

LOT 6- item 7

icSpeech Standard Edition, integrated with Speech Analyzer

Speech biofeedback

icSpeech uses the clinically proven technique of biofeedback to help improve your speech. Biofeedback lets you see your speech on a computer screen in real-time. At first, you learn to control your speech while looking at the display and comparing your speech to an example. Then, with practise, you learn to control your speech without looking at the display.



icSpeech supports the following biofeedback displays: Waveforms. Bar charts. Video. Spectrograms. Spectrums.

Waveform displays

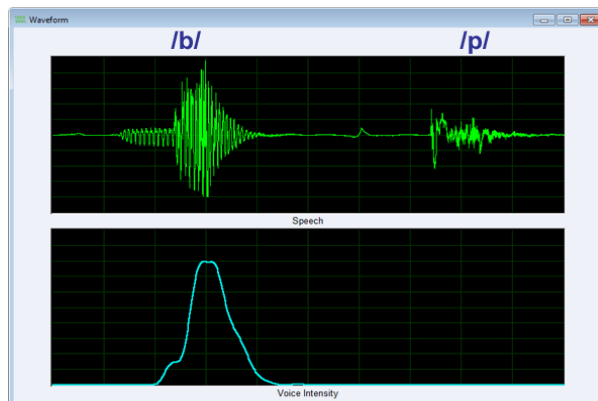
Waveform displays are useful for controlling speech rate, loudness and pitch. They also show the difference between voiced consonants, voiceless consonants and vowel sounds.

Waveforms scan across the display from right to left, with intensity or frequency plotted vertically and time horizontally. The time taken to scan the entire display can be adjusted to suit your needs.

The example shows a speech waveform (top) and a voice intensity waveform (bottom). This example clearly illustrates the difference between the voiced sound /b/ and the unvoiced sound /p/.

You can also save the waveform display and perform precise measurements on a range of speech parameters, including:

- Speech rate (independent of pauses or dysfluencies).
- Speech intensity (loudness).
- Voice pitch.
- Voice intensity.



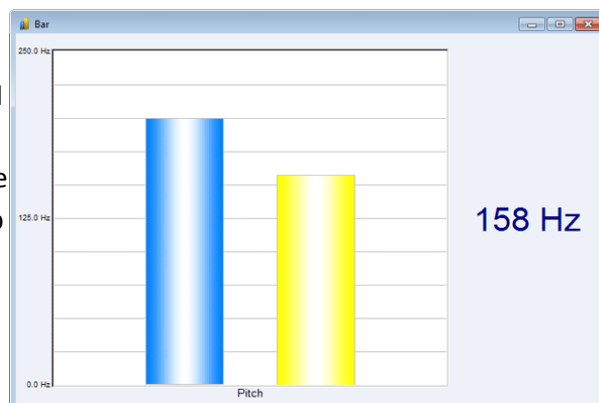
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- Voice onset time.
- Sentence, word, syllable and phoneme duration.

Bar displays

The real-time bar is a useful biofeedback tool that shows a simple bar, which moves upwards with increased pitch, loudness or voice intensity. This allows you to monitor your speech, make corrections, and instantly see the result. Bar charts are particularly useful when working with sustained sounds.

The example shows pitch (yellow bar) and a target (blue bar). Targets are adjustable bars that appear next to the active bar. Depending on the task, you can try to keep below, reach or exceed the target.



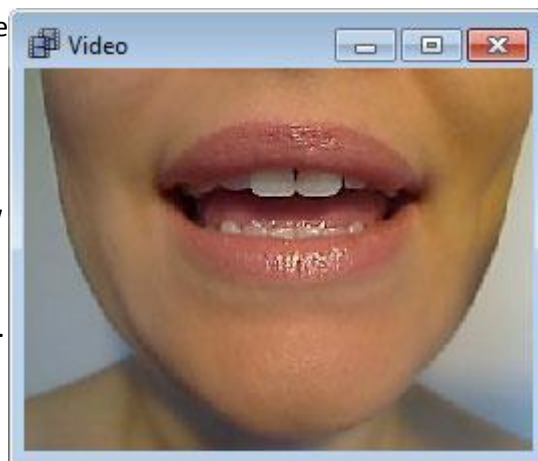
Video displays

Mirrors are often used in speech therapy as they allow you to view lips, teeth, jaw, tongue and facial muscles during speech.

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Visual feedback, using the built-in webcam feature, takes this a step further. With a webcam you can:

- Pause your image for closer inspection.
- Record your video and audio.
- Practise your speech whilst watching example recordings.



Spectrogram displays

A spectrogram is a visual representation of sound. It scans across the display from right to left, with frequency plotted vertically and time horizontally. The intensity of sound, or loudness

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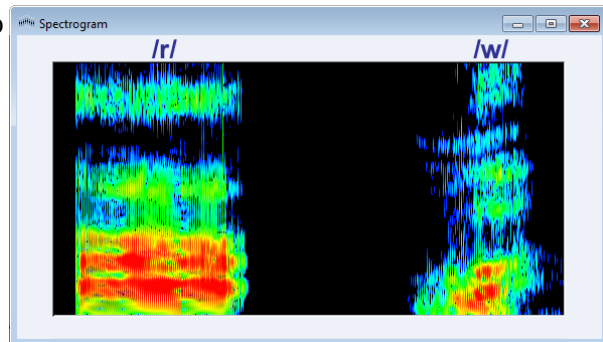
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, is indicated by grey scale or color intensity. The spectrogram below clearly shows the difference between the /r/ sound and the /w/ sound.

Studies have shown that some people, especially children, have difficulty detecting when they misproduce certain sounds. Spectrograms provide additional feedback, helping you to match your speech to a visual target. At first, you rely on visual feedback and learn to ignore your auditory feedback (people often say their correct speech production sounds wrong). Once you've mastered the correct speech production, you can start to rely more on your auditory feedback and less on the visual feedback.

Spectrograms can be particularly useful for people that substitute the following sounds:

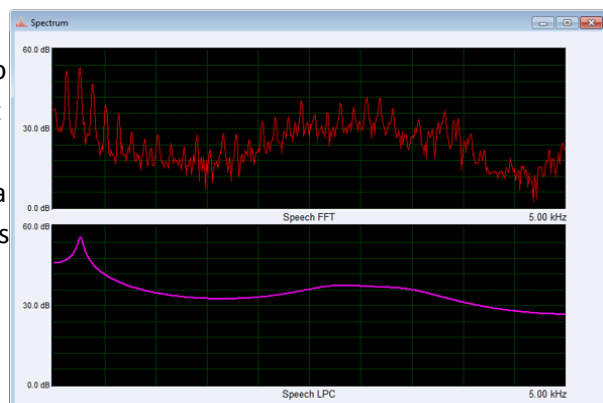
- /w/ for /r/
- /w/ for /l/
- /m/ for /b/
- /p/ for /b/
- /s/ for /ʃ/ or vice versa



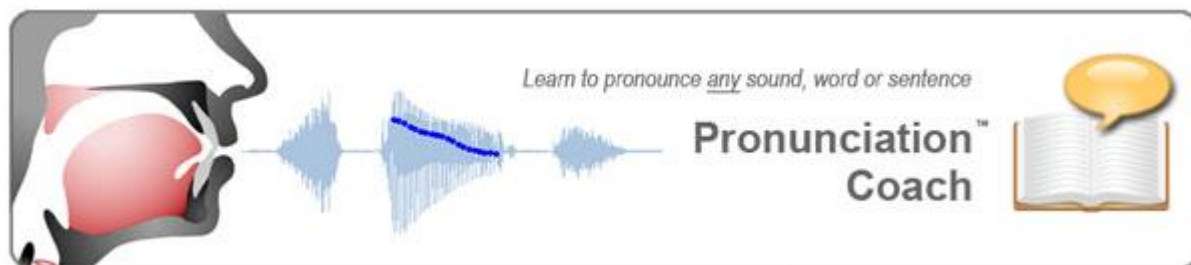
Spectrum displays

The spectrum display provides an alternative method of visually representing the acoustic signal. The display is ideal for viewing fundamental frequency (pitch), harmonic frequencies, and formant frequencies (vocal tract resonances). Speech intensity, or loudness, is plotted vertically and frequency horizontally.

The above displays illustrate the frequency spectrum for the vowel sound /i/. The top display (FFT) shows the fine spectral detail associated with the fundamental frequency and its harmonics. The bottom display (LPC), highlights the formant frequencies by removing the fundamental and harmonic frequencies.



Improve your articulation and pronunciation skills

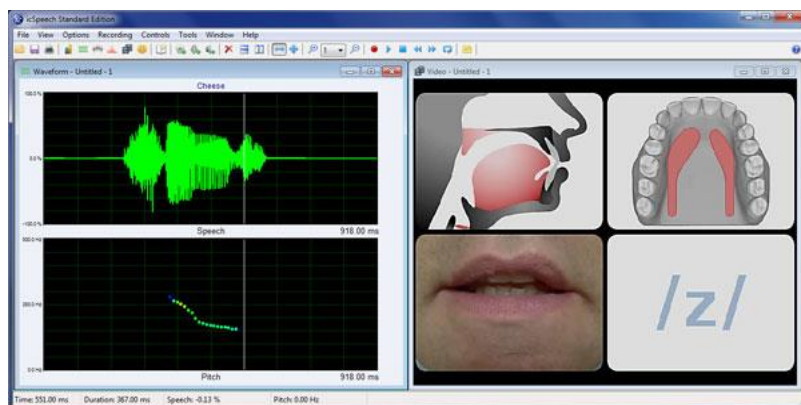


icSpeech Standard Edition now features Pronunciation Coach, an easy-to-use tool that:

- Shows you how to pronounce any sound, word or sentence.
- Records your speech and lets you compare it to an example.
- Uses state-of-the-art speech recognition to score your pronunciation.
- Contains a 21,000 word pronunciation dictionary.

Modelling pronunciation

Using Text to Speech technology, Pronunciation Coach shows you how to accurately pronounce sounds, words and sentences. Simply type in any sound, word or sentence (or use the built-in dictionary) to create a pronunciation model



Each model provides an interactive view of the speech production process and contains:

- Audio, for listening to the pronunciation.
- A video of the mouth and lips.
- A video of the speech anatomy.
- A video showing tongue contact with the roof of the mouth.

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- Phonetic symbols, to identify the individual speech sounds.
- Waveforms, for viewing timing, pitch and speech intensity (loudness).

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Practising your pronunciation

Once you've studied the pronunciation model, you're ready to practise your pronunciation. You can practise whilst viewing the real-time waveform and video biofeedback displays and comparing them to the model

Pronunciation Coach also uses state-of-the-art speech recognition to provide feedback on your pronunciation.

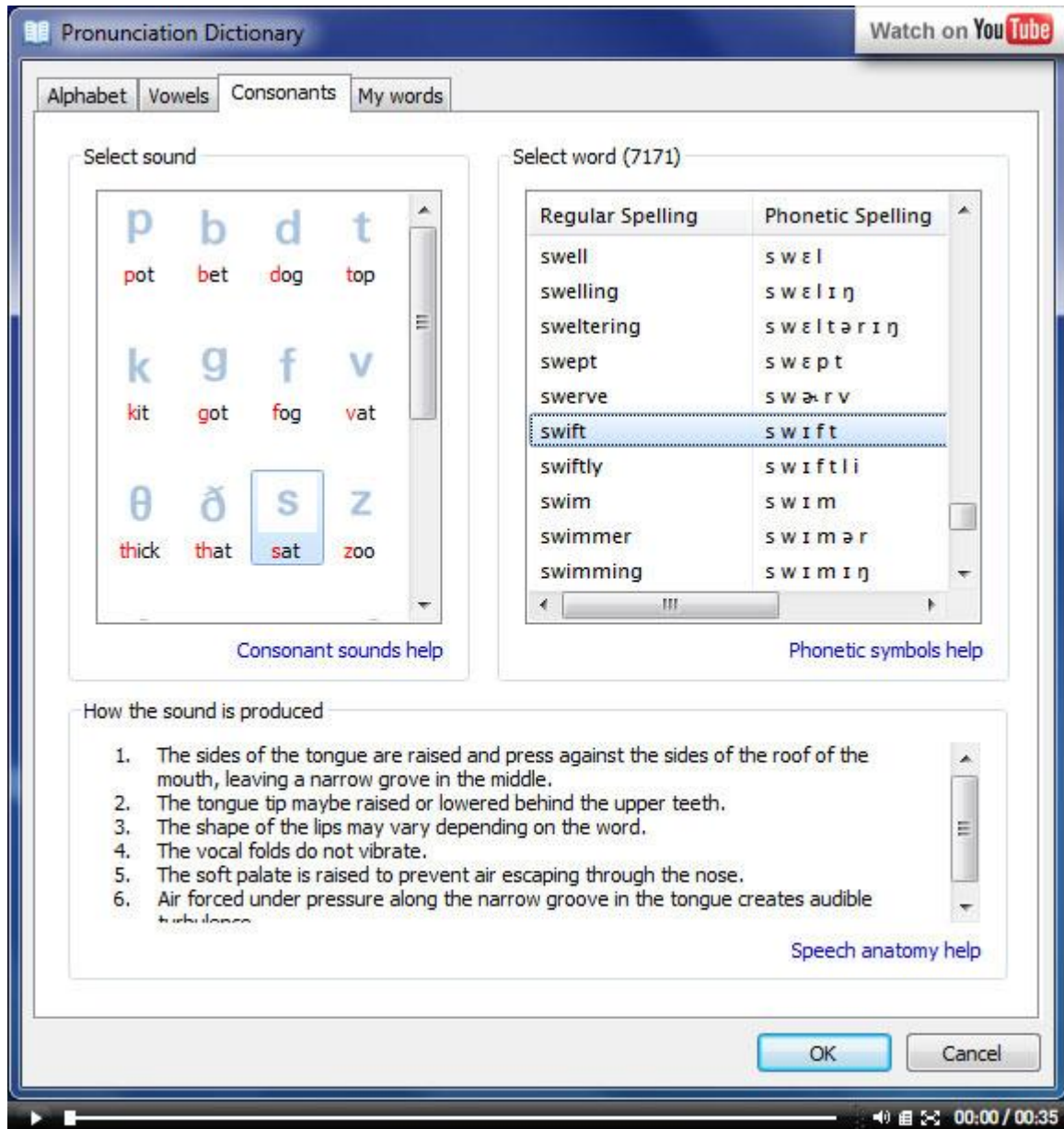


The speech recognizer tells you if it recognized your pronunciation correctly. It also provides a score, on a scale from 1 to 10, of how well you pronounced the word or sentence.

Pronunciation dictionary

The built-in dictionary lets you quickly create pronunciation models from over 21,000 words and sounds. The dictionary is arranged in alphabetical, vowel and consonant order, so you can easily locate the words or sounds you want to practise. If you can't find the word you're looking for, simply add it to the custom dictionary.

The pronunciation dictionary also provides the phonetic spelling for each word and a short description of how to produce the individual sounds.



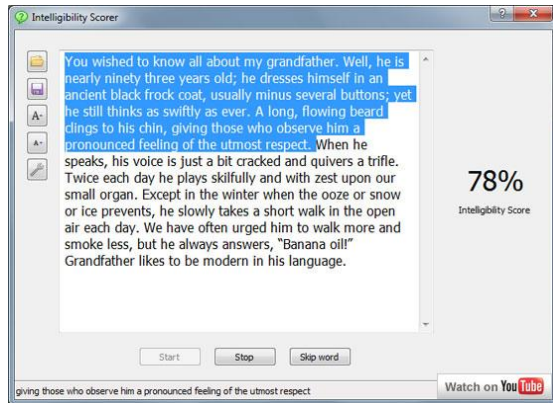
6. **Speech intelligibility scorer**

The Intelligibility Scoring feature uses state-of-the-art speech recognition technology to provide a measure of speech intelligibility. It does this by matching your speech to the text displayed on the screen.

How does it work?

To begin, simply enter any text and click on the "Start" button. You then read the words at your natural rate, pausing at the end of each sentence. As you speak, the speech recognizer automatically highlights and scores each word it recognizes.

If the speech recognizer fails to recognize a particular word, simply repeat it. If the word is persistently misrecognized, press the "Skip word" button and move on to the next.



Once all of the words have been highlighted, the speech recognizer will automatically stop listening and display your overall intelligibility score.

Entering text

There are several ways in which you can enter text:

- **Typing** - you can type in any combination of letters, numbers, words or sentences.
- **Copy and paste** - simply copy text from an existing document and paste it directly into the Intelligibility Scorer.
- **Text file** - icSpeech ships with a selection of text files that contain short passages. You can also create your own text files.

Speech recognition languages

The Intelligibility Scorer uses the computer's default speech recognition engine. There are several speech engines available for Windows:

- US English
- UK English
- French
- Spanish

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- German
- Japanese
- Traditional Chinese
- Simplified Chinese

If your preferred language is not installed, you can obtain additional languages by installing the appropriate language pack.

7.

Speech therapy games

Speech therapy games provide a fun and interactive environment for children to learn about speech. They also encourage children to practise their speech for longer.

icSpeech contains five interactive speech therapy games. Each game features adjustable targets, rewards and can respond to a number of speech parameters:

- Speech intensity (loudness).
- Voice intensity (voicing).
- Pitch.

9.

There's also a built-in voice recorder so you can record the gaming sessions.

Skywriter game

The object of the skywriter game is to fly the airplane through the cloud, while drawing speech patterns with the smoke trail. You control the height of the airplane by increasing or decreasing the selected speech parameter (i.e. pitch, loudness or voice intensity). A parachute is released every time the airplane flies through the cloud.

The height of the cloud can be adjusted to make the game more challenging.

Balloon game

The object of the balloon game is to burst the balloon with the bird's beak. You control the height of the balloon by increasing or decreasing the selected speech parameter (i.e. pitch, loudness or voice intensity). The balloon bursts when it touches the bird's beak!

The height of the bird can be adjusted to make the game more challenging.

Frog game

The object of the frog game is to capture the fly with the frogs tongue. You control the length of the tongue by increasing or decreasing the selected speech parameter (i.e. pitch, loudness or voice intensity). The fly stops smiling when he gets caught!

The position of the fly can be adjusted to make the game more challenging.

Pinocchio game

The object of the Pinocchio game is to avoid being stung on the nose by the bee. You control the size of Pinocchio's nose by increasing or decreasing the selected speech parameter (i.e. pitch, loudness or voice intensity). Pinocchio gets a red nose each time he gets stung!

The position of the bee can be adjusted to make the game more challenging.

Rocket game

The object of the rocket game is to reach the space station and carry out repairs. You control the height of the rocket by increasing or decreasing the selected speech parameter (i.e. pitch, loudness or voice intensity). An astronaut performs a space walk when the rocket reaches the space station.

The height of the space station can be adjusted to make the game more challenging.

Speech therapy voice recorder

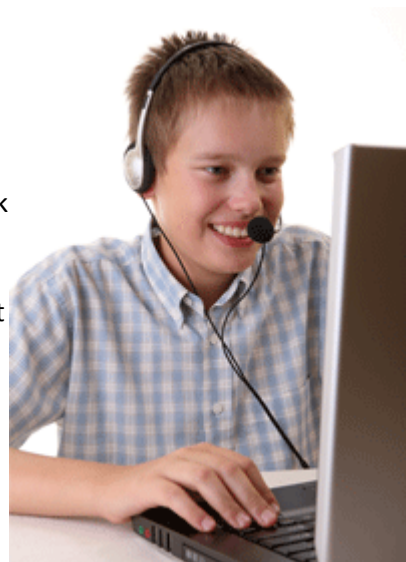
Whether you're a professional speech and language therapist or a home user, making recordings before, during and after therapy has many benefits.

For home users:

- Lets you document your progress.
- Lets you compare your speech with example recordings.
- Hearing your progress helps build confidence and keeps you motivated.
- Using picture prompts makes recording fun and interactive

For professionals:

- Helps to prove therapy efficacy.
- Improves clinical documentation.
- Enables the sharing of data with others.



- Lets you perform quantifiable measurements on a range of speech parameters

Make perfect recordings every time

Have you ever made a voice recording, only to be disappointed with the result? Well, you're not alone! Making good quality recordings, especially on a computer, can be a challenge.

That's why we've developed the icSpeech Recorder, so you can make perfect recordings every time. The easy-to-use setup feature lets you quickly optimize the recorder for any speaker, microphone or environment.

Make recording fun with picture prompts

Watch video

The voice prompt feature makes recording fun and interactive. Voice prompts are pictures, words or sentences that appear at set intervals during recording. Watch the short video clip to see how it works.

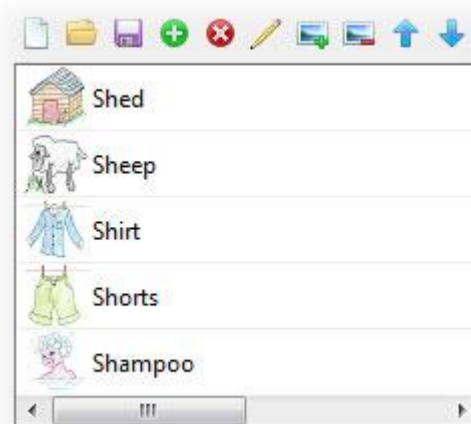
icSpeech Recorder comes complete with a large set of voice prompts. You can also create your own.

Create your own voice prompts

With the built-in voice prompt editor you can easily create customized voice prompts.

icSpeech Recorder is shipped with a selection of prompt lists and an extensive image library. You can also extend the library with your own images. Supported file formats include:

- BMP (bitmap).
- JPEG.
- GIF.



Listen to all, or part of the recording

Each recording is conveniently labelled, so you don't have to listen to the whole recording to find a particular word. Simply position the cursor over a word and press Play.



Record video using your webcam

icSpeech Recorder also captures video from your webcam. The video is fully synchronized with the audio, and is useful for viewing lips, teeth, jaw, tongue and facial muscles during speech.

Keep a note of what you've recorded

Keep a permanent note of what you've recorded by saving short descriptions with your recordings.

icSpeech Recorder uses a standard Windows file format, so you can easily share your recordings with others.

Who should use it?

icSpeech Standard Edition is an invaluable tool for anyone interested in the production of speech. It can be used by speech and language therapists or by their patients wishing to practise between sessions. It can also be used as an aid to improve singing, learning a new language or accent training.

System requirements

Operating Systems Windows 7, Vista and XP

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Microphone Any PC compatible microphone (USB headset recommended)

Webcam (optional) Any USB Windows compatible webcam