures for coaching students for tests

• MEASURING ACHIEVEMENT
  o taxonomies of cognitive educational objectives
  o nature, purpose, and creation of a test blueprint
  o characteristics of various types of test items
  o skills/abilities tested by various item types
  o rules for writing/scoring various item types
  o editing/revising items containing flaws
  o factors to consider when selecting tests
  o ethical issues (privacy, confidentiality, informed consent, coaching)

• MEASURING COGNITIVE ABILITY
  o major tests of general mental ability (such as SB, WISC/WAIS, KABC, SOMPA)
  o factor theories of cognitive ability organization, such as, "g", primary mental abilities, and hierarchical organization
  o measuring general and specific aptitudes
  o mental vs. chronological ages
  o verbal vs. performance IQ scores

• FACTOR ANALYSIS AS USED IN MEASUREMENT
  o classical factor analysis model
  o meaning of factor loading
  o general, group, common, and specific factors
  o interpretation of factor analysis results in tabular form
  o correlational patterns and their implied factor structures

• SELECTING, EVALUATING AND USING PUBLISHED TESTS
  o test specifications/blueprint
  o test manual(s)
  o sources of test reviews
  o test publishers' catalogues
  o Standards for Educational and Psychological Tests

• USING ITEM DATA TO IMPROVE TESTS
  o using item analysis to revise test items
  o using item data to estimate final test characteristics, such as, mean, standard deviation, reliability
- meaning and interpretation of traditional item statistics, such as, difficulty index, discrimination index, and distractor analyses
- using item statistics, such as, item-objective congruence pretest-posttest change index for judging the instructional validity of test questions