Lab 8

Multivariate Statistics with R

As promised last week, in this lab, we will delve deeper into fit indices and model comparison. So, without further ado:

Task 1: Run the first example in `umxRAM()` documentation, just like you did last week.

Task 2: Get a summary of the model using the `umx` helper function.

- **Question 2.1:** Does it fit well?

Task 3: Get a `summary()` of the model.

- **Question 3.1:** What fit statistics can you see?

Task 4: Inspect the model fit.

- **Question 4.1:** Is the fit of the model good according to RMSEA and TLI?
- **Question 4.2:** What are conventional criteria for good fit?
- **Question 4.3:** Can you tell from the AIC if fit is good?

Task 5: Look up the formula for AIC in the `summary.MxModel()` documentation.

- **Question 5.1:** Explain this to a lab-mate.

Task 6: Look up the formula for RMSEA on the internet.

- **Question 6.1:** What are the key parameters?
- **Question 6.2:** What makes RMSEA get smaller?
- **Question 6.3:** Plug in some values and see...
- **Question 6.4:** What makes the denominator get bigger?

Task 7: get the mxRefModels for your model `m1`

- **Question 7.1:** What does mxRefModels return?
- **Question 7.2:** What are these two reference models?
- **Question 7.3:** Why are they useful?

Task 8: Run the example model `m1` given in `?mxRefModels`.

- **Question 8.1:** Produce `summary()` of `m1`.
- **Question 8.2:** No get another summary, this time providing `mxRefModels()` of the model to the `refModels` argument of `summary()`.
- **Question 8.3:** What is the difference?

Task 9: Draw an independence model for three variables.

Task 10: Make it into saturated model for three variables.

Task 11: Open http://davidakenny.net/cm/fit.htm

- **Question 11.1:** Try and figure out why the new statistics became available when the independence and saturated models became available.

Task 12: Take turns explaining to a lab-mate what optimisation does

That's it for this week. Well done!

Useful links

David Kenny's page

`umx` home page

`OpenMx` home page