Lesson 6

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Reverse variables

- Trasform – recod- into diff. var. - *move the variable and give a name* – change – old and new values

- Old value 1   new value 5 – add
  - » 2   4
  - » 3   3
  - » 4   2
  - » 5   1
  - CONTINUE - OK

Factor analysis

- Factor analysis is a way to take a mass of data and shrinking it to a smaller data set that is more manageable and more understandable. It's a way to find hidden patterns, show how those patterns overlap and show what characteristics are seen in multiple patterns. It is also used to create a set of variables for similar items in the set (these sets of variables are called dimensions). It can be a very useful tool for complex sets of data involving psychological studies, socioeconomic status and other involved concepts. A "factor" is a set of observed variables that have similar response patterns; They are associated with a hidden variable (called a confounding variable) that isn't directly measured. Factors are listed according to factor loadings, or how much variation in the data they can explain.

- The two types: exploratory and confirmatory.

- **Exploratory factor analysis (EFA)** is if you don't have any idea about what structure your data is or how many dimensions are in a set of variables.

- **Confirmatory Factor Analysis (CFA)** is used for verification as long as you have a specific idea about what structure your data is or how many dimensions are in a set of variables.

When I use FA...

Overall cleanliness of guest room
Overall physical condition of room & furnishings
Cleanliness and condition of bedding
Comfort of mattress
Comfort of pillows
Condition and function of drapes
Function & features of telephone(s)
Overall operation of heating & A/C
Ease of using Internet service
Overall workspace
Lighting in guest room
Feeling of safety and security
Bathroom cleanliness
Physical condition of bathroom
Selection & quality of bath amenities
Lighting in bathroom
Your night's sleep

GUEST SATISFACTION

Variable = factor

Factor Loading = shown the importance (the weight) of each variable in defining a factor

Eigenvalue = represents the variance of the variables explained by the factor

Factor Solution = is the set of factors and relationships between variables and factors which represents the solution to the factorial problem

Rotation

The aim of the rotation process is to make the factorial solution more interpretable by assuming factors a new position in the factorial space.

- Ortogonal rotation Varimax: tries to simplify (= reduce) the number of variables that generate the correlation matrix, simplifies the factor's interpretation
- Oblim oblique rotation: try to adapt the factors to the items and correlate them

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Cronbach's alpha is a statistic generally used as a **measure** of internal consistency or reliability.

Cronbach's alpha >.60

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable