

## Exercise 10 ANCOVA and MANOVA.

These exercises have been prepared for use in conjunction with Chapter 10 of the 4<sup>th</sup> edition of “SPSS for Psychologists” by Brace, Kemp and Snelgar (2009)

1. A psychologist who is interested in aggression has devised an experimental paradigm in which participants play a computer game with an opponent. When the opponent makes an error the participant is invited to “punish” their opponent by exposing him to a blast of loud noise. The duration and volume of the noise blast are combined to give a measure of aggression. A total of 60 participants were tested using this procedure before being given feedback about their performance in the game. One third of the participants received negative feedback, one third received positive feedback and the remaining third received neutral feedback. Finally, the participants played the game again and their level of aggression was measured as before. The data from this study can be found in the file **Ex10Q1.sav**.
  - a. Undertake an ANOVA to determine whether the post-feedback levels of aggression are affected by feedback
  - b. Participants were randomly assigned to each of the three feedback conditions, and as a result the pre-test scores for these three groups should not differ. Test whether this is the case.
  - c. In light of the answer to the previous question, use the pre-test scores as a covariate and re-examine the effect of feedback on aggression.
  - d. How does the inclusion of pre-test aggression as a covariate change the outcome of the analysis?
  - e. What should the psychologist conclude regarding the effect of feedback on aggression?
  
2. Geiselman and colleagues<sup>1</sup> developed the Cognitive Interview (CI) to help police officers obtain accurate information from witnesses. Research has demonstrated that the use of the CI results in an increase in recall for the details of an event, however, there is less evidence that the CI results in more accurate descriptions of the people involved in the event. A psychologist has developed a new interview, which she calls the “Visual Interview” (VI) which is specifically designed to help witness describe the people they saw. A group of 20 participants watched a

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<sup>1</sup> Geiselman, R.E., Fisher, R.P., Firstenberg, I. et al. (1984). Enhancement of eyewitness memory: An empirical evaluation of the cognitive interview. *Journal of Police Science and Administration*, 12, 74-80.

video of two actors performing a number of actions. After a delay of 24 hours the participants were interviewed using the CI or the VI. Each participant's description of the actions was scored out of 100 and their description of the appearance of the actors was scored out of 60. The data are contained in file **Ex10Q2.sav**.

- a. Describe the design of this study
- b. Check your data to determine whether it is appropriate for analysis using MANOVA.
- c. The psychologists hypothesised that the VI would result in better memory for the appearance of the actors, but that there would be no difference between the VI and CI groups for recall of the events. She predicted that this relationship would hold for both short and long delays. Analyse the data to test these hypotheses.
- d. Assuming these results are reliable, what are the implications with regard to how police should interview witnesses?