

Lecture 16: Measurement

Monday, October 23, 2023

Your Teaching Fellows:

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Lectures: MWF 12:00 PM – 1:00 PM (003); 1:00 PM – 2:00 PM (004); 2:00 PM – 3:00 PM (010)

Office hours: Tuesdays 2:00 PM – 4:00 PM

When constructing a measure

Reliability

Does it measure the construct with little error?
Is it a stable measure?

Construct Validity

Are we measuring what we think we're measuring?

Internal Validity

Can we infer causality?

External Validity

Can we generalize our findings beyond this group & setting?

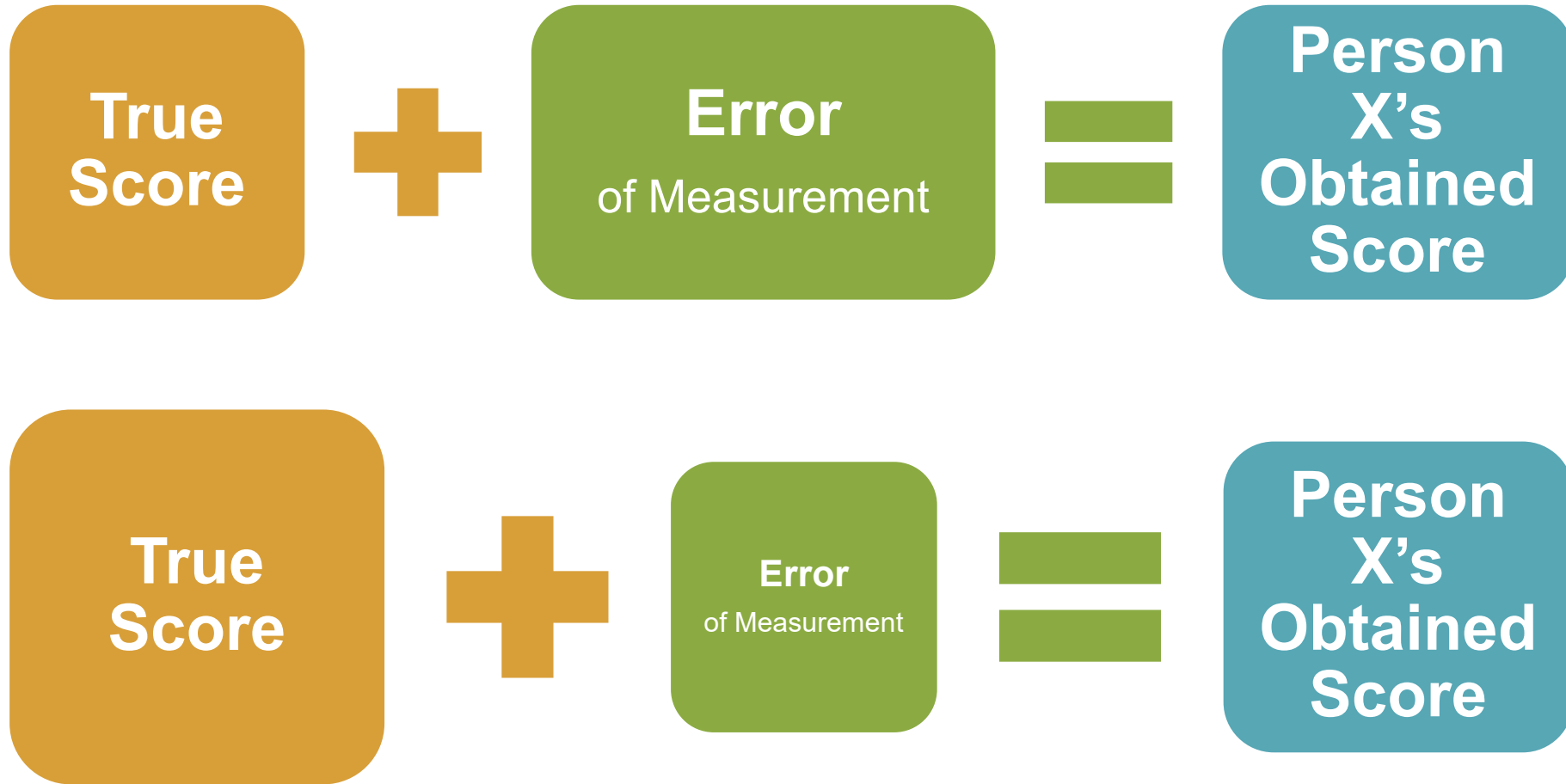
Reliability

Test-retest reliability

Inter-rater reliability

Internal consistency reliability

Reliability



Reliability



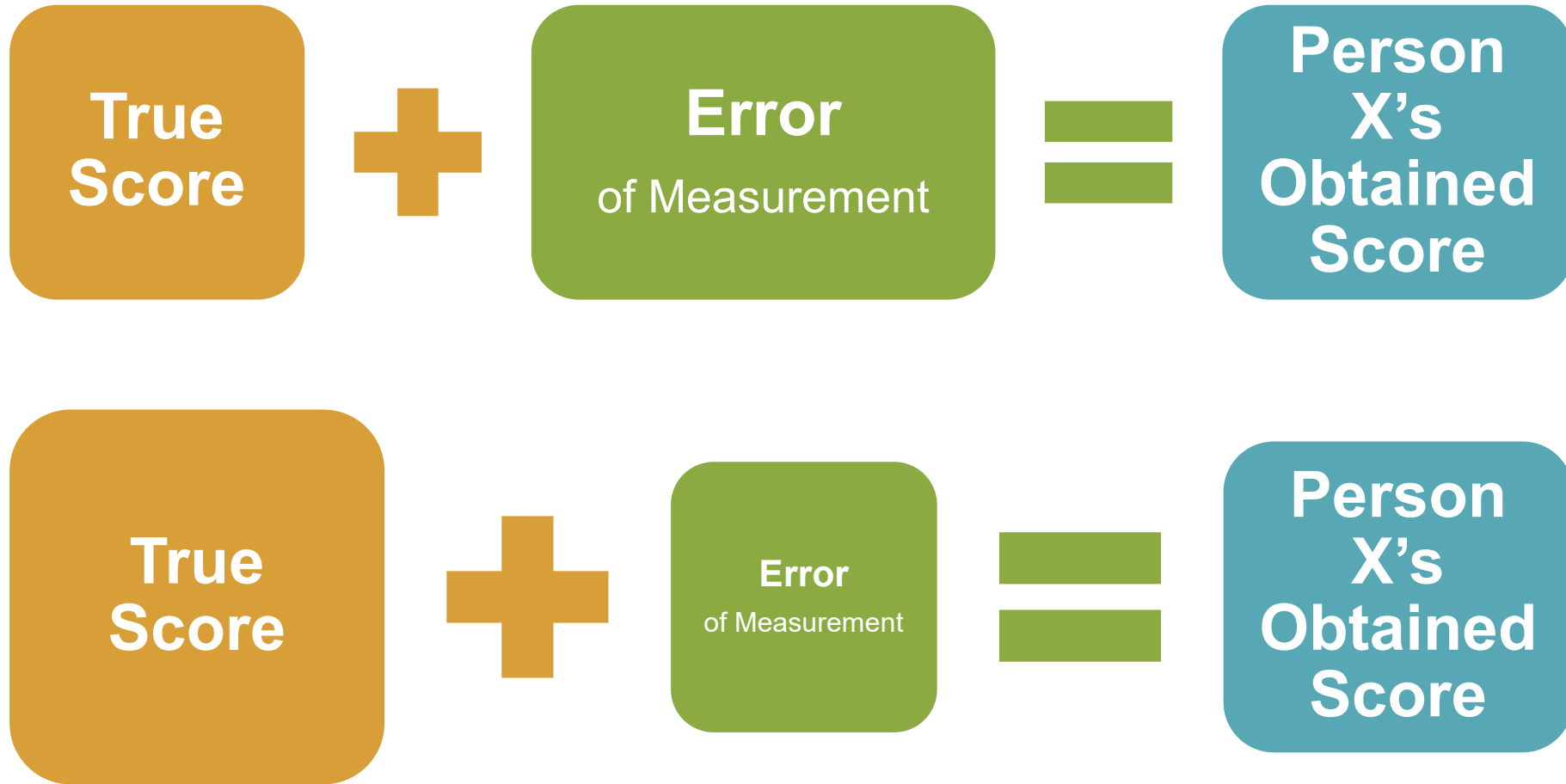
How funny does this guy look?

1 = Not funny at all

n = 100

5 = very funny

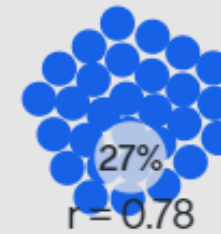
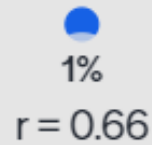
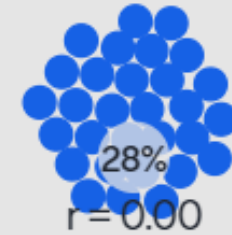
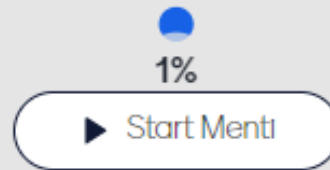
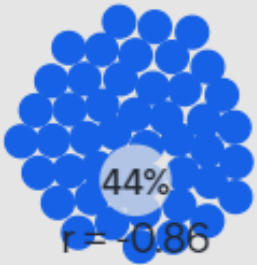
Reliability



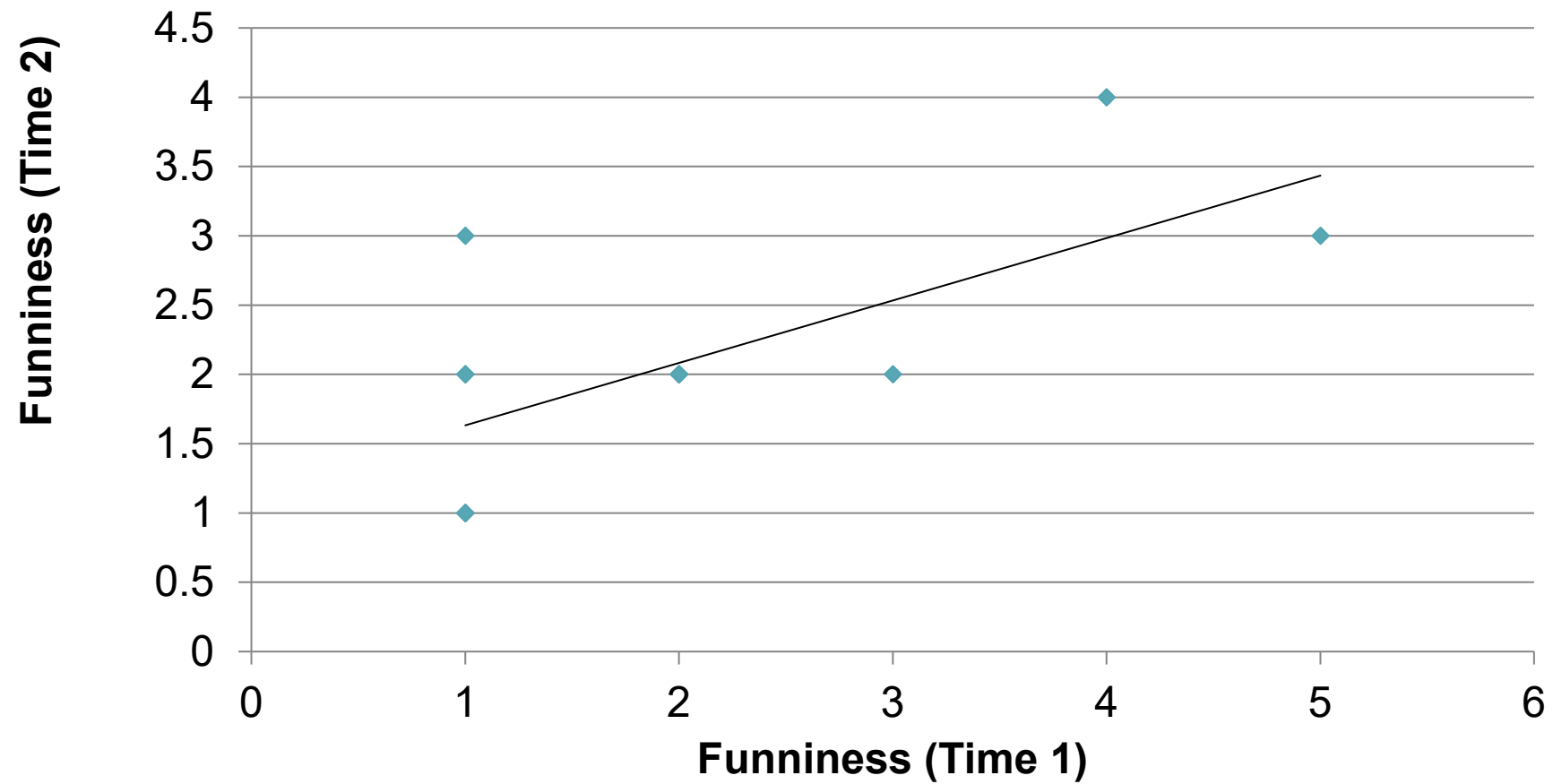
Reliability

- Test-retest reliability – How would we assess this?
 - Evaluated using the Pearson correlation coefficient

Which of the following indicates the best test-retest reliability?

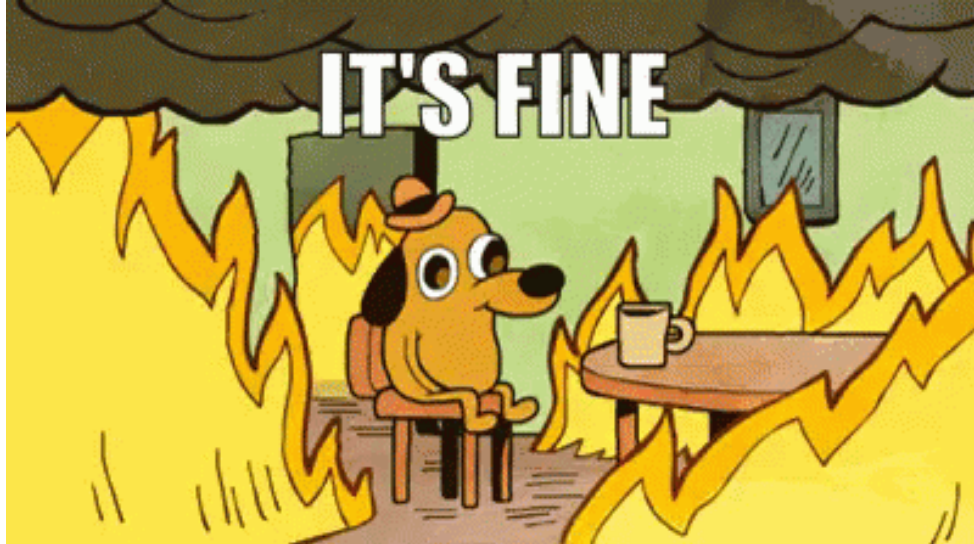


Reliability



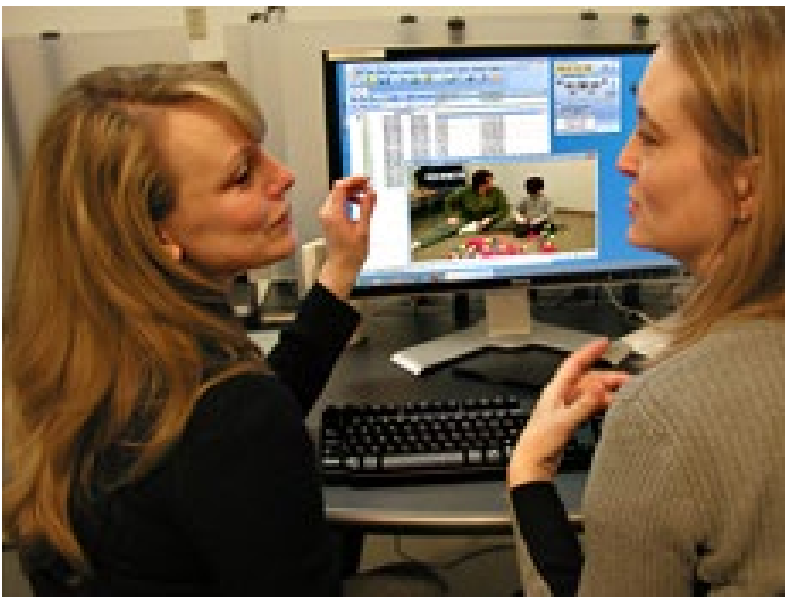
Reliability

- Inter-rater reliability
 - Evaluated by Intraclass correlation coefficient (ICC), amongst others

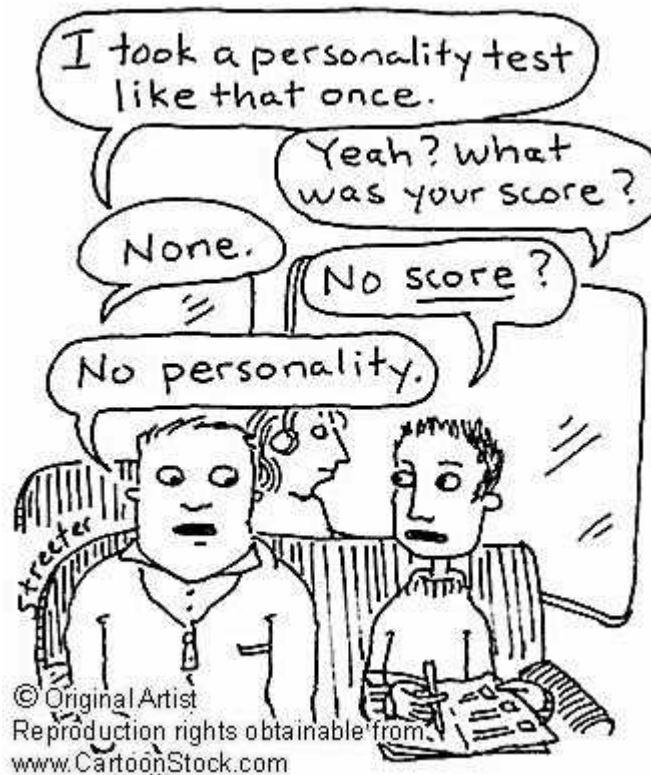


Reliability

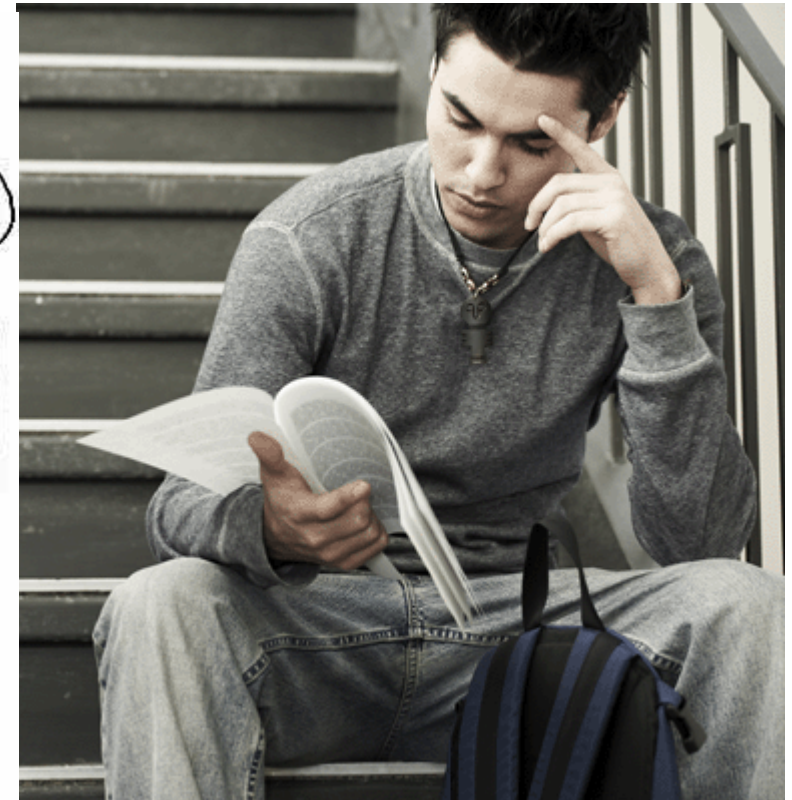
- Other uses of inter-rater reliability



Behavioural coding



Personality Measures



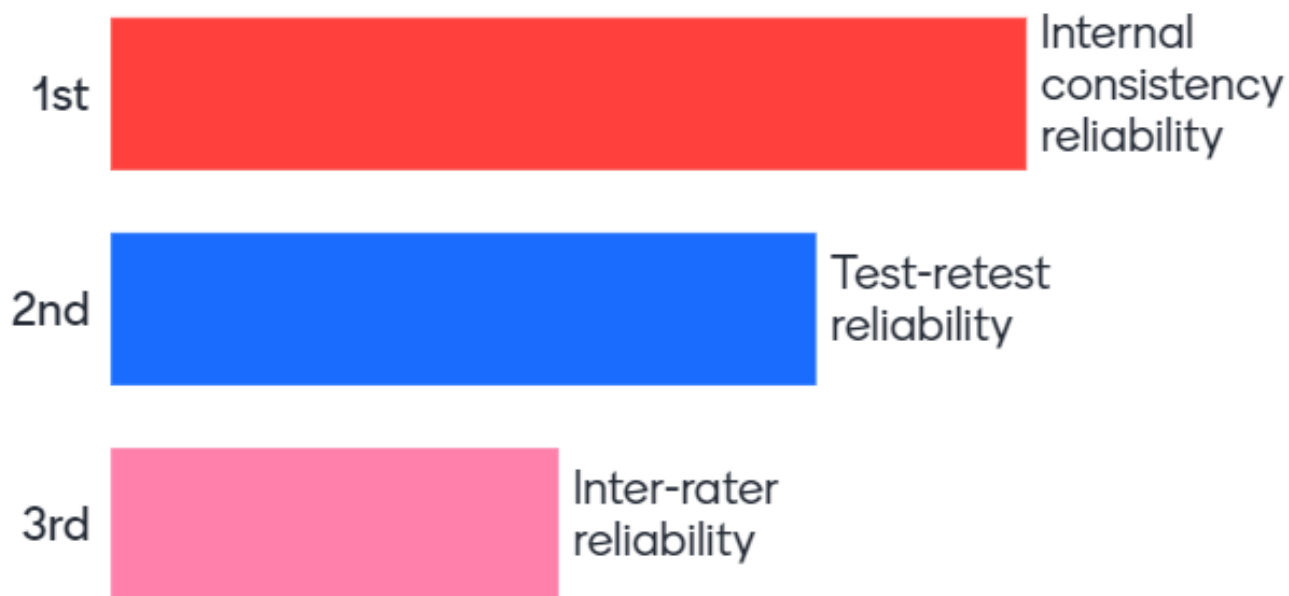
Thematic/Content coding

Reliability

- Internal consistency reliability
 - Evaluated using inter-item correlations
 - Evaluated using Cronbach's alpha (α) (combining inter-item correlations)
 - Scores similar across different questions?
 - Evaluated using Item-total correlation



Place the following types of reliabilities so the rank corresponds to answers to these questions in order:



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External Validity

Can we generalize our findings beyond this group & setting?

Construct validity

Construct Validity

Does content of measure reflect the meaning of the construct?

How does this measure relate to other measures and behaviours?

Face validity

Content validity

Predictive validity

Concurrent validity

Convergent validity

Discriminant validity

Risk-taking measure

- 4 different factors/components to risk-taking
 - Factor 1: Thrill-seeking behaviours
 - Factor 2: Rebellious behaviours
 - Factor 3: Reckless behaviours
 - Factor 4: Antisocial behaviours



Construct Validity

Face Validity

- Look at each item.
- Does it look like it's assessing risk-taking?
- Usually happens, but not a requirement of measures.

Content Validity

- Look at the whole measure.
- Is it capturing all the important parts of what it means to be a risk taker in adolescence?
 - ▣ And nothing more

Construct Validity

Construct Validity

Does content of measure reflect the meaning of the construct?

How does this measure relate to other measures and behaviours?

Face validity

Content validity

Predictive validity

Concurrent validity

Convergent validity

Discriminant validity

Construct Validity

	Definition	Question to Address: Do people with high scores on your measure...
Predictive Validity	Predicts future, conceptually related <u>outcomes</u>	...at T1 go on to do relevant behaviors at T2?
Concurrent Validity	Related to relevant <u>outcomes</u> assessed at the same time	...behave in ways you'd expect them to behave if they were high on this construct?

Construct Validity

	Definition	Question to Address <i>Do people with high scores on your measure...</i>
Convergent Validity	Related to scores on other measures of <u>the same/a theoretically similar construct</u>	...predict scores on theoretically related measures?
Discriminant Validity	<i>Not</i> related (ie: zero correlations) to what it <i>shouldn't</i> relate to	...randomly vary with constructs that are supposed to be unrelated to this construct?