**Enter your name here**: Click or tap here to enter text.

Question 1. A student inspired by a recently published result sets out to do a class project. The source report, Turnwald et al. (2019) reported that university students appear to prefer food when it is labeled in a taste-focused manner (e.g., “Herb n’ Honey Balsamic Glazed Turnips,” “Sizzlin’ Szechuan Green Beans with Toasted Garlic”) rather than a health-focused manner (e.g., “Healthy Choice Turnips,” “Nutritious Green Beans”). This suggested a hypothesis: maybe the same food is reported as tasting better depending on the label.

To test the idea, the student has participants eat edamame beans from plates labeled either “Healthy Choice Snacks” or “Succulent Delicious Snacks” and then provide a subjective rating of the taste on a scale from 1 to 10 where higher is better tasting. (Each subpart question below is 4pts, 36 points total)

1. What is the independent variable in this experiment?

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1. What is the dependent variable in this experiment?

Click or tap here to enter text.

1. Is this study a within-participants or a between-participants design?

Click or tap here to enter text.

1. State the hypothesis in terms of the variables of the study.

Click or tap here to enter text.

1. What statistical test would be used to test the hypothesis?

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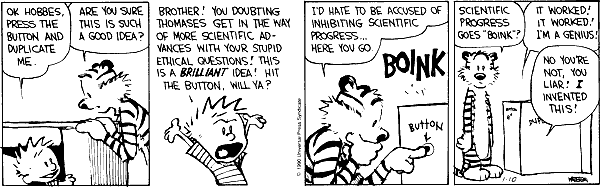
1. Unfortunately, after collecting data from a number of participants, the student found that the statistical test did not indicate a reliable result. When complaining to a friend about this, the friend (who paid better attention in 205) pointed out a few things. “You collected your data at all times of day, before and after meals. Half your data was collected at a food festival and half was collected in front of the library. You let people take as much or as little to eat as they wanted. No wonder you’re having trouble.” Outline an improved design protocol based on these observations that includes methodological approaches to controlling all 3 of these quasi-independent variables.

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1. Are the issues raised in (f) experimental confounds? Why or why not?

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*(n.b. Cartoon to fill space intentionally left blank)*



1. With help, the student collects a new set of data shown below copied out of the data organized in Excel. Report the results of the new, improved experiment here in two steps. First, give the descriptive statistics in a sentence with the conditions they were collected in.

|  |  |  |
| --- | --- | --- |
|  | Taste-focus | Nutrition-focus |
| Mean | 6.67 | 4.94 |
| SD | 1.61 | 1.66 |
| SE | 0.36 | 0.37 |

|  |  |  |
| --- | --- | --- |
| Statistical Output Table | |  |
|  |  |  |
|  | *Taste-focus* | *Nutrition-focus* |
| Mean | 6.66500968 | 4.93636651 |
| Variance | 2.5858708 | 2.75073625 |
| Observations | 20 | 20 |
| Pooled Variance | 2.66830353 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 38 |  |
| t Stat | 3.34647619 |  |
| P(T<=t) one-tail | 0.00092671 |  |
| t Critical one-tail | 1.68595446 |  |
| P(T<=t) two-tail | 0.00185341 |  |
| t Critical two-tail | 2.02439416 |  |

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1. Second, provide the report of the inferential statistics together with a directional statement of the effect of the IV.

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Question 2. Definitions.

Provide the appropriate terms for each prompt/definition. The answers should generally be 1-2 words, but if you are unsure of the answer, include more description or explanation as needed (3 points each, 30 total).

|  |  |
| --- | --- |
| The variable in an experiment that the researcher intentionally manipulates | Click or tap here to enter text. |
| The variable in an experiment that is a quantified measurement of behavior being studied | Click or tap here to enter text. |
| Term for a variable that accidentally/unintentionally varies exactly with the manipulated conditions and undercuts the conclusions | Click or tap here to enter text. |
| The subsection of the Methods section where you indicate the steps taken in the experiment. | Click or tap here to enter text. |
| An effect leading to poorer performance as the experiment goes on that is of concern in a within-participants design. | Click or tap here to enter text. |
| The technique of assigning participants to treatments so that each participant has an equal chance of being assigned to each condition | Click or tap here to enter text. |
| A participant’s voluntary agreement to participate in a research project after all the experiment details are explained | Click or tap here to enter text. |
| The phrase that describes the idea that the experiment did not work. The goal of the inferential statistics is to reject this idea | Click or tap here to enter text. |
| The name of the key guiding document describing guidelines for ethical human subjects research published in 1979. | Click or tap here to enter text. |
| The magnitude of the difference between conditions in the collected data | Click or tap here to enter text. |

Question 3. The *illusory-truth* effect is a phenomenon where the repetition of a statement leads to it being more likely to be judged as true. Inspired by a recent publication (Fazio, Rand & Pennycook, 2019) a student decides to run a study partially replicating the phenomenon before planning some follow-up research.

In their design, participants will first see a set of 20 statements that are false but that not everybody knows are false. These will initially be rated as to how interesting the statement is on a 1-6 scale. Example items are:

* Florence is a city in Italy that is known for its canals.
* Oslo is the capital of Finland
* Leibnitz was the first artificial satellite put in orbit by Russia in 1957

Then, the participants see a longer list of 40 similar statements that are also all false and will be asked to rate on a 1-10 scale how likely it is that the statement is true (1=’Certainly false’, 10=’Certainly true’). Half of these statements being rated about truth are being seen for the first time and the other half were seen once before during the rating of ‘how interesting’, which is how the repetition is implemented.

1. What is the IV for this study? (4 pts)

Click or tap here to enter text.

1. What is the DV for this study? (4 pts)

Click or tap here to enter text.

1. Is this a within-participant or between-participant design? (4 pts)

Click or tap here to enter text.

1. State the *illusory-truth* hypothesis in terms of the variables of this study. Make sure you explicitly reference the IV levels and DV in a directional statement. (4 pts)

Click or tap here to enter text.

1. Some people in the study will likely know more about which of the statements are actually false than others. Is this a problem for interpreting the results? Why or why not? (4 pts)

Click or tap here to enter text.

1. A student might be tempted to do this kind of research with controversial topical statements like “vaccines cause autism.” What ethical issue(s) would need to be evaluated prior to carrying out that study? (5 pts)

Click or tap here to enter text.

1. If participants were not blind to the study conditions and hypothesis, what problem might occur? To identify this problem, imagine if you participated in the study now after knowing exactly what it is about. (4 pts)

Click or tap here to enter text.

1. The initial statement of the *illusory-truth* hypothesis is that repetition increases the likelihood of judging a statement true, but the designs listed above only compare seen-once to unseen before judging truth. Outline a simple two condition design for an experiment to compare few repetitions to many repetitions and state what you would expect to find if the *illusory-truth* hypothesis was supported. Note that the original study by Fazio, Rand & Pennycook (2019), used both true and false statements and you can consider this approach for your design here. (5 pts)

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