**Dependent T-test Exercise**

An honours student specializing in exercise psychology was interested in determining if a person's attitude towards exercise would improve after 3 weeks of performing the exercise on a regular basis. Eight individuals, which were prescribed the same exercise program by their kinesiologist, completed an attitude questionnaire. The questionnaire was completed before the exercise program and at the three week mark of the program. A higher overall score on the questionnaire is associated with a more positive attitude. The data is included in the Excel file associated with this assignment. A dependent sample t-test can be used to determine if the participants’ attitude toward exercise changed significantly after three weeks.

1. Download “Dependent T-test Exercise.xlsx” from my webpage and save the file to your H: drive.
2. Follow the instructions in the spreadsheet and refer to the various readings and class notes.
3. Make a duplicate of the current worksheet and call it “t-test (F9) #1”. Alter the worksheet to reflect that both the pre-test and three-week test times were sampled from the same population with a mean of 55 and a standard deviation of 5 [Hint: use =NORM.INV(rand(),55,5)]. In other words, the exercise program had no affect on attitude. Determine how many times statistical significance (α=.05) would be falsely proclaimed if this study was repeated 100 times. I.e., hit F9 100 times and note the p-value after each hit. Record the total number out of 100 in a clearly labeled text box with the title “Type I Error Rate” in 14 Arial Font.
4. Make a duplicate of the current worksheet and call it “t-test (F9) #2”. Alter the worksheet to reflect that the three-week test times were now sampled from a population with a mean of 62 and a standard deviation of 5 [Hint: use “=Pre-test + NORM.INV(rand(),7,5)”]. Do not change the pre-test scores. In other words, the exercise program had an affect on attitude. Determine how many times statistical significance (α=.05) would be falsely rejected if this study was repeated 100 times. I.e., hit F9 100 times and note the p-value after each hit. Record the total number out of 100 in a clearly labeled text box with the title “Type II Error Rate” in 14 Arial Font.
5. Repeat the statistical analysis, from question 2., in SPSS and copy and paste the output tables from SPSS into Excel. The SPSS results should be pasted into a separate worksheet named “SPSS” using the “Paste Special -> picture” option in Excel. The Word document “How to perform a dependent t-test in SPSS” will guide you through the necessary steps.