## Supplemental Material S1.

## S1. Guidelines for recording from telepractice platforms in real-time via Praat Software.

#### PC Users (Windows 10)

- 1. Unplug headphones from computer.
- 2. Set system recording volume.
  - a. To enable Stereo Mix:
    - i. Right click on speaker icon (♥) in bottom right toolbar and select "Sounds"

or go to "Sound" in system settings and select "Sound Control Panel" from Related Settings (see *Figure S1-1(a)*).

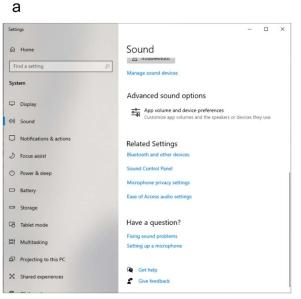
- ii. Select "Recording" tab in the Sound Control Panel window.
- iii. Right click on a recording device and select "Show disabled devices."
- iv. Right click on Stereo mix and select "Enable."
- v. Make "Stereo Mix" the Default Device and the microphone you are using the default communication device by right clicking on each recording device (see *Figure S1-1(b)*).
- b. If you have Stereo Mix enabled:
  - i. Right click on Stereo Mix and select "Properties" and click the "Levels" tab.
  - ii. Set the volume level to 50% and click "OK."
- 3. Go to Praat, select "New" and "Record Mono Sound."

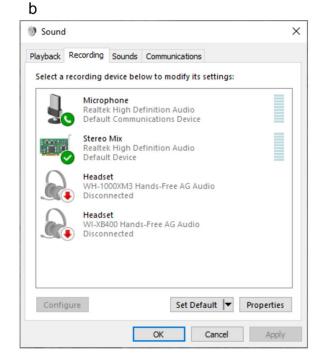
#### Mac Users (iOS)

- 1. Download the application "Soundflower."
- 2. Select "Window" on the Task bar, and click "Audio Devices."
- 3. Make a new Multi-Output Device by pressing the + sign at the bottom left of the Audio Devices window (see *Figure S1-2(a)*).
- 4. Select the output speaker you are utilizing and Soundflower (2ch) as output devices.
- 5. Right click on the Multi-Output Device and the Multi-Output Device the output device of choice. The speaker icon (◄) should now appear in front of Multi-Output.
- Again from Window, click on "Audio Devices" and make Soundflower (2ch) the Sound Input Device of choice. The microphone icon (♥) should now appear in front of Soundflower (2h).
- 7. In Sound Settings, confirm that Multi-Output is selected as the sound output (see *Figure* S1-2(b)).
- 8. Go to Praat, select "New" and "Record Mono Sound." Select Soundflower (2ch) as the input source (see *Figure S1-2*(*c*)).

Supplemental material, Weerathunge et al., "Accuracy of Acoustic Measures of Voice via Telepractice Videoconferencing Platforms," JSLHR, https://doi.org/10.1044/2021\_JSLHR-20-00625

*Figure S1-1. Sound Settings in Windows 10 for recording from telepractice platform in Praat software. a. Opening Sound Control Panel in system sound settings. b. Selecting Stereo Mix as Recording device.* 





Supplemental material, Weerathunge et al., "Accuracy of Acoustic Measures of Voice via Telepractice Videoconferencing Platforms," JSLHR, https://doi.org/10.1044/2021\_JSLHR-20-00625

# *Figure S1-2. Sound Settings in iOS for recording from telepractice platform in Praat software. a. Generating a Multi-Output Device. b. Selecting Multi-Output Device as sound output. c. Selecting Soundflower(2ch) as input source for the recording.*

а			С		
• •	Audio Devices		• • •	SoundRecorder	
MacBook Pro Microphone 1 in / 0 outs MacBook Pro Speakers 0 ins / 2 outs Soundflower (2ch) 2 ins / 2 outs Soundflower (64ch)	Multi-Output Device Master Device: Soundflower (2ch) Sample Rate: 48.0 kHz	? ut audio simultaneously, dd it to this device group.	File Query Meter Channels: Mono Stereo	Meter	Sampling frequency: 8000 Hz 11025 Hz
64 ins / 64 outs	Use Audio Device	Drift Correction			○ 12000 Hz
Wulti-Output Device 0 ins / 2 outs	Soundflower (2ch)     Powerbeats <sup>3</sup> MacBook Pro Speakers     Soundflower (64ch)		Input source: MacBook Pro Microphone Soundflower (2ch)	Not recording.	<ul> <li>16000 Hz</li> <li>22050 Hz</li> <li>24000 Hz</li> <li>32000 Hz</li> </ul>
			Soundflower (64ch)		• 44100 Hz • 48000 Hz • 64000 Hz
					<ul> <li>96000 Hz</li> <li>192000 Hz</li> </ul>
— <b>&amp;</b> ~	C	onfigure Speakers			0 192000 Hz
		Q Search		Close Save to	list Save to list & Close
Select a device for sound outp	Sound Effects Output Input				
Name MacBook Pro Speakers Soundflower (2ch)	Type Built-in				
Soundflower (64ch) Multi-Output Device	Aggregate device				
Settings for the selected device	ĸ				
The s	elected device has no output controls				
		?			
Output volume:	(	Mute			
	Show volume in menu bar				

## Supplemental Material S2.

## S2. Directions for turning off the computer audio gain control for microphone and speaker.

#### PC Users (Windows 10)

- 1. Right click on speaker icon (◄) in bottom right toolbar and select "Sounds" or go to "Sound" in system settings and select "Sound Control Panel" from Related Settings.
  - i. Select "Playback" tab in the Sound Control Panel window.
  - ii. Right click on the speaker utilized and go to "Properties."
  - iii. Got to the "Enhancements" tab in speaker properties and uncheck all sound effects (see *Figure S2-1(a*)).
  - iv. Select "Recording" tab in the Sound Control panel window.
  - v. Right click on the microphone utilized and go to "Properties."
  - vi. Go to "Enhancements" tab and uncheck all sound effects (see *Figure S2*-1(b)).
  - vii. Select "Communications" tab in the Sound Control panel window.
  - viii. Select "Do nothing" radio button as the option When Windows detects communication activity (see *Figure S2-1(c)*).

#### Mac Users (iOS)

- 1. In Mac 'Sound Settings," go to "Input" tab.
- 2. Uncheck "Use ambient noise reduction" option under "Settings for the selected devices" (see *Figure S2-2*).

Supplemental material, Weerathunge et al., "Accuracy of Acoustic Measures of Voice via Telepractice Videoconferencing Platforms," JSLHR, https://doi.org/10.1044/2021\_JSLHR-20-00625

Figure S2-1. Sound Settings for disabling audio enhancements in Windows 10. a. Disabling speaker audio enhancements. b. Disabling microphone audio enhancements. c. Disabling adaptive volume control.

 $\times$ 

Apply

a	С
Speakers Properties X	Sound
Seneral Levels Enhancements Advanced Spatial sound	Playback Recording Sounds Communications
Select the sound effects to apply for your current listening configuration. Changes may not take effect until the next time you start playback.	Windows can automatically adjust the volume of different sounds when you are using your PC to place or receive telephone calls.
Environment ^	When Windows detects communications activity:
Voice Cancellation  Pitch Shift	O Mute all other sounds
Equalizer V	Reduce the volume of other sounds by 80%
Sound Effect Properties	Reduce the volume of other sounds by 80%     O Reduce the volume of other sounds by 50%
Provider : Realtek	
Description : Simulates multiple playback environments.	Do nothing
Setting : None V	
	OK Cancel A
OK Cancel Apply	
Microphone Properties X	
eneral Listen Levels Enhancements Advanced	
Select the sound effects to apply for your current listening configuration. Changes may not take effect until the next time you start playback.	
Immediate mode	
Noise Suppression	
Acoustic Echo Cancellation	
Sound Effect Properties	
Provider : Realtek	
Description : To reduce the static background noise when recording (v2)	

AndreaElectronics.com

Apply

Cancel

ANDREA

OK

Supplemental material, Weerathunge et al., "Accuracy of Acoustic Measures of Voice via Telepractice Videoconferencing Platforms," *JSLHR*, <u>https://doi.org/10.1044/2021\_JSLHR-20-00625</u>

Figure S2-2. Sound Settings for disabling microphone audio enhancements in iOS.

	Sound Effects Output	t Input	
Select a device for sound	l input:		
Name		Туре	
Internal microphone		Built-in	
Settings for the selected d			
Input volum	evice: 		

Supplemental material, Weerathunge et al., "Accuracy of Acoustic Measures of Voice via Telepractice Videoconferencing Platforms," *JSLHR*, <u>https://doi.org/10.1044/2021\_JSLHR-20-00625</u>

## Supplemental Material S3.

S3. Mean differences of each acoustic measure between each telepractice platform and the original recording.

Telepractice Platform	Vocal f <sub>o</sub> Mean (Hz)	Vocal f <sub>o</sub> SD (Hz)	Vocal fo range (Hz)	SPL range (dB)	HNR (vowel; dB)	L/H ratio (dB)	L/H ratio (vowel; dB)	CPPS (dB)	CPPS (vowel; dB)
Cisco WebEx	10.75	13.03	17.88	31.58	-7.29	-3.10	-7.93	-1.443	-4.205
Doxy.me	13.20	15.11	27.61	2.65	-6.89	-5.69	-0.92	-1.878	-4.490
Microsoft Teams	6.77	6.17	14.05	-5.53	-6.68	-3.92	0.26	-2.338	-4.643
VSee Messenger	14.80	15.27	26.32	3.82	-7.31	-5.41	-0.19	-2.028	-4.690
Zoom used with enhancements	15.48	16.15	27.10	13.85	-5.49	-5.72	-4.53	-1.459	-4.187
Zoom used without enhancements	25.01	28.35	17.28	-10.71	-9.02	-0.54	4.52	-2.183	-4.495