Lab 6 – Designing a Study in the Islands

NAME – NETID

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Formatting Requirements:

- Please include **names** and **NetIDs** up top (even if working solo!).
- Including original questions in your answer document is optional. Just make sure all answers are clearly **numbered**.
- 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 nation 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!

Getting Around the Islands

- Once logged in, explore a little bit! 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. These are things you can have them do and data you can collect. If it is a task that produces data, data will show up at the top.
- 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!
- Check out the tutorial video on Canvas for more guidance on navigating the Islands!

Question 1 (6pts): Describe in a one or more sentences an experiment you want to facilitate with the islanders. **Clearly identify** which **task** will serve as your **treatment 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 with only 2 or 3 factor levels. You will complete a small version of this experiment with 8 islanders as part of your submission.
- Do **not** propose an observational study. For example: Do science and art majors have different IQ levels? College major is not an intervention you can assign people to. You need to use an available task as your treatment factor. Food, activities, injections, etc. Browse the task options!
- Do **not** use the Mini-Cog Test or Visual Acuity Test as a response variable. They provide little to no variability among adults.

Question 2: (3pts) Based on the study you have outlined above, write a statistical question that you might try to answer with the results from your experiment.

Question 3: (3pts) Describe the population you want to generalize to (This should be short and clear!).

- 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. Examples include: a specific age range (e.g., 21 and over), a specific gender, school children or university students, or patients at a hospital.
    a. Children for each village are listed in the village's School.
    b. University students can be found in one of the three universities (one for each island). One in Hofn, one in Arcadia, and one in Colmar.
    c. Hospitalized patients can be found in the hospitals. There are 3 hospitals (one for each island). One in Hofn, one in Kiyobico, and one in Maeva.

Question 4: (6pts) *Imagine* you were doing this study with **60** participants. Describe the experiment from start to finish of how you *could* conduct this with 60 people.

- Identify the specific experimental design you chose.
- If you plan to have groups, discuss *how* 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.
- If there is a control group, explain if there is a placebo, or why you chose not to have one. *This is important to think through—what exactly are you distinguishing as the effect of interest?*
- If 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.

Question 5: (6pts) Consider the internal validity threats (examples of confounding in experiments) we discussed in the notes.

- Are there any internal validity threats to your design? Explain how you see this possible threat, and try to be specific.
- If you can't think of any significant threats, pick two or three strengths to the internal validity of your design!

Question 6: (6pts) **Let's try out your design on a small scale** using at least **8** islanders (you can use more, but don't overdo it!).

- Follow your described procedures as written (or as close as you can with only 8).
- Record your data on an Excel spreadsheet using one of the generic templates provided on Canvas. Please don't change the structure—this specific structure is important for importing data into R.
- Be sure to fill in all additional variables listed in the template.
- **Include a SCREENSHOT of your Excel sheet here in your report**