

M.A(Education)-Semester II

Paper Name- Measurement and Evaluation
Unit -IV
Topic- Reliability and its types

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What is Reliability

Meaning of Reliability- Reliability means Consistency, A measure is considered reliable if it would give us the same result over and over again.

Definition of Reliability- *According to the Anastasi and Ubrina (1982)“Reliability refers to the consistency of scores obtained by the same persons when they are re-examined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions”.*

Types of Reliability

There are two type of reliability

- Internal reliability
- External reliability

Internal reliability- *Internal reliability assesses the consistency of results across items within a test.*

External reliability- *External reliability refers to the extent to which a measure varies from one use to another.*

Assessment of Reliability

Reliability assessed in FOUR forms-

- ❑ Test-retest reliability
- ❑ Split-Half reliability
- ❑ Alternate-form reliability
- ❑ Internal consistency reliability

Test -retest reliability - This type of Reliability is estimated by the Pearson product - moment coefficient of correlations between two administrations of the same inventory.

Estimation is based on the correlation between scores of two or more administrations of the same inventory.

- ❑ Most common form in surveys.
- ❑ Difference between days on both test is 14 days.
- ❑ Same respondents complete a survey at two different points in time.
- ❑ Usually quantified with a correlation coefficient (r value) value.
- ❑ r values are considered good if $r \geq 0.70$.

Measures the consistency of results of two parallel forms of same test constructed in the same way.

Parallel-Forms Reliability :

- ▶ Use differently worded forms to measure the same attribute.
- ▶ Questions or responses are reworded or their order is changed.
- ▶ To produce two items that are similar but not identical.

Split-Half Reliability : Split-Half Reliability is a useful measure when impractical or undesirable to assess reliability with two tests or to have two test administrations.

- ▶ The most commonly used way to do this would be to assign odd numbered items to one half of the test and even numbered items to the other, this is called, Odd-Even reliability.
- ▶ Find the Correlation between both with the help of “Pearson” r (Correlation) formula.

Internal consistency reliability-Internal consistency is a method of **reliability** in which we judge how well the items on a test that are proposed to measure the same construct produce similar results. ... If all items on a test measure the same construct or idea, then the test has **internal consistency reliability**

- ▶ Applied to groups of items that are thought to measure different aspects of the same concept.
- ▶ Cronbach coefficient alpha Measures internal consistency reliability.
- ▶ It is a reflection of how well the different items complement each.
- ▶ Interpret like a correlation coefficient (≥ 0.70 is good).
- ▶ If internal consistency is low:
 - i. You can add more items
 - ii. Re-examine existing items for clarity

Type of Reliability	What it is	How do you establish it?	What the Reliability Coefficient looks like
Test-Retest Reliability	A measure of stability	Administer the same test/measure at two different times to the same group of participants	r between form 1 and form 2
Parallel Forms Reliability	A measure of equivalence	Administer two different forms of the same test to the same group of participants	r between form 1 and form 2
Inter-Rater Reliability	A measure of agreement	Have two raters, rate behaviors and determine the amount of agreement between them	% of agreement
Internal Consistency Reliability	A measure of how consistently each item measures the same underlying construct	Correlate performance on each item with overall performance across participants	Cronbach alpha

❑ Factors Affecting Reliability of the test -

Intrinsic Factors:

- ❖ Length of the test.
- ❖ Homogeneity of the Items.
- ❖ Difficulty Value of the Items.
- ❖ Discrimination Value of Items.
- ❖ Test Instructions.
- ❖ Selection of Items.
- ❖ Reliability of the score.

Extrinsic Factors

- ❖ Group Variability.
- ❖ Environmental Conditions.
- ❖ Momentary fluctuations.
- ❖ Guessing and Chance Error.

References -

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Thank You