

Educational psychologists were interested in predicting grade one reading (*read* in data file) as a function of parent education level (*par*) and number of weeks that children spent in a special summer reading program to help at-risk children (*edu*). Data were obtained for 48 children. The SPSS program shown below generates data for this study. Replace the 0s in SEED with your student number and add SPSS commands to answer the following questions. The researchers hypothesized that reading scores would be positively related to participation in the education program, but that this effect might be masked by parent education level. Where appropriate below, discuss your analyses and results in light of this hypothesis. **Read all questions first** to help decide what to include for each question.

- (1) Perform and explain calculations relevant to the overall relationship between *read* and the combined influence of *edu* and *par*, including all relevant information up to statistics to be examined in question 2. (20 marks)
- (2) Discuss fully the *significance and strength* of the *overall* relationship in question 1, including discussion of relevant correlations among original and derived variables. (20 marks)
- (3) Test and explain the *significance* of the *unique* contribution of *edu* to the prediction of *read*, controlling for *par*. (20 marks)
- (4) Analyze and explain the relative *strength* of the *unique* contribution of *edu* scores to the prediction of *read*, controlling for *par*, including alternative ways to calculate and conceptualize the relevant quantities. (20 marks)
- (5) Explain how the multiple regression results described above can best be conceptualized, including plots of observed and predicted data, and consideration of the contribution of *edu* alone to reading performance. That is, address any differences in strength or significance of *edu* alone and in the multiple regression. (20 marks)

### SPSS COMMANDS FOR ASSIGNMENT 2

```

SET SEED = 20000000.
INPUT PROGRAM.
LOOP subj = 1 to 48.
COMP #z = RV.NORM(0,1) .
END CASE.
END LOOP.
END FILE.
END INPUT PROGRAM.
COMP #zp = .7071*#z + .7071*(RV.NORM(0,1)) .
COMP #ze = -.7071*#z + .7071*(RV.NORM(0,1)) .
COMP #zr = .5*#zp + .5*#ze + .7071*(RV.NORM(0,1)) .
COMP par = RND(12 + 3*#zp) .
COMP edu = RND(20 + 4*#ze) .
COMP read = RND(60 + 12*#zr) .

```