Literacy and Assistive Technology Instruction for

Children with Visual Impairments and Multiple Disabilities

ICEB Project Description

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To no one’s surprise, braille translation software is typically used for braille translation. While this is a very useful purpose, it has untapped potential as a literacy instruction tool, for both reading and math. When using a braille display in combination with braille software, visually impaired students can:

* Read literary files auditorily using a print view, or in braille using a braille view, and switch back and forth between print or braille views depending on whether text is mostly literary or mostly mathematical
* Convert literary braille files to Microsoft Word, and Word or other electronic files to braille, to be read using a computer and braille display
* Type and read in Nemeth
* Copy and paste steps from one line to the next, and alter each new step just as they would if they were working with a pencil and paper
* Keep track of steps and return to previously recorded steps to check work
* Learn how to problem solve, beginning in elementary school, so that mental math can be combined with literacy just as for all other students
* Organize electronic braille notes, including math documents, and save work for perpetual convenient use and access
* Read, interpret, apply, solve, and create spatial problems, including synthetic division, systems of equations, and long division
* Use cell orientation to align text or graphic elements and create reliable paths from one step to the next
* Read, interpret, apply, solve, and create advanced braille dot graphics
* Use in combination with JAWS to get print text or ASCII feedback along with braille on the display
* Make braille, including math, fully available to parents, teachers, peers, paraprofessionals, and tutors not familiar with braille, through an interpretation line, braille dot drawings, or translated print
* Move easily between multiple braille documents, calculators, and other class files
* Receive, store, read, and access literary, math, and science textbooks as electronic files in folders that are easy to organize and use
* Make print page numbers and running heads visible so that students can search textbooks or other documents by page number
* Bookmark parts of the text for easy access later, particularly those parts being used in the classroom or for homework that must be located quickly
* Enable find and replace options that make it easy to locate exercises, stories, problems, and other classroom text
* Receive homework by email from a TVI or remote transcriber, then complete it using the same file
* Print, scan, or email work for a classroom teacher to grade, then receive quick and useful feedback by email

With effective technological, braille literacy, and mathematical training, braille software in combination with a 40-cell braille display makes it possible for blind students to access literary, mathematical, and scientific text in the way that they determine is most appropriate for them. They can produce materials in the most appropriate format for their teachers and peers, collaborate with peers on class projects, and gain increasing independence with college and professional success as the ultimate goal.