Assistive Technology for Reading and Writing

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Why Assistive Technology (AT)?

- Legislation
  - IDEA – part of IEP
    - Enables students to make reasonable progress toward goals
  - **Section 504 of The Rehabilitation Act of 1973**
    - "auxiliary aids to qualified students who have disabilities"
  - **Title II of the Americans with Disabilities Act of 1990**
- 6 million students receive special education services or 10% of students in public schools*

Why Assistive Technology (AT)?

- More often used in special education classrooms*
  - Inclusion and learning disabilities
  - 8 of 10 learning disabled students have significant reading problems
    - Cannot read and understand grade-level material

What is AT?

- First defined in Technology Related Assistance for Individuals with Disabilities Act of 1988 (Tech Act)
- “The term ‘assistive technology device’ means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability. “ – [IDEA section 602](https://idea.ed.gov/pubs/text/602.html)
Assistive Technology

- Ranges from low to high tech
- Includes software and hardware
  - Includes any digital application that enables a student to comprehend text by supporting one or more components of the reading process*

Assistive Technology

- Used to strengthen skills
  - Memory
  - Organizational
  - Writing
  - Reading
- Beneficial to those with receptive and expressive disabilities
Assistive Technology

- Evaluate and match with learning styles
  - Word prediction
  - Scanning and Optical Character Recognition (OCR)
  - Text to speech
  - Speech to text
  - Talking dictionaries
  - Graphic organizers
  - Talking word processors
  - Screen readers
Electronic Text, E-Text

- Read by a computer or another electronic device
  - Presented/organized in ways that accommodate individual learning styles
  - May be easier for some students to access text electronically than in traditional printed format
Electronic Text, E-Text

- Easily adaptable
  - Screen and text readers
  - Word prediction
    - Font size, color, highlighting, word spacing, reading rate
- High interest to students
  - Motivates students
  - Levels “playing field”
  - Interactive
AT in Reading

- Reading support
  - Helps students access grade-level material*
- Reading intervention
  - Strengthen reading skills*

Digital Text and Audio

- **eBooks**
  - Accessible Book Collection [http://www.accessiblebookcollection.org](http://www.accessiblebookcollection.org) - $49.95, multiple copies
  - Digital Book Index [http://www.digitalbookindex.org](http://www.digitalbookindex.org) (search tool)
  - Project Gutenberg [http://promo.net/pg/](http://promo.net/pg/) (public domain)
Digital Text and Audio

- **Reader Comparisons**
  - [http://ncam.wgbh.org/ebooks/comparison.html](http://ncam.wgbh.org/ebooks/comparison.html)

- **Download Readers**
  - [http://www.digitalbookindex.org/frameheader.htm](http://www.digitalbookindex.org/frameheader.htm)

- **Audio Files**
  - Recording for the Blind and Dyslexic [http://www.rfbd.org/](http://www.rfbd.org/) - individual membership $35/yr + $65 registration fee
Text Readers

- Students with learning disabilities can identify more errors in written text that is read to them than if they were to read the text themselves*
- Improves word identification skills*
- **ReadPlease 2003** – free
- **Kurzweil 3000** – total literacy solution – starts at $395
- **Read & Write Gold** – total literacy solution – $625
- **WYNN** – total literacy solution - $995
- **Thunder** – free screen reader

Text to MP3 and WAV converters

- Alive Text to Speech –
  [http://www.alivemedia.net/textspeech.htm](http://www.alivemedia.net/textspeech.htm) ($29.95)
Reading Web Sites


- Windows to the Universe
  - Adjust Reading Level
  - Definitions
  - Games
  - Classroom Activities
  - Spanish Version
  - [http://www.windows.ucar.edu/](http://www.windows.ucar.edu/)

- Star Child
  - Four languages

- Starfall.com
  - [http://www.starfall.com/](http://www.starfall.com/)
Writing Skills and AT

- Use of letter form
- Use of writing mechanics
- Content organization and elaboration

Students with Writing Disabilities May...*

- Avoid writing
- Have little organization
- Make grammatical or spelling errors
- Have difficulty retrieving vocabulary
- Write fewer words
- Fail to make revisions
- Produce illegible products

Writing Help

- Word Prediction
  - Originally designed for students with severe disabilities
  - Gives choices, finds words, completes sentences
  - Allows students to compose at a level commensurate or oral-expressive ability*

- **Aurora** - $149
- **WordQ** - $225
- **SpeakQ** - $135
- **CoWriter** - $325

Writing Help

- Talking Word Processors
  - Documents that use word processors tend to be longer in length, contain fewer mechanical errors, and are of better quality*
  - Using word processors students produced texts with reduced spelling mistakes and ability to read the output with higher accuracy—increased academic function in general education classroom**

- Write:Outloud - $99

- Free Dictionary and Thesaurus
  - WordWeb - [http://wordweb.info/free/](http://wordweb.info/free/)

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Graphic Organizers

- Can help establish purpose
- Increase memory
- Chunk information
- Brainstorming
  - Outlines and templates
  - Inspiration (6-12) and Kidspiration (K-5)
  - CMAP – free – concept mapping
Other Considerations

- National Instructional Materials Accessibility Standard (NIMAS) http://nimas.cast.org/
  - Conversion of textbooks and other instructional materials into accessible formats—large print, audio, braille
  - NIMAS defines print disabilities but does not include cognitive disabilities
  - Incorporated into IDEA in 2004
  - Funded by the Office of Special Education Programs
- The Fairness of AT
  - Measure performance with and without over time (Time Series Concurrent Differential)*

Questions?
Thank you!

http://ditc2008at.wikispaces.com/
References

References
