**Psych 610/710**

**Homework 10: Due 15 November 2017, 5:00pm**

**Note: This homework will rely on knowledge you learned in lab this week AND last week.**

**Reading question:**

1. What do Judd and colleagues (2017) recommend in terms of reporting “simple” and “main” effects? What is their justification? Does Jaccard & Turrisi (2003) agree or disagree with this perspective?
2. From Jaccard & Turrisi (2003): When both variables involved in the product term are continuous (and when the slope between Y and X changes as a linear function of scores on Z), Jaccard & Turrisis call this interaction form what?
3. From Judd and colleagues (2017; chapter 7): In the authors’ experience working with other researchers, what do researchers do wrong (to the largest extent) when trying to understand their results.

**Data Analysis**

Some researchers plan to examine whether alcohol consumption affects dart playing skills. Their study aims to explore the well-known placebo effect: if people believe they are consuming alcohol, or another drug, they may feel and behave as if they are actually under the influence of that substance when in reality they are not. Thus, the purpose of the study is to clarify whether it is the effect of alcohol or the *expected* effect of alcohol that leads to differences in performance.

Sixty dart players are invited to an open-bar event where dartboards are made available. Participants were assigned to either receive real alcohol or a convincing placebo. Non-alcoholic placebos were piloted beforehand and shown to be indistinguishable from alcoholic beverages in terms of taste, smell, and appearance. Players reported their past experience with dart games and self-assessed coordination (rated right before the game) in order to control for differences in dart playing ability and to monitor for interactions with the experimental manipulation. Performance scores during the study had a possible range of 0-150.

Researchers hypothesized that (1) there would be no overall difference in game scores across alcohol and placebo groups, but that (2) the effect of condition on game scores might depend on experience. (3) Researchers also tested whether the effect of condition on game scores might depend on coordination.

**Codebook**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Name | Description | Values |
|  | Condition | Experimental manipulation | Placebo=0  Alcohol=1 |
|  | Experience | Past experience with dart games | Novice=0  Experienced=1 |
|  | Coordination | Self-rated coordination | 0 (poor) - 10 (good) |
|  | Score | Game score | 10 - 140 |

**Analyses instructions**

1. Read the data file into R, explore univariate statistics and bivariate relationships.
2. Ignoring Coordination for now, in your Word document, make a table including some descriptive statistics (mean/*SD*) for Score by the four possible combinations of Condition and Experience.
3. Center all variables.
4. Continue to ignore the Coordination variable (i.e., don’t include it in the model). Is there an interactive effect between Experience and Condition on game scores?
   1. Run a model to address this question.
   2. Report and interpret each of the parameter estimates, reporting relevant statistics.
   3. Describe the Experience effect for those in the alcohol group. Interpret the relevant coefficient and report appropriate statistics.
   4. Describe the Experience effect for those in the placebo group. Interpret the relevant coefficient and report appropriate statistics.
   5. Graph this model (publication-quality). Paste in your Word document and name it “Figure 1.”
5. Is there an interactive effect between Coordination and Condition on game scores?
   1. Run a model to address this question now ignoring Experience (i.e., not having experience in the model).
   2. Report and interpret each of the parameter estimates, reporting relevant statistics.
   3. Describe the Condition effect for someone with a Coordination score of 8. Interpret the relevant coefficient and report appropriate statistics.
   4. Graph this model. Paste in your Word document and name it “Figure 2.”

1. Write a results section describing the tests you ran and what you found. Work in the simple effect estimates you made. Refer to the figures you made.
2. In your word doc, write how long it took for you to do this homework