**Lab #5 Questions: Name: \_\_\_\_\_Rui Guo\_\_\_\_\_\_\_\_\_\_**

1. When testing cross-level effects (i.e., Level-1 and Level-2 main effect predictors), would you choose Grand mean centering or Group mean centering for the Level-1 predictor? Why (when)?

I would choose group mean centering to test cross-level effects for the Level-1 predictor, because if the level-1 predictor is grand mean centered, then a significant cross-level interaction effect can be due to confounded effects: 1) the cross-level interaction, and b) the group-level interaction. And group-mean centering unconfounds these effects.

2. What is the estimate of slope variability (12)? Is the slope variability (12) significantly greater than zero? (use both the confidence interval test and the 2 test).

12=0.09139

A 95% Confidence Interval of 12 is

0.09139± 1.96(0.04237) = [0.0083448, 0.1744352], since the C.I. does not contain 0, it’s greater than zero significantly.

-2LR=(6347.0-6325.7)=21.3 >> =5.991465, so the chi square result also shows that the slope variability is significantly greater than zero.

3. When predicting slope variability, what is the ‘Variance Explained’ by the interaction term, ‘cCommit\*mJobsat’? Write a one-sentence interpretation of the interaction effect.

R-square=1-(0.08831/0.09139)= 0.03370172

The cross-level interaction accounts for 3.37% of the variability of the total variability in the model. The interaction effect means that the group-level job satisfaction moderates the relationship between the group-mean centered commitment and OCB.

4. In the cross-level interaction ‘slopes as outcomes’ model with Group mean centering, what are the coefficients for the two terms, ‘mCommit\*mJobsat’ and ‘cCommit\*mJobsat’? Write a one-sentence interpretation for *each* of these coefficients, and also use the terms ‘cross-level interaction’ and ‘group-level interaction’.

mCommit\*mJobsat: 0.1296

This indicates the ‘group-level interaction effect’, which means that the group-level job satisfaction moderates the relationship between the group-level commitment and OCB. Then for higher group-level job satisfaction, the magnitude of the relationship between the group-level commitment and OCB is higher.

cCommit\*mJobsat: -0.08233

This indicates the ‘cross-level interaction effect’, which means that the group-level job satisfaction moderates the relationship between the group-mean centered commitment and OCB. Then for higher group-level job satisfaction, the magnitude of the relationship between the group-level commitment and OCB is lower.

5. In the cross-level interaction ‘slopes as outcomes’ model with Grand mean centering, what is the coefficient for the term ‘Commit\*mJobsat’? Write a one- or two-sentence interpretation of this coefficient, and use the verb ‘confounds’.

-0.06988.

This coefficient means that the group-level job satisfaction moderates the relationship between commitment and OCB. This coefficient confounds the group-level interaction and the cross-level interaction effects.

When group-level interaction and mCommit are added to try to unconfound cross-level interaction, the coefficient becomes -0.07957.

Bonus. Test another ‘slopes as outcomes’ model of your own choosing. Write out the Level-1, Level-2, and combined equations. Test for slope variability. Specify the centering option you chose. Interpret the interaction term, and calculate the variance explained by this term.

Testing the slope variability:

Level 1:

Level 2:

Combined:

Slope variance estimate = 0.09747

95% C.I. is 0.09747± 1.96(0.04322) = [0.0128, 0.1822], which does not contain zero

-2LR=(6374.7-6351.7) = 23 >> =5.991465

The slope variability is significantly greater than zero.

Testing the interaction:

I chose group-mean centering.

First I used this model:

Level 1:

Level 2:

Combined:

The coefficient of interaction is -0.05027, which is not significant.

R-squared = 1 – 0.09827/0.09747 = -0.0082

Then I used this model:

Level 1:

Level 2:

Combined:

The coefficient of interaction is -0.05130, which is not significant.

R-squared = 1-(0.09663/0.09747)= 0.008618036