**LAB REPORT 2: Analyzing the Memory Study Data using One-Way ANOVA**

If you recall, the memory study you participated in used a between-subjects design that randomly assigned participants to one of three possible conditions. Participants viewed a set of 10 stimuli for 60 seconds total, then were distracted for 20 seconds, and then listed as many stimuli as they could from memory

DVs = Total number of stimuli remembered correctly

There were three different conditions in the study (i.e., three levels of the independent variable). Participants were randomly assigned to one of these three conditions:

1. **Related Stimuli**: The stimuli consisted of 10 words all related to the concept of sweets
2. **Unrelated Stimuli**: The stimuli consisted of 10 unrelated words.
3. **Mixed Stimuli**: The stimuli consisted of 5 words and 5 numbers

## Research Question and Hypothesis:

Research on memory suggests that related concepts are linked together in our memory. As a result, we would expect participants to remember a greater number of the presented stimuli when those stimuli are conceptually related than when they are not.

**RUN THE ANALYSIS:**

Because this experiment used a between-subjects design with a categorical IV (memory task) with more than two levels (3 levels: related vs. unrelated vs. mixed), we need to use Analysis of Variance (ANOVA) to analyze the results. Because participants differed in only one respect on the IV (i.e. the condition they were randomly assigned to), we will use a one-way ANOVA.

1. Open the ANOVA Memory Study data file.
2. Load the file into JASP, and go ahead and save this JASP file
3. Make sure the DV in the spreadsheet (Correct) and “Age” and “Incorrect” are being treated as continuous variables in JASP, and the rest are treated as categorical variables.
4. Click on the ANOVA tab and then on ANOVA
5. Now put the DV (number of words remembered, aka “Correct”) into the DV box, and the IV (memorycondition) into the Fixed Factors box.
6. Make sure you also get descriptive statistics and a measure of effect size. Click the “Additional Options” tab on the left below the above analysis boxes and click to add these. We will use eta squared (η2) for our effect size measure.
7. If your ANOVA was statistically significant (*p* < 0.05), then you need to conduct post hoc tests in order to find out specifically which conditions were significantly different from one another.
   1. Run the Post-Hoc tests and report them in the report regardless of the results of your ANOVA so that we can practice how to write them up!

**To prepare for the lab report, complete the following:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | a. State the Null and Alternative Hypotheses: | | | |
|  | *H0*: |  | | |
|  | *HA*: |  | | |
|  | b. What variable/s are you including in your analysis? | | | |
|  | Independent Variable: |  | | |
|  | Dependent Variable: |  | | |
|  | d. What test should you use? (be specific!) | | |  |
|  | e. (After running the analysis, complete these next questions)  Please copy the information from your output: | | | |
|  | f. Report your results below in APA style sentences. | | | |
|  |  | | | |
|  | g. What is your decision regarding *H0*? | | Reject the null hypothesis  Fail to reject the null hypothesis | |

**h. Make a bar graph of your results and paste below so that you can add it to your lab report:**

1. **Run any necessary descriptive statistics that you will need to report in your lab report. Copy and paste the tables below:**

## Lab Report 2: Writing Up the Memory Data

At this point, you are ready to write up your second lab report. You can use the same basic template you used for the first lab report, and make sure to review the “Lab Reports General Instructions” document on Moodle as well as the grading guide from the first report.

Your lab report needs to include as much important detail as possible about the Memory study, including details about the participants, the stimuli we used (available on Moodle in the document called “Memory Study Survey”), the design and procedure we used (make sure you note that it was a between-subjects design), the analyses we conducted, the results and so on.

**Your report should include:**

Introduction

Method (including Participants section and Procedure section)

Results (including the post-hoc comparisons)

Discussion

Graph you created in Excel, along with a figure caption.

***Note 1:*** *The introduction section for Lab Report 2 can be very short; just a few bullet points about memory and the hypothesis you had about the results.*