EPSY 8268 Assignment 1

The first part of this assignment is to replicate an example from the Raudenbush & Bryk (2002) textbook. This is a simple check to see if you can structure an HLM analysis and replicate results found by the authors. The HSB data are available in the HLM-Student-Version download package. Consider submitting your assignment in Word format – for easier commenting.

The second part of the assignment requires you to select a data set to conduct a different HLM analysis. This data set could be the HSB data set used in the text, where you would include a different set of predictors. Or you may select the TIMSS data available at the class website or any other data available online or that you may have from elsewhere.

1. Replicate the HSB unconditional model from Raudenbush & Bryk (2002) Table 4.2 (results are summarized below).
   1. Report the analysis software you use for this assignment.
   2. Report a table of fixed effects and random variance components in the original format of the output you obtain from your analysis software.
   3. Describe any differences between your analysis and those below (R&B).

For the HSB unconditional model, you should find the following results:

γ00 = 12.636972, SE = 0.243628, *t* = 51.870, *df* = 159, *p* < .001

τ00 = 8.61431, χ2 = 1660.23, *df* = 159, *p* < .001

σ2 = 39.14831

Report the full tables from the output of your selected software.

1. Select a data set and complete an intercepts and slopes as outcomes model.
   1. Describe the data set being used for the assignment.
   2. Report the software being used.
   3. Estimate an unconditional model. Report a table of the fixed and random effects, interpreting each coefficient.
   4. Compute the unconditional ICC.
   5. Estimate a complete model with one Level-1 explanatory variable and one Level-2 explanatory variable. Report a table of the fixed and random effects.
   6. Define and interpret the meaning of each fixed effect and random variance component. Also interpret the value of each fixed effect coefficient.