Lab 6 – Designing a Study in the Islands

NAME – NETID

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Formatting Requirements:

- Please submit your lab report as a **pdf** to Gradescope.
- Be sure that all **group members** are **added** in your submission to Gradescope.
- When you upload to Gradescope, please **match pages** with the **question number**
- Answers to each question should be written in **full sentences**, and answers should be sufficiently complete and detailed.

Assignment Overview:

- Design an ***experiment*** that you could reasonably carry out in the Islands virtual world using the islanders as your participants. *For example: Does drinking coffee affect islanders' abilities to balance on one foot?* Come up with your own question and design an experiment to answer that!
- The purpose of this lab is to think through the choices researchers make when designing studies. Focus on making good design choices, while realizing that there are no perfect studies!

Getting Around the Islands

- Remember to watch the video linked in the assignment description on Canvas, but here are a few quick tips and reminders:
    - There are 27 villages scattered across the 3 main islands. If you click on a village, and then a household, and then a name, you can see their profile.
    - All people that you obtain consent from will show up in your Contacts on the top right.
    - When a villager gives you consent, a number of task options will appear.
        - Some tasks will just be an action they will complete that doesn't produce any data/result
        - Some tasks will produce data/result—it will appear on the top of the tasks page for that person
- Note that islanders sleep generally between the hours of 10pm and 6am (their eyes will be closed), so they will not be available to complete tasks during these times or give consent!

Question 1 (5pts): Describe in 2-3 sentences an experiment you want to facilitate with the islanders as experimental units. **Clearly identify** which **task(s)** will serve as your **treatment factor(s)** (and if applicable, whether there is a task serving as a **control factor**). **Clearly identify** which **task** that produces a *numeric* result will serve as your **response variable**.

- Do **not** use pre-provided variables, such as age and income—your study should involve variables that must be measured/collected under the tasks options.
- **Keep it simple**. Focus on just **one** response variable and **one** treatment factor. You will complete a small version of this experiment with 8 islanders as part of your submission.
- Be careful that you are proposing an **experiment**, not an observational study

Question 2: (3pts) Describe the population you want to generalize to (1 or maybe 2 sentences).

- Geographically, it must be representative of all 3 islands (i.e., your population cannot just be the northernmost island, or one particular village).
- That said, you may specify a sub-population. Consider if your experiment warrants some specification…
    a. a specific age range (e.g., 21 and over),
    b. a specific gender
    c. School children (found in each village's school)
    d. University students (found in each of the three universities: one each in Hofn, Arcadia, and Colmar)
    e. Hospitalized patients (found in each of the three universities: one each in Hofn, Kiyobico, and Maeva)
    f. Something else! Just make sure that you have an easy way to find people in your population of interest

Question 3: (3pts) Write a research question that you could answer with your experiment

- When writing your question, think about if there is a control factor that you are specifically comparing with the treatment factors. What is the "effect" you are trying to isolate?
- Be sure your question reflects the population and conditions you would like to generalize your results to.

Question 4: (5pts) *Imagine* you were doing this study with **40** participants. Describe how you would go about finding a representative sample of 40 people from your population of interest. A good sampling process should allow **everyone** in your **population of interest** to have **at least some chance** to be chosen (it's ok if it's not a *perfectly* equal chance).

- **Describe your process in detail**. It should be clear enough that someone else could replicate your process.
- If you are using a **random number generator**, briefly explain how you are using that (hint: do a web search for "random number generator," or webs search for RANDBETWEEN in Excel as two good options!).
- You **don't** need to say things like "we will put up flyers" to add any realism to this process. I'm asking how *you* as someone using the Islands website will use the website to find your participants.

Question 5: (6pts) After securing your sample, describe your experimental process from start to finish.

- Identify the specific experimental design you chose.
    a. If you chose a pre-post design, explain *why* you think this design is appropriate for answering your question. *Remember that pre-post designs are subject to more internal validity threats, so choose this design cautiously!*
- If multiple groups, discuss <u>*how*</u> you would sort participants with detail (for example, don't just say "I will randomly assign." Describe *how* you would do that).
- Discuss the ordering and timing of tasks for participants.
- Explain why you chose the control task/placebo that you did OR why you do not have a task for the control group. *This is important to think through—what exactly are you distinguishing as the effect of interest?*

Question 6: (7pts) Consider the 5 categories of internal validity threats and 3 categories of external validity threats that we learned in the notes. Do you think any of these may apply to your study?

- For each threat you discuss, be explicit of whether it threatens internal or external validity.

Question 7: (6pts) **Let's try out your design on a small scale**. Complete a "pilot study" using at least **10** islanders (you can use more, but don't overdo it!).

- Follow your described procedures as written (or as close as you can with only 10).
- Record your data on an Excel spreadsheet using one of the generic templates provided in the Lab 6 assignment page on Canvas.
    a. **Don't change the structure**—this specific structure is important for importing data into R.
    b. Make sure that your response variable column has only **numbers** *(no units, words, symbols).*
- Be sure to fill in all additional variables listed in the template.
- **Include a SCREENSHOT of your Excel sheet here in your report**

That's it! No need to "analyze" your data for this lab.