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OF HEALTH SCIENCES
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Reading Healthcare Content using Text-to-Speech Applications

By Andrew Leibs

Reading burdens all college students, but those in the health sciences face the added difficulty of medical jargon — terms that can make completing assignments tedious, especially for those who rely on digital audio to make reading accessible.

Linguistic precision, i.e. the ability to recognize and properly pronounce key terms in many medical disciplines, is not only essential for students, but is critical for communicating accurately (e.g., EHRs, notes and transcriptions) as a healthcare professional.

Fortunately, there are a number of assistive technologies that employ high-quality text-to-speech (TTS) and voice recognition that can help students read more effectively.

Built-in Text-to-Speech, Screen Access and Literacy Software

At the basic level, most operating systems, including Google, iOS, OS X and Windows, have built-in screen readers — apps or add-ons that use computer-generated voices to read aloud what's onscreen, including all text in documents, web articles, and e-books. You can access VoiceOver (Apple) or Narrator (Windows) through the "Control Panel" or "System Preferences." Each operating system also supports many free TTS apps you can download to your laptop or mobile device.

Note: Basic TTS apps aren't programmed to recognize medical terms and abbreviations; e.g., "EHR" might sound like "err." Most use algorithms to determine the most likely pronunciation, but "record" might sound like a verb.

Thought not foolproof, these programs can reduce the reading burden enough to make learning less taxing.

Specialized "screen access" software reads with far greater accuracy. A program such as JAWS for Windows — developed for the blind and visually impaired — will speak most words correctly. The speech is synthetic (i.e. computer generated), though it does enable you to change the pronunciations of words as you learn them.

The same is true for literacy software such as Read&Write GOLD, whose toolbar includes a TTS icon. Users can easily change word pronunciations; e.g., to say things phonetically, and the program remembers how to speak them correctly thereafter. Read&Write GOLD also highlights (in contrasting colors) each word and sentence as it's read aloud, making it easy to follow along with the text, regardless of voice quality.

More Sophisticated TTS Apps for Windows and the Mac

The better TTS applications — those that cost money — do offer much higher voice quality, including the ability to recognize and medical terms.

One example is TextAloud (NextUp.com, $29.95), a Windows-based TTS application that can handle complex medical language. The program lets users convert written text, including articles, web content, emails and documents, into synthetic speech and export recordings as MP3 audio files you can listen to on most popular portable devices, including the iPad, iPhone, iPod touch, and Kindle Fire.

Many students with print disabilities (e.g., dyslexia or visual impairment) use TextAloud as a study aid for its ability to provide a more rigorous level of scrutiny during the editing process. Listening as you read makes it easy to spot and correct typos, spelling or grammatical errors, or missing words or information.

TextAloud provides customizable keyboard shortcuts (Hotkeys) to simplify reading; e.g., rather than cut and paste text into the program, you can highlight it and press a single key to start or stop listening. Optional "Premium" voices also are available.

Windows users might also find success by having one of Cepstral Voices ($29.99 each) read words off documents saved (i.e. "printed") as Adobe Acrobat Professional PDF files. Another option is IVONA Voices for Windows (it supports

Android, too), which offers nine US/English voices, including the ever-popular Salli.

An option for iOS users is Voice Dream Reader, which is compatible with a wide variety of document formats. Its proprietary voice, Heather (US/English) comes across very clearly on an iPad, which is considered one of the best audio play devices. The application also offers over 100 additional (paid) voices in 20 languages from IVONA, Acapela and other TTS providers. In addition, the application automatically synchronizes with DropBox and similar file share programs.

Nuance Dragon NaturallySpeaking and Dictate – Medical Editions

Although expensive if purchased solely as a reading aid, Nuance Communications' line of Dragon speech recognition products for medical professionals may offer enough benefits to justify the cost. Individual licenses start at $199, and at $1,199 for healthcare organizations.

Although designed more to help healthcare providers cut transcription costs, Dragon NaturallySpeaking Medical 9 comes pre-configured with a voice recognition engine with the vocabularies of 14 medical specialties. It also enables you to create custom vocabularies to maximize recognition accuracy.

For reading, you can copy and paste any medical text into a blank document and hear it read aloud using one of the application's built-in readers.

Dragon's "killer app," however, is dictation, enabling you to write with your voice — which most people do three times faster than they type. The software works with all Microsoft Office applications and Windows-based EMR (electronic medical records) solutions, and supports various handhelds (e.g., digital recorders, Pocket PCs and Palm Tungsten) and Nuance-approved Bluetooth headsets.

Dragon Dictate Medical for Mac features an enhanced speech recognition engine with sophisticated acoustic and language models that can capture vocabularies used in 90+ medical specialties and subspecialties.

Dragon lets you dictate documents using Microsoft Office and Gmail — as well as most electronic health records — and navigate without keyboard or mouse. The program adapts to your voice and word choices (e.g., create custom word lists and macros for frequently used text), improving accuracy with each use. You can also

take notes on any iOS device, transcribe audio files or podcasts of a single speaker's voice, and use text-to-speech to proofread and back up documents.

While TTS solutions can aid reading with ever-improving voice quality, learning through listening requires you to remain an active reader. You may need to look up definitions and learn pronunciations before trusting crucial tasks to technology.

Resources

Read&Write GOLD
http://assistivetechnology.about.com/od/GoogleAndroidAccessibility/p/Readandwrite-For-Google-Literacy-Tools-Make-Cloud-Collaboration-Accessible.htm

TextAloud
http://www.nextup.com/purchase.html

Cepstral Voices
http://www.cepstral.com/

Voice Dream Reader
Voice Dream Reader

Nuance Communications Dragon products
http://www.nuance.com/for-individuals/by-product/dragon-for-mac/dictate-medical/index.htm