

EPSY 906 HW7: Structural Equation Modeling on Your Own Data
13 points; due Tuesday 12/15/2017 by 11:59 PM via email
Please name your file: EPSY906_Firstname_Lastname_HW07.docx

The goal of HW7 is for you to practice structural equation modeling on data you care about. You should use whichever type of measurement model (e.g., CFA, IFA) is most appropriate for your outcomes, as determined through your previous analyses. CFA models should be estimated using MLR. IFA/IRT models can be estimated WLSMV.

Choose one of these three options:

1. Include at least 12 items measuring multiple constructs (at least 4 per construct and at least 3 constructs) for which you will examine questions regarding higher-order dimensionality or relations of those constructs. Examples include higher-order factor models, growth of latent factor models, bifactor or other method factor models, structural regression, etc.
2. Examine measurement and structural invariance across groups (or repeated measures) for at least 5 items measuring one construct at a minimum.
3. A project of comparable complexity as option 1 or 2, but which does not fall specifically under those criteria—all unique projects must be approved by me in advance.

Conduct a series of analyses that address the following points. Note that although there is a list of points to be included below, I DO NOT WANT A NUMBERED LIST FROM YOU. Your text should read like a **traditional results section** in a published paper. Each numbered point below should be answered in a new paragraph. In answering each question, make sure to describe the empirical criteria by which the answer was provided (i.e., what information, output, or model comparisons support your statements).

1. Describe your research question(s) and the models you will estimate to answer them in the text. Provide all relevant modeling info: program, estimator, how each model was identified, how models will be compared, and what criteria you are using to indicate “good fit” (i.e., cut-off values) both globally and locally. The idea is that a reader should be able to replicate your analyses given the information provided. **(1 point)**
2. **For option 1:** For each latent factor separately, go through the steps to examine the fit of its measurement model, using the same procedure as in HW3 for CFA models or HW5 for IFA. Then continue by estimating a model in which the factor covariances among all constructs are estimated simultaneously. Use this as the best-fitting baseline to determine which higher-order factor structure fits not worse. This ideally should be done in the context of testing

specific hypotheses. **(7 points)** Finally, report all model parameters from your final higher-order model in a table, including the unstandardized estimates, their SEs, and the standardized estimates when possible. **(1.5 points)**

3. **For option 2:** Go through the steps of testing measurement and structural invariance outlined in class for your type of measurement model (either CFA or IFA), including configural, metric, scalar, residual, and then factor variance, covariance, and means. **(7 points)** Finally, report all model parameters from your final invariance model in a table, including the unstandardized estimates, their SEs, and the standardized estimates. **(1.5 points)**
4. Create at least one figure that describes your structural model (option 1) or the invariance of your parameters (option 2). **(1.5 points)**
5. Finish by writing the beginning of the discussion (1–2 pages), in which you summarize your major findings in WORDS. **(2 points)**