Adaptive and Assistive Technology

Below you will find several technology interventions suitable for use with special needs students. Two interventions are listed for each of the following categories of special needs student:

- Students with Cognitive Difficulties
- Students with Physical Difficulties
- Students with Sensory Difficulties
- At-Risk Students
- Gifted and Talented Students

**Technology for students with cognitive difficulties**

**Reading Assistant** from Scientific Learning is an online program that uses speech recognition to help students self-correct miscues when reading aloud to increase fluency. When students have difficulty reading a word, Reading Assistant gives them a visual clue. If the student does not self-correct, then it pronounces the word for the students. Due to its web accessibility, students can use this program from home or school to increase reading fluency. ([http://www.scilearn.com/products/reading-assistant/](http://www.scilearn.com/products/reading-assistant/))

**Clicker** from Crick Software has numerous features that help students become better readers and writers. The software provides writing support using a word predictor that suggests words that fit into the context of students writing. It is highly visual with more than 2,500 curriculum-related pictures that can be used with the ease of clip art. Teachers can individualize activities for students using the wizard function to create sentence building sets, word and picture banks to support learning.

**Technology for students with physical difficulties**

**TalkTyper** is a free speech to text dictation software that works in Google Chrome version 11 browsers, and other browsers that support speech input. Users click on the microphone icon and begin dictating one phrase or sentence at a time. Editing of unrecognized software is available, and users can see alternate versions incorrectly recognized speech. The text can be copied and pasted into a variety of other documents.
**BigKeys Keyboards** offers a variety of adaptive keyboards for those who experience difficulty with traditional keyboards. Keys have a one square inch pad and are available in qwerty and ABC styles. In addition, the company sells big trackballs and adapters for iPads.

**Technology for students with sensory difficulties**

For some students with visual difficulties, the **MAGic Screen Magnifier** software will enable them to read what is on a computer screen. The software enlarges text on a computer screen up to 36 times its original size and makes mouse pointer and cursor more visible as well. Settings can be customized to for a variety of needs. The software also echoes letters as they are typed. Screens can be split with varying levels of magnification for each. Students will find it easier to focus on critical parts of a computer screen using the features of this software.

An assistive listening system such as an FM device, such as the **Motiva Personal FM System from Williams Sound**, enables students with hearing difficulties to more easily hear the teacher from anywhere in the range of the device. The teacher or other speaker wears a transmitter which is connected to a microphone, and the student wears the receiver and earpiece. Many systems can be used with existing hearing aids.

**Technology for at risk students**

At the core helping at-risk student is making them feel valued and engaged in a positive setting where success is possible (Elias, 2009). At-risk students respond positively to technology (Elliot Soloway, 1995). Numerous highly visual and interactive activities are available to engage at-risk students.

**VmathLive** is an interactive drill and practice web-based program that takes students through a series of lessons and allows them to play competitively against other students. Teachers can assign lessons and track performance as students increase their math skills.

The **Tech4Learning** suite contains several creativity programs designed to fit within the Universal Design for Learning Model, helping struggling and at-risk students demonstrate learning successes in an easy to use manner and engaging way (Teach4Learning.Inc, 2012). **Pixie** is an example of one of the Tech4Learning programs. **Pixie** allows students to collaborate and share ideas, and demonstrate understanding using text, original artwork, narration, and images.
Technology for Talented and Gifted Students

Many high achieving students are drawn to technology for a variety of reasons including the nearly unlimited access to information, freedom to explore divergent topics, and the ability to create higher-level projects (Siegle Del, 2010).

One website that is a gateway to independent exploration is Hoagies’ Gifted Education Page. Links are as varied as students’ interests and range from Arts, Theater, and Music to Math, Natural Science, and Space. Many interactive games and puzzles are available, as well as brainteasers, logic and optical illusions.

Smithsonian Education for students is a great jumping off point for independent thinkers. Students can explore by topic: Art, Science & Nature, History & Culture, and People & Places. The Idea lab section allows students to explore the universe, learn about prehistoric climate change, or rationing during World War II, play digging for answers to test research skills and similar engaging and informative activities. Many activities are interactive, but downloadable activity sheets are available as well.

References:


