

Research in the time of COVID-19: A workshop on conducting experimental linguistics research online

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Presentation Outline

Experiment builder software

Host servers

Data collection platforms

Tips for collecting quality data

DISCLAIMER: Like many of us, I am learning to adapt to online experiments because of COVID-19 and I am by no means an expert in online data collection!

Benefits of online data collection

- Faster data collection
- Not as expensive to run
- Larger sample sizes
- Access to a more diverse population (not just college students!)
- Quicker IRB turn-around time (typically...)

Step 1: Experiment builder software

- Tons of options!
- Selection of an experiment builder software should primarily depend on what you want that software to do
 - What type of experimental task, what kind of data is being collected, etc.

Survey-based data

Reaction time data

Self-paced reading data

Eye-tracking data

Speech recordings

Etc...

Experiment builder software options

Qualtrics

Pros

- Purdue has a license (available for free for faculty, staff, and students)!
- Graphical interface- no programming knowledge needed
- A very powerful tool for survey-style data collection (short/long answer text, fill in the blank, multiple choice etc.)
- Great options for randomization and block assignment
- Compatible with Amazon Turk and Prolific

Cons

- Narrow focus, only supports survey data
- Difficult to run anything too complex (have to manually code reaction time, provide participant feedback, etc.)

Experiment builder software options

Qualtrics

American name

French name



Instructions: Place your left and right index fingers on the E and I keys. At the top of the screen are 2 categories. In the task, words and/or images appear in the middle of the screen.

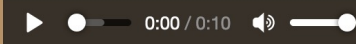
When the word/image belongs to the category on the left, press the **E** key as fast as you can. When it belongs to the category on the right, press the **I** key as fast as you can. If you make an error, a red **X** will appear. Correct errors by hitting the other key.

Please try to go as *fast as you can* while making as few errors as possible.

When you are ready, please press the [Space] bar to begin.

Part 1 of 7

C2C3S17



How well did you understand this person speaking English?

Not well at all

Very poorly

Poorly

Moderately

Fairly well

Well

Very well

Please rate the strength of this person's foreign accent, if any, when speaking English.

Nonexistent

Very weak

Weak

Moderate

Fairly strong

Strong

Very strong

Please evaluate this person's overall proficiency in English.

Not high at all

Very poor

Poor

Moderate

Good

Near-native

Native-like

Experiment builder software options

Gorilla

Pros

- Supports a variety of complex tasks (semantic categorization, phonetic perception, self-paced reading, game-like tasks, etc.)
- Multiple input methods (keyboard, mouse, voice recording, basic eye-tracking, etc.) and reaction time recorded with millisecond accuracy
- Great support community with a lot of onboarding/tutorial videos, example tasks and experiments, and open materials repository
- Graphical interface- no programming knowledge needed
- Very sleek design

Cons

- Not free, but not as expensive as some options (\$1.08/data download)
- So many options that it can get a bit overwhelming
- Steep learning curve if venturing beyond basic tasks

Experiment builder software options

Gorilla

Popular Classic Examples

Try out our top 3 most popular Classic Examples:




Semantic Priming



View a Classic semantic priming task; targets are paired with related or neutral primes. The semantic priming effect is the difference in RT and accuracy a related prime produces.

Reference: [Wikipedia](#)

Try it out!

Compatibility:   

The Big 5 Personality TIPI






View the Classic Ten Item Personality Inventory (TIPI) Questionnaire of the Big 5 Personality Measure.

Reference: [Wikipedia](#)

Link Reference: [GozLab-TIPI](#)

Try it out!

Compatibility:   

Stroop Task



Classic Stroop Task, in which colour names mismatch and match their text colour. Desktop version uses keyboard input. Mobile version uses touch buttons.

Reference: [Wikipedia](#)

Try it out!

Compatibility:   

Experiment builder software options

Ibex

Pros

- Free (kind of...) and open source
- Supports a variety of complex tasks (comparable to ePrime, but not as buggy)
- Multiple input methods (keyboard, mouse, voice recording, eye-tracking (?), etc.) and accurate reaction times recorded
- Graphical interface- no programming knowledge needed, BUT you can code your experiment using Python if you want
- Supports open science and code sharing (repository of experiments on Pavlovia), great support community

Cons

- PsychoPy is free, but you have to host your experiment on Pavlovia, which isn't free (~\$0.26/data download)
- Pretty buggy and not very sleek
- Integration onto Pavlovia is not very seamless (and sometimes impossible...)

Experiment builder software options

PsychoPy



*PsychoPy*³

Now running studies online

Experiment builder software options

jsPsych

Pros

- Free (kind of...) and open-source
- Supports a variety of complex tasks and input methods (including eye-tracking)
- Steep learning curve, but relatively easy for those who already know JavaScript
- Pre-existing library of plug-ins (ready-made templates for simple experimental tasks)
- Great support community and tutorials

Cons

- Does not have its own server, so you have to find a place to host your experiment (not always free)
- Uses JavaScript, so some programming knowledge needed

Additional experiment builder software options

PsychoPy

Inquisit

Tatool

Node game

lab.js

Firebase

**E-Prime Go (E-Prime 3.0
add-on)**

PsyToolKit

& many more...

Step 2: Host servers

- **Host servers:** Online repository that stores your experiment files, including collected data, and allows you to share the experiment with participants over the web
 - Many experiment builders have their own ability to host experiments (Gorilla, Qualtrics, etc.), while others require you to use a host server (jsPsych, PsychoPy, etc.)
 - For example, if you want to use jsPsych to build your experiment, you will need to use a server like Amazon Web Services to host it

Some servers cost money to use (typically charge per participant data download). Make sure to account for this when deciding which experiment builder to use!

Step 3: Data collection platforms

Amazon Mechanical Turk (MTurk)

Prolific Academic

Data collection platforms

Amazon Mechanical Turk (MTurk)

Pros

- Does not enforce a minimum hourly compensation rate for participants, so you decide how much you want to pay them
 - **Very cheap to recruit/pay participants**
- Large participant pool (at least 250,000 workers?)
- Relatively well-known
- Quick turn-around and participant payment

Cons

- Low hourly compensation can lead to poor data quality
- MTurk has a “superworker” problem, where despite having a large participant pool, it is estimated that 80% of experiments are completed by 20% of workers
- Majority of participants are US-based
- Charges 40% commission on top of participant compensation
- You have to pay extra to select participants based on pre-screening variables

Data collection platforms

Prolific Academic

Pros

- Does enforce a minimum hourly compensation rate for participants
 - Data is likely better quality
 - A more ethical way of experimenting
- Charges a 33% commission fee
- Pre-screening is free and sample sizes are able to be viewed in advance
- Ability to conduct follow up experiments on the same participants or exclude participants who previously completed a study

Cons

- Minimum \$6.50 hourly compensation
 - Data collection can become expensive
- Not as well-known
- Likely a smaller participant pool, but estimates that they have 145,000 active participants
- Data collection is fast, but participants don't receive their money as quickly as MTurk

Data collection platforms

Amazon Mechanical Turk (MTurk)

vs.

Prolific Academic

Ensuring good quality data

1. Design your study carefully!
 - Unlike lab-based experiments, people can't easily ask you questions, so clarity is key!
 - Make sure there aren't errors that could cause the program to crash mid experiment
2. Allow for honest answers
 - Including answers to survey questions like "I don't know" or "None of these", ensures honesty from participants. Fewer responses can lead to unintentional inaccuracy
3. Consider how participants will take your experiment
 - Is your experiment compatible with mobile devices and/or tablets? If not, make sure to exclude those devices (Prolific has the ability to do this)
 - Do you want to make sure participants wear headphones? Complete the experiment in full-screen mode? Answer required questions?
 - Make sure this is included in instructions and implement procedures that ensure they are doing these things

Ensuring good quality data

4. Include bot checks

- Use Captcha or include a bot check like the anagram task (unscramble letters to make a word) or have participants reword a sentence/bit of instructions

5. Implement quality control checks

- a) Front/back validation: ask the same question more than once during the experiment
- b) Exclude participants who flatline (select the same answer for all grid questions) or speed (participants who complete the survey in 1/3 the median amount of time)
- c) Add attention check questions/tasks and discard participants who fail these checks (participants are typically excluded if they fail 2 or more)

Ensuring good quality data

Examples of attention checks

Please indicate your agreement to the statements below.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I will be able to achieve most of the goals that I have set for myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When facing difficult tasks, I am certain that I will accomplish them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, I think that I can obtain outcomes that are important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe I can succeed at almost any endeavor to which I set my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will be able to successfully overcome many challenges.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident that I can perform effectively on many different tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other people, I can do most tasks very well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when things are tough, I can perform quite well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's important that you pay attention to this study. Please tick 'Strongly Disagree'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The colour test is simple, when asked for your favourite colour you must enter the word puce in the text box below.

Based on the text you read above, what colour have you been asked to enter?

2. Please select the answer that states "I provide honest answers to surveys"

I enjoy spending time with friends and family

I do food shopping weekly

I provide honest answers to surveys

I enjoy travelling overseas

I go to work by public transport

You may have to get creative when it comes to designing effective and fair attention checks for your own study!

Big takeaway:

Conducting research online
doesn't have to be scary!

- There are tons of great tools and resources out there!
- If you're feeling overwhelmed, seek out those resources and think about your experiment at a macro-level.
 - Participate in experiments on your own!
- You can do it :)

Thanks for listening!
Questions?