Writing Up Your Research Report

For this assignment, you will be required to (1) conduct a number of statistical analyses using SPSS on the handedness data set collected in class (Friday, November 4th) and (2) report the outcome of these analyses in a structured laboratory report format as outlined below. The data you have been provided has been aggregated with a larger data set. This data set represents undergraduate and postgraduate students attending University who are typical adults, with no history of language difficulties (e.g., dyslexia) and do not have hearing impairment. The data set is available on Blackboard in the Assignment folder. Overview of Study: Research suggests that semantic fluency is easier than letter fluency in adults. Furthermore, research has suggested that handedness may be related to performance on verbal fluency tasks in adults. In the light of this, this experiment seeks to address the following five research questions:

1. *Is there a significant difference between letter and semantic fluency performance in adults?*
2. *Is there a significant difference between right-handers and left-handers in verbal fluency performance?*
3. *In right handers, is there a significant difference between letter and semantic fluency performance?*
4. *In left handers, is there a significant difference between letter and semantic fluency performance?*
5. *Is performance on the semantic fluency task significantly related to performance on the letter fluency task?*

Note that the SPSS data set contains the following variables:

a. *Group – A coding variable for the two groups where 1 = RH (i.e., people who are right handed) 2 = LH (i.e., people who are left handed)*
b. *Age – Age of the participants in years*
c. *Gender – A coding variable where 0 = males and 1 = females*
d. *Semantic Fluency – number of correct items produced on the semantic fluency task (i.e., summed across animals and types of food you eat)*
e. *Letter Fluency – number of correct items produced on the letter fluency task (i.e., summed across A, S, F)*

Your report MUST be divided (and written up) into six main sections: Title, Abstract, Introduction, Method, Results and Discussion.

Work through the following steps to complete the assignment.

1. *Title.* State an appropriate title for the report. A good title alerts the reader to the overarching theme of the work to be reported. A good title captures the reader's attention. However, the latter goal should not interfere with the former. Do not use superfluous words or abbreviations; for example, why write *An Empirical Investigation into Anxiety Disorders in Children with* ..., when you could *write Anxiety Disorders in Children with…*?
2. *Abstract*. Write a concise summary of the report. Abstracts are generally between 150-200 words. Abstracts provide a reader with the most important details, and ideally enables the reader to decide whether he or she should read the article. The

abstract **should not be** composed of selected sentences from the body of the report. Instead, the writer should sit down and try to distil the essential elements of the work to be reported. The abstract is extremely important; it should not be short-changed, and as such, it **should be written last**. Thus, the abstract should concisely describe the problem under investigation and the motivation for the study, the participants, the experimental method, findings and conclusions.

3. *Introduction*. For this report, you will be required to write a suitable introduction. A good introduction should address the following questions: (1) *Why is this problem important? How does this study relate to previous work in the area? What are the research questions, hypotheses and objectives of the study? How do the hypotheses and research design relate to one another? What are the theoretical and practical implications of the study?*
4. *Method*. This section should be written so that someone else can **repeat the experiment just by reading your method section**. A key point throughout is include enough information for **replication**, but not include superfluous information that you do not think has any bearing on the results of your study. Your method section should consist of the following subsections:
    a. *Participants*. Describe the sample in sufficient detail to allow the reader to determine how generalizable the results are. Thus, your description should include the following information (1) the number of participants in the data, as well as a breakdown by gender (2) who the participants are (3) how were they selected (4) from where were they selected. For example: *Fifty (25 males, 25 females) participants took part in this study. Participants were all undergraduate students from the University of Sheffield, who took part in return for course credit. One hundred participants were initially approached during lectures, with 50 consenting*.
    b. *Materials*. State what equipment (e.g., standardised tests, questionnaires, thermometer, etc.) was used to collect data. There is no need to list objects that you self-evidently use (e.g., paper and pen). Instead this should provide an **adequate description of materials that would be necessary for replication**. In other words, the reader should be able to extract the relevant materials from what you have written to replicate the study.
    c. *Procedure*. Describe briefly how the data were gathered by **providing enough information for replication**, but do not give information that would not be relevant to how the results were obtained (e.g., do not say *'participants entered the room and were told to sit down in the chairs provided'*)
5. *Results*. The first paragraph in the Results section should include a brief overview of the analyses to be described. This might include summarising the hypotheses to be investigated (in this specific report there are 5 main hypotheses under investigation as per the stated research questions). In subsequent sections, you should state the specific hypotheses being evaluated and describe the analyses that were performed to test the hypotheses. The results should then be reported: for example, *An independent-samples t-test was conducted to compare memory for words in sugar and no sugar conditions. There was a significant difference in the scores for sugar and no sugar conditions; t (8)=2.89, p = 0.002. These results suggest that sugar really does have an effect on memory for words. Specifically, our results suggest that when humans consume sugar, their memory for words increases* OR *Women reported*

significantly higher levels of happiness than men, t(1) = 5.44, p < .05. Taken together, for the Results section you will be required to report descriptive statistics, then inferential statistics, then state in words what was found. Furthermore, it will prove useful to provide tables and/or figures to aid in the presenting the results from specific analyses (make sure to make reference to tables and figures in the text). **Note that in order to carry out some of your analyses in SPSS you may need to split the data set by a categorical variable (e.g., gender, profession). See the How to Split a Data File in SPSS doc on MOLE. Additionally, if when you conduct your inferential statistics tests you find that your data has violated one of the three assumptions, simply state which alternative non-parametric test you would conduct to analyse the data. However, still report the outcomes using the original parametric test (e.g., paired-sample t-test).** Finally, **note that although there are 5 research questions, it does not necessarily mean that you have to conduct 5 different types of analyses – it may be that there is one test which is appropriate to answer more than one research question, so think carefully of the type of analyses you carry out!**

6. *Discussion*. Your report should follow the shape of an hour glass. It should start in the introduction in broad terms as you introduce the background to your study, narrow in the middle as you describe your study in detail, and then broaden out towards the end as you discuss the implications of your findings.
    a. Start your discussion by summarising your main findings. Even though the results were described in some details in the Results section, they should be briefly reviewed here. You should not include any statistical results in the discussion, only the conclusions from them. This portion of the Discussion section need not be longer than a short paragraph.
    b. Then relate these findings back to your original hypotheses/predictions and, in turn, what this means in terms of the research questions you were originally trying to answer. What are the theoretical implications of your findings?
    c. Do the results support, contradict, extend or qualify previous findings? The implications of each major finding should be discussed. It is particularly important to link the findings obtained in the study being described with those of other researchers. The reader should be told how the findings fit into the available literature on the topic, and what the implications of these findings could be. Speculation can also be offered to explain the data if they are not consistent with other research.
    d. What are the weaknesses of your study? Are there any factors that could be improved?
    e. Suggest some areas for future research based on what you have found
    f. Finally, conclude by summarising the main findings and their implications.

Produce a report in the order outlined above, making sure that each of the main five sections are clearly headed. Cite your references in your report and list them at the end using Harvard APA format. **The in-text citations contribute to word limit, but the list of reference at the end does not. In addition, tables and figures must conform with APA guidelines. Please refer to the APA format doc on MOLE for more details.**

Please submit your assignment via the Blackboard assignment submission point NO LATER THAN 12pm (midday) on TUESDAY, JANUARY 24, 2023.

Suggested reading (by no means an exhaustive list; just some recommendations to facilitate your prep work and understanding of the related topics)

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage. [Chapters 3, 4, 5, 6 & 9]

Siengthai, B., Kritz-Silverstein, D., & Barrett-Connor, E. (2008). Handedness and cognitive function in older men and women: a comparison of methods. T*he Journal of Nutrition, Health & Aging, 12(9)*, 641-647.

Thilers, P. P., MacDonald, S. W., & Herlitz, A. (2007). Sex differences in cognition: the role of handedness. *Physiology & Behavior, 92(1)*, 105-109.

Unsworth, N., Spillers, G. J., & Brewer, G. A. (2010). Variation in verbal fluency: A latent variable analysis of clustering, switching, and overall performance. *The Quarterly Journal of Experimental Psychology, 64(3)*, 447–466