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PROGRAMME: MASTER OF EDUCATION (M.Ed)

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Unit II Research Design

(Tools and Techniques of Research)

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Reliability

Action without vision
    is only passing time,
Vision without action
    is merely day dreaming
But vision with action
    can change the world

Nelson Mandela

Reliability

Meaning

❖ Reliability in terms of dependability, trustworthiness or

having a high degree of confidence in objects

❖ Stability and consistency of assessment results

❖ Characteristics of scores or assessment results not test

themselves.

❖ Precision or accuracy of the scores

Definition

AERA *et al.,* It is a user who must responsibility for determining whether or not scores are sufficiently to justify anticipated uses and interpretation.

Rosenthal, It is a major concern when a psychological test is used to measure some attribute or behaviour.

Cond/-

Anastasi, it defined as the consistency of scores obtained by the same individuals when re-examined with test on different occasion or with different sets of equivalent items or under other variable examining conditions.

Types of Reliability

★ Test-retest Reliability

★ Alternate-form Reliability

★ Internal-consistency Reliability

★ Split-Half Reliability

★ Inter-Rater Reliability

Test-Retest Reliability

● Probably the most obvious way to estimate the reliability of a test is to administer the same test to the same group of individuals on two different occasions.

○ Single form of a test is administered twice on the sample with reasonable time gap.

○ Two independent scores arrive

○ It is sensitive to measurement error due to time sampling and is an index of the stability of scores over time.

Example

"Researcher could administer 25 items mathematics test one week after the initial administration and then correlate the scores obtained on two administrations".

Alternate-Form Reliability

△ It involves the development of two equivalent or parallel forms of the test.

△ Content, difficulty index & other relevant characteristics

△ Same group of individuals

△ Calculated between the scores on the two assessment

△ Two different Scales were used

△ Various names such as Parallel-form reliability, Equivalent- form reliability, Comparable- form reliability.

Example

❖ Simultaneous administrations and is obtained when the two forms of the test are administrations and is obtained when the two forms of the test are administered on the same occasion.

❖ 25 item mathematics test, the teacher could develop a parallel test containing 25 new problems involving the multiplication of double digits.

Internal-consistency Reliability

"It estimates primarily reflect error related to content sampling. These estimates are based on the relationship between items within a test and are derived from single administration of the test".

Split-Half Reliability

❖ It involves administering a test and then dividing the test into two equal halves that are scored independently

❖ Measure Internal Consistency

❖ Homogeneity of the test

❖ Common approach is to use an odd-even split. All "odd" numbered items go into one half and all "even" numbered items go into the other half.

❖ It use Spearman-Brown formula or Kuder-Richardson formula

Inter-Rater Reliability

"If the scoring of an assessment relies on subjective judgment, it is important to evaluate the degree of agreement when different individuals score the test".

How to improve Reliability

➡ Increase the number of items in a test

➡ Maximize true score variance and minimize error

variance

➡ Item should be homogenous

➡ Ability or trait being measured

➡ Test should preferably be a longer one

Factors influencing Reliability

Exact time interval to be given

Length of test

Difficulty of the test

Conditions of the test

Thank you for watching