EPSY 8268 Assignment 2

To complete this assignment, identify a data set with at least 30 groups and at least 10 persons in each group. You can use the HSB data, TIMSS data, or a data set of your choosing. Remember, there are lots of data sets online – there are a few links to data at the class website. You may use the same data set from assignment 1, but estimate a different model from the you estimated in assignment 1. To help our review of your work, please use the outline structure below in your written assignment – feel free to simply write and/or paste your responses under each element in the following list. Keep your responses brief as a direct response to each element.

1. Establish a baseline.
   1. Briefly describe the data set being used for the assignment and report the software being used.
   2. Estimate an unconditional model. Report a table of the fixed and random effects, interpreting each coefficient. [Try to do this in a list format – rather than a paragraph]
   3. Compute the unconditional ICC.
   4. Compute a 95% confidence interval around the grand mean .
   5. Estimate the range of plausible values for the fixed effect (the range of 95% of the level-1 mean estimates).
   6. What is the reliability of ? What does that value mean (think of how it is computed – this provides us with an interpretation for the resulting value).
2. Specify a model with at least one explanatory variable at level 1 and level 2, but not more than three at any level. Group-mean center level-1 explanatory variables, include group means in the level-2 intercept model, and grand-mean center level-2 explanatory variables.
   1. Report a table of the fixed and random effects.
   2. Define and interpret the meaning of each fixed effect and random variance component. Also interpret the value of each fixed effect coefficient. [Again, create a list for this.]
   3. Report which fixed-effects are statistically significant (at *p* < .05).
   4. Compute 95% confidence intervals for the fixed effects.
   5. Identify one randomly-varying slope (for example, ). Estimate the range of plausible values for the fixed effect (the range of 95% of the level-1 slope estimates).
   6. Estimate the variance explained at level-1 due to the inclusion of the level-1 explanatory variable(s).
   7. Estimate the variance explained at level-2 for the intercept, due to the inclusion of the level-2 explanatory variable(s) in the intercept model.
   8. Is there covariance (correlation) among the ? What does this suggest – provide an interpretation for the correlation between  and one of the slope estimates?
   9. What is the conditional reliability of  in this final model? Did it change? What is your interpretation of this change – what does the change in reliability tell us?