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?

Cartoons on cereal boxes will cause children to attribute higher taste ratings to the cereal.

2. What is the null hypothesis?

Cartoons on cereal boxes will NOT cause children to attribute higher taste ratings to the cereal.

3. Exactly what mean differences are you comparing here?

The mean of without cartoons and the mean of with cartoons.

4. What is the dependent variable? The effect: Children to attribute higher taste ratings to the cereal.

5. What is the independent variable? The cause: Cartoons on cereal boxes

6. Please analyze the data with 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	5.8333	12	1.64225	.47408
	VAR00002	6.3333	12	2.05971	.59459

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	VAR00001 - VAR00002	-.50000	2.19504	.63365	-1.89466	.89466	-.789	11	.447

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

7. Please write your "statistical statement": t(11)= -.789, P>0.05

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

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

The mean for Without Cartoons was M= 5.83 with a SD= 1.64. The mean for With Cartoons was M= 6.33 with a SD= 2.05. Our data were not significant, and cartoons on cereal boxes did not affect children to attribute higher taste ratings to the cereal. t (11) = -.789, P >0.05.

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?

A researcher hypothesizes that arousal levels will be affected by meditation.

2. What is the null hypothesis? Arousal levels will NOT be affected by meditation.

3. What is the dependent variable? The Effect: Arousal Levels

4. What is the independent variable? The Cause: Meditation

5. What is the appropriate hypothesis test? Dependent Measure T-test (participates are measured 2 times)

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							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	VAR00001 - VAR00002	8.00000	12.49000	3.94968	-.93480	16.93480	2.025	9	.073

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

Reject Ho

8. Please write the "statistical statement" for your SPSS results: t(9)= 2.025, P<0.05

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

The mean BEFORE meditation was M= 130.1 with a SD= 36.76. The mean AFTER meditation was M=138.1 with a SD= 31.27. Our data was significant, and our data supports that arousal levels will be affected by meditation. t(9)= 2.025, P<0.05

*** For the first question ***
Since it was randomly selected I tried using the Independent T-test on SPSS and I got this instead, so I went with the other one.

Warnings

The Independent Samples table is not produced.

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	0ᵃ	.	.	.
	2.00	0ᵃ	.	.	.

a. t cannot be computed because at least one of the groups is empty.

- Penzi, B.