

PSYC 948: Latent Trait Measurement and Structural Equation Modeling

Homework #8 (Total 10 Bonus Points)

Due: Wednesday, April 24, 2013 at 11:59pm.

Homework Problems:

The homework problems are based on the analysis of the LSAT 6 data set, a classic data set in the item response theory literature dating to Bock (1970). The data consist of five items from part 6 of the LSAT.

For these data, estimate a one-factor model for these data using the CATEGORICAL option for all variables with the MLR estimator (your log-likelihood should be -2,466.655), then answer the following questions:

1. How many total parameters are estimated in the model? (1 point)
2. What should the mean of the Overall Bivariate Chi-Square be? What was reported from these data? Does this indicate “good” model fit? (1 point)
3. Report the unstandardized factor loadings and thresholds. (1 point)
4. Report the standardized factor loadings and thresholds. Why do these differ from the unstandardized versions? (1 point)
5. Report the unstandardized factor loadings and thresholds in the IRT parameterization? Which item is the easiest? Which is the hardest? (1 point)
6. What is the maximum estimated factor score (and the corresponding score pattern)? What is the minimum estimated factor score (and the corresponding score pattern)? How many unique estimated factor scores are there in the sample (hint: try a frequency analysis in your favorite statistics package)? (1 point)
7. What is the maximum estimated standard error of the factor score (and the corresponding factor score)? What is the minimum estimated standard error of the factor score (and the corresponding factor score)? (1 point)
8. Find an article published that uses Structural Equation Modeling. Provide a detailed report of the published analysis method. Critique the methods of analysis using what we have talked about this semester as a guide. (3 points)

Submission Instructions:

All homework and final answers must be your own and not be copied or paraphrased from anyone else's answers. Homework must be submitted via email (jtemplin@unl.edu) in the form of Microsoft Word document with the name: 948_FirstLast_HW#.docx. Late homework will have a penalty of 10% per calendar day.