

SPEECH RECOGNITION/ VOICE TO TEXT TECHNOLOGY

(“You speak to it; it types”)

Speech recognition or voice-to-text technology would seem to be the ultimate assistive technology accommodation for students who have difficulty with writing. You speak—it transliterates what you say (or follows your voice commands) quickly and accurately. A quick comparison: an adult with typical fine motor skills can handwrite perhaps 30-35 words per minute at a maximum. An average typist can type 50-80 words per minute. A person using voice-to-text technology can easily dictate 140-150 words or more per minute without too much difficulty! Then why isn't this technology more widely used, especially for individuals who have difficulty with fine motor skills? In a word: **accuracy!**

Voice-to-text has improved dramatically over the years but still can be glitchy, especially with young people's voices and particularly in noisy environments. It requires a lot of patience and perseverance, strong motivation to write (and edit), and clear speech articulation. As a result, our Assistive Technology Team is careful about recommending it, especially for elementary school students. The difficulty is that the software makes a "best guess" as to what you are saying and comes up with actual words, whether or not they make sense. For example, here is a recent trial:

Target: *When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow.*

Dictation result: *Rana some rinks drake's raindrops in the air, the act like a prison and form in Reno.*

And here are a few recent samples using the iPad Dragon Dictation app:

A sixth grader:

Target: *Limpy is a fuzzy, yellow, baby duck. He belongs to a fisherman. The fisherman lives in a little house by the bay. Every morning children go swimming in the bay.*

Dictation result: *What he is an fuzzy yellow baby duck she is mail on us to the fisherman is the Fisher at red's in a little house by the day of morning are early-morning children go swimming in the bag.*

A third grader:

Target: *Hi grandma I love you because you are the best and you are the best ever.*

Dictation result: *Hello hello I love you think Café bed bath along the camera and the.*

Consider: How would a student even begin to edit or revise this?

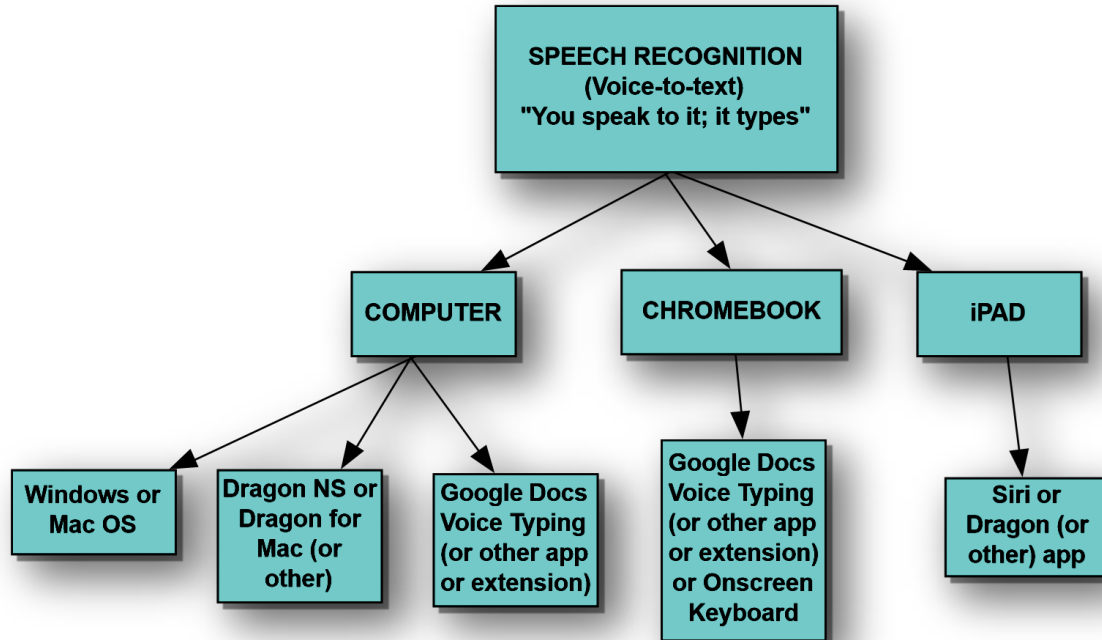
*****THAT SAID...**

Despite inherent glitches and inaccuracy with this technology, it MAY be advantageous for certain students to try using speech recognition/voice-to-text to help them with the writing process, at least for part of the time. Each student is unique and what works for one, may not work at all for another...

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There are several easy possibilities for accessing speech recognition/voice-to-text technology:



ON THE COMPUTER:

The most recent Windows operating systems have a speech recognition feature that can be accessed via the following pathway: **Start> Control Panel> Ease of Access> Speech Recognition**. (Or in Windows 10, just type **Windows Speech Recognition** into the Search box). This opens up a user-friendly wizard that leads you through the process of setting up the microphone properly (for greatest accuracy) and training the computer to recognize your speech patterns. On Macs, you can enable Dictation through System Preferences.

Google Docs now has a freely-available Voice Typing feature. Open a Doc, go to Tools (on the upper toolbar), and scroll down to Voice Typing.

Another possibility for computer access is to purchase third-party software such as the latest version of Dragon Naturally Speaking or Dragon Dictate. Once this software is installed and opened, it leads the user through an “enrollment wizard”—the process of adjusting the microphone and dictating a series of passages to help the software achieve greatest accuracy.

ON THE CHROME BOOK:

The Google Docs Voice Typing feature described above is also available on Chromebooks. In addition; the Chrome Browser has several apps or extensions that feature speech recognition including

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Read & Write for Google Premium (which has a number of other useful features as well), SpeechPad, Speechnotes, and VoiceNote II.

You can also enable the onscreen keyboard and then activate the microphone icon in the upper right portion of the keyboard area. This is a nice solution since it is a part of the Chrome OS anyway AND it works in any input field (including Gmail). **Sign in to your Chromebook; tap or click the status area (where your account picture appears); tap or click Settings, then Show advanced settings. Under "Accessibility," check the box for Enable on-screen keyboard.**

ON THE IPAD OR IPHONE:

Apple has the "Siri" speech recognition feature as part of the last several iOS upgrades. You can use Siri to dictate into any word processing app (e.g., "Notes") emails, etc. You can also use one of a handful of voice-to-text apps such as the free Dragon Dictation (download it from iTunes).

Siri or the iPad or iPhone apps do not require any setting up or "enrollment" procedure. Instead, your digitized speech sample is sent over the Internet to a cloud-based company database where it is compared with many thousands of stored speech samples. This process requires a wireless connection, but it is relatively quick, and the app soon displays your text in the main window. It may not be 100% accurate, (depending on how you dictated, ambient room noise, etc.), but it may be surprisingly close.

Some general tips for helping students access and use voice-to-text technology:

- Despite possible glitches in the technology, try to **assume success** with this strategy and support/prompt the student as needed, especially at first.
- **Speak naturally but clearly.** Practice speaking like a newscaster or sports announcer. Aim for consistent volume and speed, saying full phrases rather than individual words.
- Arrange for some way of **preserving the student's original ideas** so that if (when?) glitches happen, the ideas are not lost.
- If you are using a microphone, **make sure to position it correctly.** Ideally, an inch away from the student's mouth and slightly to the side.
- Remember: there is a range of different speaking tasks as well as a range of different writing tasks. What may not work with one task may work beautifully with another. The only way to know for sure is to **TRY IT!**
- If possible, arrange for the student to use the system in a **quiet environment.** Keep in mind that extraneous ambient noise will hamper the system's accuracy.
- **Mute the microphone when not dictating** (Extraneous speech or noise will get transliterated into gibberish and need to be corrected).

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- **Tackle dictation in shorter phrases**, rather than a 'stream of consciousness' style: This approach allows students to check what is being typed as they go, making it easier to make corrections when necessary.
- **The following sequence may be useful:**
 1. Have the student think of the sentence s/he wants to dictate. Rehearse it.
 2. Turn on the microphone.
 3. Dictate the sentence.
 4. Turn off the microphone.
 5. Check the sentence and decide whether any corrections are necessary.
 6. If the student is making corrections by voice, have him/her switch on the microphone, correct the text and then switch off the microphone.
 7. Go back to Step 1 for the next sentence.
- Whether you are using the computer, Chromebook, or iPad, encourage the student to correct mistakes after every sentence (or several sentences?). It is especially important when using the voice-to-text computer software to correct errors from WITHIN the software itself (using the recommended error-correction procedure) so that the software increases its accuracy over time.
- *****A FINAL CONSIDERATION: after the student has trialed the voice-to-text system, determine whether it is more or less desirable than a more “traditional” means of producing text such as hand writing and/or typing. (Hand writing or typing may be more slow, but may be much more accurate) You can ask the student for his/her opinion about whether it “works” or not... A question such as the following might be very revealing: “If you had to do a writing assignment for class, would you rather write it, type it, use word prediction, or dictate it into the iPad or computer?” Even students who do well with voice-to-text technology sometimes prefer to use traditional keyboarding...**