

Psychometric Concepts and Analyses, Learning Objectives

Purpose of Certification Assessments

- Describe the role of scores on assessments as a basis for making inferences
- Describe the central purpose of a certification assessment
- Identify the source for standards that apply to assessments generally and certification assessment in particular

Item Analysis

- Describe the purpose for conducting classical item analysis studies
- Identify the impact of sampling variability on item analysis studies
- Evaluate item difficulty using general rules of thumb
- Evaluate item discrimination using general rules of thumb
- Evaluate distractor effectiveness using general rules of thumb
- Describe how item analysis information is used to revise questions

Item Response Theory

- Describe the key difference between ordinal and interval scales
- Describe the reasoning behind the requirement that items be independent
- Evaluate item difficulty
- Evaluate item discrimination

Reliability

- Describe the difference between consistency and precision
- Explain how the purpose of an assessment determines the type of reliability that pertains
- Evaluate various internal consistency reliability estimates using generally accepted thresholds
- Describe what information is conveyed by repeated measures reliability
- Describe what information is conveyed by interrater reliability
- Describe what information is conveyed by generalizability analysis
- Describe what information is conveyed by decision consistency reliability

Scoring and Equating

- List the major steps in scoring a certification assessment
- Define the term *raw score* and describe how it is determined
- Define the term *equating* and the major approaches to equating (e.g., anchoring, linking)
- Define the term *scaling* and list key benefits for scaling
- List the major consideration in the design of a scoring system that is consistent with the nature and use of an assessment
- Describe basic classical and IRT-based approaches to ensuring the equivalence of forms
- Describe the essential elements of a score report that is consistent with the nature and intended use of scores (principles of fairness)
- Describe general practices pertaining to the retention of scoring and related records

Standard Setting

- Define the difference between norm referencing and criterion referencing
- Describe the concept of minimally acceptable level of knowledge and/or skill
- List the major criterion-referenced methods for standard setting
- List the major steps in planning for the standard setting study
- Describe the principal considerations in the selection of a standard setting method that is consistent with the purpose of the assessment (e.g., Angoff, Bookmark)

Public Information

- Describe an appropriate public relations program for a certification assessment
- List the most helpful descriptive statistics about the assessment as a measurement tool
- List the most helpful descriptive statistics about candidate performance