

Extra Credit Assignment 3

Due Date: Friday, November 7 by 1pm.

Below is a description of a study that used a factorial design. Please read it and answer the following:

1. What is the dependent variable?
2. What are the two independent variables?
3. Which of the independent variables was done as a between subjects (participants) manipulation?
4. From the description of the data, was the effect of the two independent variables additive, a simple interaction or a crossover interaction? Explain.

In a memory experiment, participants were given a list of 40 words to remember. One half of the words were high frequency (very common) and one half were low to mid frequency (less common). For one half of the participants, the memory test was a free recall task where they were asked to write down all of the list words that they could remember. For the other half of the participants, the memory task was a multiple choice recognition test where each trial had a word from the list and three distracters that were similar in their frequency of occurrence in English and participants had to choose the word that was on the previously learned list. For the participants with a free recall task, the high frequency words were better recalled (45%) than the low frequency words (30%). For the participants who had a recognition test, the low frequency words were better recognized (74%) than the high frequency words (60%).

What to do (Rubric)-

The description of the research has in it the measurement of memory performance used (dependent measure) and the two variables manipulated by the researcher (independent variables). The first three questions ask you to break the study down and determine these components.

The last question asks you about the results of the study. Since the study was a factorial and factorials are designed to see the combined effects of variables (do they interact?), take the results and describe what was found.

The first three questions can each be answered as a sentence or less. The last one (additive, simple interaction or crossover interaction) requires an explanation of how the data fit the answer that you are giving.

The assignment will be graded on a scale from 0 (less than half of the questions done correctly) through 1 (half to most questions accurately answered) to 2 (all questions accurately answered).

1. **Dependent Variable:** Accuracy (words correctly recalled or recognized) on the memory tests.

2. **Independent Variables:** *One* is the frequency of occurrence of the words used in the memory list: high and mid to low. *The second* is the type of memory test (free recall or recognition).

3. The type of memory test (free recall or recognition) is between subjects. The description explicitly says that one half of the participants were given one and the other half were given the other. The other variable is not between in that the description says that participants were given a list (one list) or words with high and lower frequency words.

4. The data show a crossover interaction.

If you said that it was a crossover interaction and put in a graph showing the two curves going in opposite directions or said that the effects of the two variables reversed, this was accepted. Note that for recall, high frequency words are easier while for recognition, low frequency words are easier.

Problem areas:

Many people confuse the independent variables with their levels. If you said that the two IVs were the high frequency words and the low-mid frequency words, then you have confused the levels of the one variable (word frequency) with the variable.

For something to be a variable, it must have more than one value. High frequency words can not be a variable since all have the same value (high frequency). The variable is the word frequency and the levels are high and mid-low.. The type of memory test is also a true independent variable since it is also under the control of the researcher and there are two levels (two types of test: recall and recognition).

The second problem area was whether there is an interaction and how it is described. See 4 above.