

## **COGS 4790 – Project**

For this project, you will conduct a psycholinguistic experiment. This will include several steps: setting up the experiment, collecting data, analyzing data, and writing up the results in the form of a paper.

There are several online platforms that can be used to conduct the experiment. Some examples are listed below, but you are free to use something else as long as it does what is needed. Feel free to explore around or use tools you're already familiar with. Many of these platforms have extensive support forums or guides on YouTube that can be useful. Some of these websites below even have examples of Lexical Decision Tasks and Self-Paced Reading experiments – these can/should be quite useful to you as you set up yours.

- [jspsych](#)
- [psytoolkit](#)
- [magpie](#)
- [psychopy](#)
- [PCIBex](#)

For your experiment, you will have a choice from between two primary options. The first is to do a “pre-packaged” experiment. In this folder there are specific instructions, but essentially this amounts to doing a replication of a published experiment (Gerhand & Barry, 1999) that has been already streamlined and packaged for you by me. I'll provide you a stimulus set, a clear set of objectives, and specific guidelines that walk you through the analysis.

The second option is a “student-driven” experiment. This could be either a replication of a different study you encounter or a novel research question and experiment that you want to explore. The milestones and finished products for this are the exact same as for the first option, but in this case you'll need to come up with (or find) the materials yourself and you'll have to figure out the best approach for data analysis, given your data.

In terms of assessment, since these two options differ in the number of considerations and amount of work involved, the maximum grade on a student-driven project will be a 60/60 (100%) and the maximum grade on a pre-packaged experiment will be a 54/60 (90%). I will not hold any personal judgment toward any student regarding which option they select, as both options are valid and achieve the learning objectives of the course.

More details on each of these options appears below.

**Milestone 0** is to inform me which of these options you will be selecting, although you can still change your mind later on. Milestone 0 is due on LMS by the start of class on **Thursday, February 13<sup>th</sup>**. If you are doing the student-driven project, please submit a brief synopsis of what your experiment will be; if you are doing the pre-packaged project, that's all you have to say.

### *pre-packaged experiment*

The study you will be attempting to replicate is a lexical decision task (Experiment 1 from Gerhand & Barry, 1999) investigating the effects of word frequency and age of acquisition on word recognition.

#### **Instructions**

- As a lexical decision task, each trial should consist of a single word, presented in the middle of the screen. At the bottom of the screen should be the two choices - "word" or "nonword" - the task is to decide whether that word is a real English word or not.
- Keyboard buttons should be set up as the responses. For example, "f" as word and "j" as nonword (or any reasonable setup like that).
- Each participant should see 64 words total. Each participant should see 32 real words and 32 pseudowords. If a participant sees a real word, they should not see the corresponding pseudoword.
- This experiment investigates the effects of two factors on lexical access – Age of Acquisition (Early vs. Late) and Word Frequency (High vs. Low). The stimuli are thus sorted into 4 categories – Early High, Early Low, Late High, Late Low.
- Each participant should see the same number of real words and pseudowords from each category. For example, in the Early High category - each participant should see 8 real words and 8 pseudowords.
- The best way to set this up would be to create 2 counterbalanced lists. For example, let's say "men" appears in List 1. "meb" should not appear in List 1. "meb" should, however, appear in List 2, and "men" should not.
- The items should appear in a random order, different for every participant.
- At the very start should be an instructions screen explaining the task and telling participants what to do in the experiment.
- The experiment should start with 12 practice trials so the participant can get the hang of it. There is no need to collect/analyze data from the practice trials.

### *student-driven experiment*

The experiment that you run must be either a Lexical Decision Task, Reaction Time experiment, or a Self-Paced Reading experiment.

Eventually, Milestone 2 will have you collect data for your experiment from real people. You'll be required to get a sample size of at least 8, so keep that in mind when thinking about your experiment (especially if your experiment will involve specific communities [e.g., bilinguals, people who speak a specific language, people of a specific age]). You may be able to share your experiment with people online with a link, but that'll ultimately depend on how you set your experiment up in Milestone 1.

If you are doing the student-driven experiment, I'll want to talk with you along the way and check in on your experimental design. If you're coming up with your own non-replicated experiment, you'll have to be very careful about how you set up your conditions and control for confounds (I can help with this!).

#### **General Instructions**

- As a lexical decision task, each trial should consist of a single word, presented in the middle of the screen. At the bottom of the screen should be the two choices - "word" or "nonword" - the task is to decide whether that word is a real word or not.
- If you are doing a reaction time task, the same idea applies, but use your relevant distinction instead of "word" and "nonword"
- Keyboard buttons should be set up as the responses. For example, "f" as word and "j" as nonword (or any reasonable setup like that). If you are doing Self-Paced Reading, use the space bar as the next-word trigger that participants press.
- Whatever the relevant conditions are for the items in your experiment should be distributed evenly for each participant. For example, if your experiment has some items in Condition A and some items in Condition B, make sure each participant sees an equal number of each.
- The items should appear in a random order, different for every participant.
- At the very start should be an instructions screen explaining the task and telling participants what to do in the experiment. This should not tell the participants what the experiment is investigating.
- The experiment should start with some practice trials so the participant can get the hang of it. There is no need to collect/analyze data from the practice trials.