**CONTACTING PARTICIPANTS**

Jeff Mielke or another designated person will contact participants for scheduling via email.

**PROCEDURES**

[Note these changes to the procedure, since you last practiced it:

* We’re using a Zoom H6 digital audio recorder to get an additional higher-quality audio recording.
* The camera and the Micro ultrasound module are both powered through USB ports now. Cords and ports have been relabeled accordingly.
* The audio playback device is now the Scarlett Solo instead of the built in audio, and there is an audio connection from the Scarlett Solo to the SyncBrightUp, instead of from the computer’s headphone jack to the SyncBrightUp, and the Scarlett Solo’s volume matters now (but the computer’s doesn’t).
* GRAY video instead of RGB
* The camera has a tiny focus ring around the tiny lens. It should be focused when necessary. The camera does not auto-focus.
* There is a paper backdrop to place opposite the camera.
* The “interpolated” knob should be checked in the ultrasound settings. This gives a nicer image.

Recordings will typically be made in the Phonology Lab, but it is possible for participants to be recorded elsewhere since the ultrasound machine is technically portable.

1. **Consent:** The consent form will be read by the participant. The experimenter will ask if they have any questions. After the participant's questions have been answered, they will be given the opportunity to consent to participating. Most participants will sign the consent form. For participants who prefer not to sign a consent form, we can make an audio and/or video recording of the participant agreeing to participate in the experiment. This video recording will be kept solely for the purposes of verifying the consent process. It will be kept separate from the audio/video recordings that are used for research.
2. **Compensation:** If they choose to give consent and proceed with the experiment, they will be given $15 and reminded that they may choose to withdraw at any time without consequences. They will sign a receipt for the compensation.
3. **Speech data collection:**
	1. Start AAA, choose File > Open Project > browse for CL. Click open.
	2. Click File > New Client and name the clients sequentially like cl01, cl02, …. Use this code for last name also, so it appears on the screen.
	3. Click Edit… Prompt List and choose cla, clb, clc, cld, or cle, then close the window (it will not prompt you to save this setting). Try to rotate between prompt lists so that you use them about an equal number of times.
	4. Click the Record Ultrasonic + video tab (scroll right).
	5. Check Options > Ultrasonic Setup > EchoB settings:
		* Depth: 80 (can increase if needed)
		* Field of View: 100% (can increase if needed)
		* Power: 10% (can increase if needed)
		* Gain: 90 (can change if needed)
		* Dynamic Range: 62 (can change if needed)
		* interpolated
		* not delay acquisition
		* Probe frequency: 2 MHz (can change if needed)
		* Line density: medium (this may start out set to low)
	6. Check AAA video settings in Options > Video (video tab):
		* GRAY
		* NTSC
		* SyncBrightUp
		* Memory: 287
		* If ultrasound stops recording, go to Options > Ultrasonic Setup > EchoB > Memory tab and set Reserve Memory to 307
	7. Check hardware settings:
		* SyncBrightUp set to “mic”
		* Scarlett Solo direct monitor set to “off”
		* Scarlett Solo channel 1 gain set to 4 o’clock
		* Scarlett Solo channel 2 gain set to 11 o’clock
		* Scarlett Solo volume set to 3 o’clock (for recording, but lower it before you listen to a recording on headphones!)
		* The computer’s playback device should be set to the Focusrite Scarlett Solo
	8. Test the ultrasound by placing a hand-held probe under the participant’s chin. If the image doesn’t look good with the small probe, try the large probe. The large probe may give a better image for larger or older people (It’s a lot better for Jeff) and it’s good to figure out which probe will be good before you start putting on the headset and positioning the probe.
	9. Place the headset on the participant’s head and adjust as necessary to get a comfortable but firm fit.
	10. Prepare the Zoom.
		* Slide down and hold power button (lower left side)
		* Press 1 (to select channel 1) if it is not already lit (and unselect other channels if they happen to be lit)
		* After you place the microphone, adjust the top left gain knob and look at the level meter on the display. You want it to peak near zero but not hit zero very often or at all. Channel 1’s pad should be in the left (0) position.
	11. In AAA:
		* Check levels of the audio (top channel). Is the microphone turned on? Could it need a new battery? The microphone level can be adjusted with the Scarlett Solo gain 1 knob, but it also affects the video sync signal, so be careful. 3 o’clock worked well in test recordings.
		* Check for ultrasound sync pulses (bottom channel). They should appear on the screen as a bit more more than 50% of the maximum volume (but not reaching it).. Adjust Scarlett Solo gain 2 to adjust this.
		* To check the level of the video sync pulse, you can make a practice recording and make sure that the signal is a bit more than 50% of the maximum volume (but not reaching it). It can be adjusted using the Scarlett Solo gain 1 knob, but changes to this will also affect the audio.
		* Make sure the blue light on the sync box flashes at the beep of a test recording. Ask the participant to count to three to check audio on both devices. The level will be low in AAA but we want the audio to be detectable.
	12. Confirm that the ultrasound transducer, camera, and microphone, are attached to the headset and placed properly. The lips should be approximately centered in the video frame, but the most important thing is that they are visible. The lips should be in focus. Turn the ring around the camera lens to adjust focus if necessary. The microphone should be attached to the cheekbone pad hardware and pointed toward the mouth. Make sure the microphone cord is not in the camera’s view.
	13. Attach the Zoom’s microphone to the headset and make sure it and its cord are not in the camera’s view.
	14. Attach the white paper backdrop opposite the camera, to create a clean white backdrop for your recording (so you don’t have to worry about what appears to the speaker’s left, behind their lips). If there is a shadow on the backdrop, adjust the position of the lights in the sound-attenuated booth: one behind and one to the right of the participant works well.
	15. Start recording on the Zoom.
		* Press the red button to record (the red light next to it indicates whether you’re recording).
		* (It’s pretty easy to use this device. Each new recording should appear as a new wav file in the current folder.)
		* Because the Zoom will be recording on two channels, the memory card will fill up faster. Be sure to dump the Zoom’s contents onto the server after each participant.
	16. Apply gel to the transducer if you didn’t do it already and adjust the probe to get a nice image, looking for the hyoid shadow, the mandible shadow, and the genioglossus.
	17. Image the palate: Ask the participant to drink water through a straw. If there is a bubble against the palate, continuous swallowing should clear it. While the palate is clearly visible, record one or more “palate” clips.
	18. Image the occlusal plane: Unwrap one end of a tongue depressor, without touching the end that will go in the participant’s mouth. Either you or they can place it between their teeth (ideally between molars on both sides), taking it the rest of the way out of the wrapper. Then ask the participant to press their tongue against the tongue depressor. While a flat spot in the tongue surface is clearly visible, record one or more “occlusal” clips.
	19. Proceed through all the prompts: Click on a box and wait for the participant to read the phrase. If they are reading from the screen, ask them to wait until it beeps and the background turns blue. If you are using printed prompts, make sure the participant doesn’t start speaking before the beep is over.
	20. Press the record button on the Zoom again to stop the recording.
4. **Background questionnaire:** Ask the participant to fill out a copy of the background questionnaire.
5. **Wrap-up:**
	1. Ask the participant if they have any questions about our project.
	2. Note the recording details in a spreadsheet on the desktop:
		* Which ultrasound probe you used.
		* The ultrasound depth and field of view (defaults are 80 mm and 100%)
		* The angle of the probe in the headset.
		* The word list(s)
		* Anything unusual that happened that should be noted when we are analyzing the data
	3. Put the consent form and receipt into the Completed CL forms folder in the filing cabinet.
	4. Wipe down everything that touches the participant using Lysol wipes, let it air dry, and then wipe off the Lysol residue with a wet paper towel.
	5. Sync both the ultrasound and the video recordings. To sync ultrasound, go to Options > Ultrasonic Setup > Options > Sync recording. Make sure sync offset is 0 and then select Batch sync. To sync video, go to Options > Video > Sync new recording. Check the box for de-interlace and make sure sync offset is at 0. Then, listen to/watch a few of the recordings to make sure syncing worked. Sometimes, it is necessary to perform the video sync process a second time.
	6. If you are done for the day, power off everything. This includes the Zoom recorder, the microphones, the wireless mouse, and the laptop.
	7. Transfer the audio from the Zoom to the server.

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