

AS1(Assignment 1, Unit 5) Independent Measures t-test

Please write your responses in red 😊

A researcher wants to know if the rate that a professor smiles at a student has an effect on the number of times that students raise their hands in class. The researcher randomly selects a sample of $n=24$ students and randomly assigns the sample to two conditions: one with smiles from the professor and one without smiles from the professor. Here are the data:

Smiles	No Smiles
3, 0, 5, 6	2, 1, 4, 5
4, 3, 2, 1	3, 2, 1, 0
3, 5, 4, 6	6, 4, 3, 5

1. What is the researcher's hypothesis?

2. What is the null hypothesis?

3. What is the independent variable?

4. What is the dependent variable?

5. What is the name of the *research design* in this study?

6. What is the appropriate *hypothesis test* to analyze the data from this study?

7. What are the two mean “differences” you are analyzing in these data?

8. What is the definition of a random assignment?

9. Why is using a random sample important in this study?

10. If a researcher failed to use a random sample, how would this affect the research conclusion?

11. If a researcher failed to use random assignment, how would this affect the research results?

12. Run the appropriate SPSS analysis on the data and cut and paste your SPSS results here:

13. Based on your SPSS results, please answer the following questions:

(a) What is the appropriate decision, reject the null or fail to reject the null? _____

(b) Write the “statistical statement” of your SPSS analysis: _____

(c) Please write your results as they might be written in a research study:

(d) Is there a probability of Type I error? Yes _____ No _____

(e) Is there a probability of Type II error? Yes _____ No _____

