

Exercise 8 Analysis of Variance.

These exercises have been prepared for use in conjunction with Chapter 8 of the 4th edition of “SPSS for Psychologists” by Brace, Kemp and Snelgar (2009)

1. Load the data file **Ex8Q1.sav**. This file contains the data collected during a study of the effects of time on memory for details of a crime. A total of thirty five participants watched a video of a crime. They were then interviewed either one, two or three days later. Participants’ memory for the details of the crime was scored out of a total of 50.
 - a. First, to check whether the allocation of participants to conditions was random, compare the age of the participants in the three groups. Is the result good news for the experimenters?
 - b. Now test the hypothesis that the duration of the delay between encoding and recall will affect the accuracy of recall. Report the result of your analysis.
 - c. Produce a graph showing recall at each delay, and perform post-hoc tests to determine whether each increase in delay results in a significant decrease in recall.

2. A psychologist is evaluating a prison-based treatment program for violent offenders serving long sentences. The psychologist was given access to the prison records which included information about any official reprimands received, or misdemeanours committed by the offenders. She used this information to calculate a behaviour score for each offender (high value indicates poor behaviour). The psychologist calculated this score for the year immediately prior to treatment, for the year of treatment and for each of the first and second years following treatment. The file **Ex8Q2.sav** contains the data from 12 prisoners.
 - a. Does the behaviour score change significantly across the four years?
 - b. During treatment the prisoners are housed in a special unit, and as a result the behaviour score for the year of treatment may not be comparable to the measures taken before and after treatment. Reanalyse the data excluding this data point.
 - c. The psychologist planned to compare the behaviour at one year and two years post treatment with the behaviour prior to treatment. Undertake a contrast which includes these comparisons.
 - d. What would you conclude about the effectiveness of this treatment?

3. It has been suggested that some dyslexic children are affected by the colour of the paper and text when trying to read, possibly because they find the “glare” of white paper off-putting. To investigate this 15 dyslexic and 15 non-dyslexic male year 7 school pupils were tested. All participants were asked to read 3 matched passages as quickly and accurately as possible. The time taken to read each passage was recorded and a 5 second penalty was added for each error made. One passage was presented in white on black paper (W/B), one printed in black on white paper (B/W) and one in black on yellow (B/Y). Each participant saw each colour combination once, and the order in which the passages were read and the pairing of passage to colour combination were determined at random for each child. The data from this study are tabulated in Table 1 below.
- Describe the design of this study.
 - Prepare a data file for this study.
 - Analyse the data to determine whether there is any evidence that text/paper colour combination affects reading speed in dyslexic children.
 - Write the results section of a report describing the outcome of this study.

Table 2: Reading speed of dyslexic and non-dyslexic male participants for passages printed in white on black paper (W/B), black on white paper (B/W) and black on yellow paper (B/Y).

Dyslexic			Non-dyslexic		
W/B	B/W	B/Y	W/B	B/W	B/Y
40	45	44	28	30	32
48	50	51	21	25	24
39	38	40	23	24	23
40	38	37	30	28	27
46	43	44	26	32	29
52	50	53	20	24	22
61	58	56	26	25	25
41	40	39	30	27	26
53	55	57	23	20	32
42	38	45	20	21	22