Voice Recognition Software for Learning Disabled Students

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This article first appeared in the newsletter for the Illinois Branch of the International Dyslexia Association

One of the more discouraging situations a dyslexic person faces is being unable to intelligently express his thoughts on paper. Students often avoid writing tasks because their written output is qualitatively very different from the thoughts that are in their heads.

For students with dyslexia, the additional processing demands of concentrating on spelling and forming the correct letters required to make words while remembering the thoughts they wanted to convey is often an overwhelming task. Usually, we see these students utilize a significantly simplified vocabulary and shorter essays for their writing compared to the sophisticated thoughts they convey when they are speaking.

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Often, when school personnel "consider" assistive technology (AT) for a dyslexic student, they recommend a typing device such as an Alphasmart for both lecture note-taking and for written output. Unfortunately, dyslexic students using these devices will still struggle because the intense concentration required to focus on overcoming spelling difficulties interferes with the student being able to simultaneously listen to the lecture. While writing answers and essays, many of these students still "dumb down" their written output because the vocabulary they want to use is still too difficult to spell, regardless of whether using keyboarding or handwriting mode. Additionally, many of these disabled students have typing speeds of four to ten words per minute, even after several years of keyboarding training at school. Such slow typing speeds will never be competitive with non-disabled college bound peers'. What are other options for students to demonstrate what they know?

Learning disabled students have benefited from having a dedicated scribe assist them in class and when they complete their homework. More recently, however, voice recognition software (VR) has improved to the point that, when coupled with additional software designed for the learning-disabled, students can become independent in their writing, possibly for the first time in their lives.

Dragon NaturallySpeaking Professional Version (Dragon Pro) has been dramatically enhanced over the past few years. Recognition accuracy has significantly increased to the point where professional lawyers, doctors, translators, and court reporters utilize this technology in producing detailed, professional documents. As mainstream VR usage has skyrocketed, the increased demand has fueled more rapid technological improvements that benefit the disabled community as well.

In the past, dyslexic students could only become independent in utilizing Dragon Pro if, during an extensive initial training period, they had an aide or trainer assisting them. This assistance was necessary because the correction process could only be visually read on the computer screen. Many learning-disabled individuals became discouraged because they had great difficulty independently completing such an extensive training and correction protocol and experienced unsatisfactory results.

Keystone ScreenSpeaker (Keystone) has made Dragon Pro accessible for learning-disabled individuals. Keystone does several important things:

First, it has special stories that are displayed in shorter phrases for the initial training in Dragon Pro. Keystone is able to read each phrase aloud to the student, so that he can use his own voice to repeat back what he hears rather than having to attempt to visually read the screen words in a fluent manner. Thus, initial training usually produces a highly usable voice file whereas learning-disabled students who do not have the stories read to them often do not get any farther than an unsuccessful initial training period.

With Dragon NaturallySpeaking Professional and Keystone ScreenSpeaker, students are able to proof and self-edit their papers like their peers.

Secondly, while using Dragon Pro software, a student

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must make corrections of what he or she said. While Dragon Pro does not misspell words, it may misrecognize them, especially during the initial few hours of dictation before the software "learns" a student's dictation style. Keystone will read Dragon Pro's correction windows, including the correction list of words or phrases from which to choose. Thirdly, although Dragon Pro will play back a recording of the student's voice, Keystone will read back the actual digital text appearing on the screen that Dragon Pro "typed." Thus, students can learn to proof and self-edit their papers like their peers.

Keystone also has the capability to indicate when a student needs to check for homophones (words that sound alike) and will announce misspelled words in documents if the student has typed rather than dictated. Keystone uses a special dictionary called Ellipsis, which contains corrected word suggestions based on typical dyslexic misspellings.

There are various versions of Dragon NaturallySpeaking available. However, in order to utilize some of the special functions of Dragon with Keystone as well as interfacing with other AT software, it is important to purchase the Professional version of Dragon NaturallySpeaking.

Dr. Marshall Raskind, while Director of Research at the Frostig Center in California, conducted research looking at the use of voice recognition technology in learning-disabled individuals. He found that students as young as the age of nine, after only ten hours of training, were able to independently produce typed essays (via VR) that were indistinguishable from their non-disabled peers'.

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Dragon Pro and Keystone programs can be used to dictate directly into many software programs such as a multisensory text-to speech (computerized reading) program called Kurzweil 3000, a writing organizer program such as Draft:Builder, and a computerized calendar/task list organizer such as Franklin PlanPlus for XP (Franklin). Thus, with a comprehensive configuration of hardware/software, learning-disabled students can read and dictate (directly into Kurzweil) their detailed answers to accessible worksheets, chapter questions, and other digital material. Students can also annotate their textbooks and other readings directly into Kurzweil, can dictate outlines, organize essays, can copy information from Kurzweil to create their own study guides with Draft:Builder, and by dictating directly into Franklin, they can finally organize their homework assignments and schedules like their non-disabled peers.

VR technology can be used for homework and any place where a student could dictate to a scribe. Most students would have this technology on a laptop computer so they can seamlessly use it at home as well as in multiple classroom locations throughout the school day. Some students dictate to reader/scribes during tests and to Dragon Pro/Keystone while at home, while other students use Dragon Pro/Keystone both at school and at home.

It is important to note that if a student needs assistive technology (such as a laptop, Dragon Pro, Keystone, Kurzweil, etc.) for completing homework, legal experts have stated that school districts are obligated to provide both the hardware and software for use at home. Ignoring a student's need for the same dictation/scribe services at home or exempting a student from the same homework expectations as his peers in order to avoid providing the AT for home use is usually viewed as denying the student access to his mainstream curricula.

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Voice recognition software has finally developed enough so that, with approximately ten hours of appropriate training, learning disabled individuals can access an appropriate, inclusive (mainstream) education and demonstrate their acquired knowledge. When students are able to do their schoolwork independently, their self-esteem improves as the quality of their work output finally reflects what they've learned.

For more information on assistive technology, readers can refer to my website at ***www.JeanneBeckman.com*** and click on ***Assistive Technology Articles and Information.***

Dr. Beckman is a developmental and clinical psychologist in Winnetka, Illinois who specializes in learning disabilities and assistive technology. She has presented lectures on such topics as technology accommodations and study skills training for college-bound LD students and accommodating students in inclusive classrooms from preschool through graduate school. She can be contacted at 847-446-1251 or emailed at AT_Psychologist@jeannebeckman.com.