AS3 (Assignment 3, Unit 5): Independent and Dependent t-tests on SPSS

Please write your answers in red ☺

Jones and Smith's advertising company wish to know if cartoons on cereal boxes cause children to attribute higher taste ratings to the cereal. The advertising company hires a psychologist to conduct a study before developing a sales plan for the cereal. The psychologist randomly selects 24 participants for a pilot study. She randomly assigns the sample so that 12 participants eat the cereal with the cartoon on the box while the other 12 participants eat the cereal without a cartoon on the box. All participants then rated the taste of the cereal. Here are the ratings:

Without Cartoon	With Cartoon
3	3
4	4
7	8
5	7
8	8
8	8
4	9
7	4
5	7
6	6
6	8
7	4

l. What is the researcher's hypothesis?

The researcher wants to prove that WITH the cartoon on the box this will have a psychological effect on the rating of the taste, this will mean that the sample that ate the cereal on the box will rate the taste higher than the sample without the cartoon on the cereal box

2. What is the null hypothesis?

The null hypothesis will mean that the cartoon will have NO effect on the rating of the taste by the children from the sample.

3. Exactly what mean differences are you comparing here?

We are comparing the mean difference of the rating of taste WITH the cartoon cereal box to the mean of the rating of taste WITHOUT the cartoon cereal box.

4. What is the dependent variable? The rating of taste by the children

5. What is the independent variable? The cartoon on the box

6. Please analyze the data with the appropriate hypothesis test on SPSS and cut and paste your SPSS results here:

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	12	5.8333	1.64225	.47408
	2.00	12	6.3333	2.05971	.59459

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference		95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p		Std. Error Difference		Lower	Upper
VAR00001	Equal variances assumed	1.417	.247	-.658	22	.259	.518	-.50000	.76045	-2.07707	1.07707	
	Equal variances not assumed			-.658	20.960	.259	.518	-.50000	.76045	-2.08162	1.08162	

Based on your SPSS results that you pasted above, please answer the following questions:

Based on your SPSS results that you pasted above, please answer the following questions:

7. Please write your "statistical statement": t(22) = -.658, p>0.5

8. Did you reject or fail to reject the null hypothesis? Fail to Reject the null

9. Please write your results in a "literature" or "research study" format:

The mean for the without cartoon was M=5.8333 with a SD= 1.64225 and the mean for with cartoon was M=6.3333 with a SD= 2.05971. The data failed to reach significance and there was not a significance between the groups , t(22) = -.658, p>0.5

A researcher hypothesizes that arousal levels will be affected by meditation. The sample participates in formal meditation classes for 3 weeks, before and after which arousal is measured.

Subject	BEFORE MEDITATION	AFTER MEDITATION
1	72	91
2	162	155
3	145	152
4	183	190
5	123	134
6	167	157
7	76	99
8	112	104
9	124	143
10	137	156

l. What is the researcher's hypothesis?

The researcher hypothesizes that arousal levels will be affected by meditation after a period of 3 weeks.

2. What is the null hypothesis?

The null hypothesis shows that arousal levels will NOT be affected by meditation after a period of 3 weeks.

3. What is the dependent variable? Levels of arousal

4. What is the independent variable? meditation

5. What is the appropriate hypothesis test?

Paired samples test

6. Please analyze the data using the appropriate hypothesis test on SPSS and cut and paste your SPSS results here:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00001	138.1000	10	31.27104	9.88877
	VAR00002	130.1000	10	36.76487	11.62607

Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Pair 1	VAR00001 - VAR00002	8.00000	12.49000	3.94968	-.93480	16.93480	2.025	9	.037	.073

7. Based on your SPSS results, do you reject or fail to reject the null?

Fail to Reject the null

8. Please write the “statistical statement” for your SPSS results:

9. Please write your results in a “literature” or “research study” format:

The mean for the before meditation was M= 138.1000 with a SD= 31.27104 and the mean for after meditation was M=130.1000 with a SD= 36.76487. The data failed to reach significance and there was not a significance between the groups