

Factorial Validity

EDP 619 Week 6

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Test Validity



Definition

Validity tells you how accurately a method measures something

There are six main types

Types

Concurrent

examines how well the results of a test approximate the results of another test

Construct

evaluates whether a measurement tool actually represents what it is intended to measure

Content

assesses whether a test is representative of all aspects of the construct

Face

considers how suitable the content of a test seems to be on the surface

Factorial

assesses the extent of correlation of the different factors with the whole test

Predictive

examines how well a test can forecast a concrete outcome

*You may see concurrent and predictive validity pooled together as **riterion** validity*

Structural Ideas



Constructs



Constructs aka *latent constructs* are variables that cannot be measured directly

some examples include

IQ

motivation

values

Dimensionality

Dimensions of a data set are ideally the same as the number of columns - aka *attributes*

however

some columns are copies, correlated, similar, useless, etc. so an actual count of dimensions may not be known

Unidimensional Scales

Cronbach's α is typically used to estimate internal consistency applied on a **single latent construct** (not necessarily one item!)

aka *unidimensionality*

Please rate your agreement or disagreement with the following statement:

Apple should be a standard topping option for pizza

- Strongly Agree
- Agree
- Neither Agree not Disagree
- Disagree
- Strongly Disagree

Please rate your agreement or disagreement with the following statement:

Fig should be a standard topping option for pizza

- Strongly Agree
- Agree
- Neither Agree not Disagree
- Disagree
- Strongly Disagree

Please rate your agreement or disagreement with the following statement:

Pineapple should be a standard topping option for pizza

- Strongly Agree
- Agree
- Neither Agree not Disagree
- Disagree
- Strongly Disagree

are used for measuring food preference (**single latent construct**) using participants' agreement with varying pizza toppings (**three direct measures**)

Notice that the construct *is not* defined as pizza topping preferences

Pineapple is a hard no!

A Bit More on Factorial Validity



- is used to probabilistically determine the way that the parts of the test are related to each other - aka its *internal structure*
- should match the actual, or *empirical* structure of the test
- in a nutshell it helps to nail down what a test measures by determining a probable number of dimensions needed to explain a construct

Determining Factors



- Multiple methods can be used to determine
- We'll use the most common method known as a **Factor Analysis**, namely a type known as an **Exploratory Factor Analysis (EFA)**

Stop!



If you do not know what covariance is or need a refresher, please go through this incredible video by [Josh Starmer](#) by clicking on the icon below. If you are familiar, then please feel free to close out of this presentation and move on to the walkthrough



Thats it!

If you have any questions, please reach out



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