Reliability, Validity, and other qualities

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Definition of Reliability

- **Validity** refers to the degree the tool measures what it intends to measure

- **Reliability** represents the consistency of the measures obtained .It is concerned with the characteristics as dependability, consistency ,accuracy and comparability .

Degree of reliability

- Dependability exists in degree and is usually expressed in correlation coefficient and is expressed with 1.00 (one)as indicating perfect reliability and .00 (zero) as no reliabilty

- 0.80 correlation is considered as acceptable for a well developed tool whereas 0.70 is considered acceptable for a newly developed tool

Reliability - Types

- Coefficient of Internal consistency
- Coefficient of stability
- Coefficient of equivalence

Garrett describes methods of determining reliability as

- test-retest (repetition)
- Alternate or parallel forms
- Split half techniques and
- Rational equivalence

Internal consistency

- Coefficient of internal consistency is computed by split half technique or Kuder-Richardson formula. If we use split half technique ,both rank order or product moment methods could be used to compute correlation- r ,and Spearman- Brown prophecy formula is to be used for estimating reliability of the whole test from two comparable halves of a test

Use of Kuder-Richardson formula

- The calculation of Test of Reliability Coefficient is based upon the Method of Rational Equivalence (inter- correlation of items). Here the test is to be administered once and each item should have same score and assumes equal item difficulty

Coefficient of Stability

- This is obtained by test-retest method. Sufficient time interval is to be given between first and second test – not too short or too long

- Both rank order and product moment method could be used

Test of Equivalence/ Alternate or parallel form

- Results of two alternate tests are used – e.g. one standardized test on stress measurement and another newly made to find the reliability of the new test

- Two equivalent forms of test could be used for estimating reliability

- Computation of r by product moment method could be used

Types of Validity

- The first and foremost question to be asked with respect to any testing procedure is : How valid is it?

- Types of evidence of Validity:

-Content validity

-Criterion- related validity

-Construct validity

Content Validity

- The test is constructed based on the course content, objectives, test content
- Analysis is essentially a rational judgment – this is some times spoken as rational or logical validity.
- **It refers to the faithfulness with which the test represents or reproduces an area of Knowledge.**
- A criteria check list is prepared and is validated by experts.

Criterion related Validity- Concurrent and Predicted

- Four qualities desired in a Criterion measure:
1. Relevance
2. Freedom from bias
3. Reliability
4. Availability

Refers to the accuracy with which the test scores

make it possible to predict some criterion variable of educational, job or life performance

Construct Validity

- This answers "What does this test   mean or signify?" Does it correspond to some meaningful trait or construct?

- **Refers to the accuracy with which the test describes an individual in terms of some psychological trait or construct**

Practicability

- Practicability is concerned with wide range of factors of economy (Cost, time saving, ease in scoring), convenience in administration, and interpretability(easy to score) that determines whether the test is practical for widespread use.

Guide for evaluating a test

- Should have general identifying information- What is the name of the test. Who is the author, who is the publisher, what is the cost, how long does it take to administer?

- Information about the test – on whom is the test standardized? Is there a test manual? When is the test revised? What are the test norms?

- Aids to interpreting test result – does the manual guide in scoring and interpreting the data?