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Psychology 516
Applied Multivariate Analysis
Homework 13
Due December 6, 2018

The file, Set_11.csv, contains the data from an experiment investigating the effects of goal-related instructions on performance, persistence, and anxiety. Participants attempted to solve challenging anagrams (words with their letters scrambled, e.g., ULERITO = OUTLIER) during a 30-minute period. Participants could attempt as many anagrams as they wished and could give up and move on to a new one at any time. Persistence was the number of anagrams attempted. Performance was the percentage of anagrams solved correctly, of those attempted. Anxiety was the total score on a questionnaire designed to measure performance-related anxiety, given after the instructions, immediately before starting the task (scores could range from 10 to 40).

Participants were given a set of 10 practice anagrams to give them an idea of their difficulty. Performance on this practice set was 51%.

Prior to beginning the task, groups were given instructions intended to influence their motivation on the task. Group 1 was told to simply “do your best.” Group 2 was told, “most students are able to correctly solve about 60% of the anagrams you will attempt.” Given the practice test experience, these instructions were expected to make the task seem challenging, but not impossible. Group 3 was told, “most students are able to correctly solve 80% of the anagrams you will attempt.” These instructions were expected to make the task seem very difficult.

The researchers posed the following hypotheses.

- (a) The increasingly challenging instructions should lead to increasing levels of anxiety.
 - (b) Groups 2 and 3 should exert more persistence than Group 1 but should not differ from each other because there is an upper limit to the number of anagrams that can reasonably be attempted in 30 minutes.
 - (c) Performance should be greatest in Group 2. Group 1 should have lower performance than Group 2 because of lower motivation. Group 3 should have lower performance than Group 2 because of the incapacitating effects of high anxiety.
1. Analyze each outcome measure separately and comment on the support those analyses provide for the hypotheses. Use any contrasts or follow-up comparisons that you think are important for testing each hypothesis.
 2. Then conduct a multivariate analysis and indicate if this approach adds any additional insight or qualification to the univariate analyses.