

Assistive Technology Resources for Children and Adults with Disabilities

Closing The Gap

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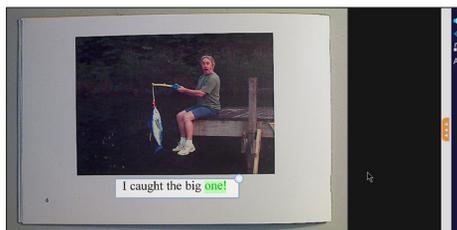


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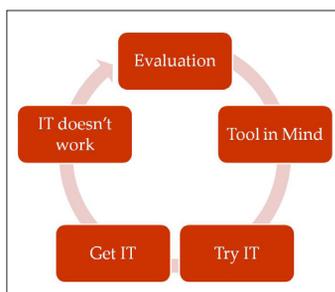
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Read it to Me - On the Fly! (Part I)

Scan-and-read applications have been around for a long time. These are programs that allow you to connect a flatbed scanner to a computer, place a document or page from a book on the scanner, and the application typically runs the scanner for you, scanning and importing the document into the application. Then the application uses OCR (optical character recognition) software to convert the image it has scanned into an electronic document that the program now sees as a text file, versus an image file. Text-to-speech components in the software can now read the document aloud.

Why was this important? It broke down the barrier to printed text for many individuals. For those with vision impairments, it would read it to them; individuals with dyslexia or reading disabilities, students reading below grade level and ELL students who could understand English, but not read it, now had access to the text on a page.

But there was a catch. Schools purchased software, but the scanners were often nowhere to be found. Software drivers also needed to be installed on any computer that you wanted to run the scanner from. When you needed to scan something, scanners were

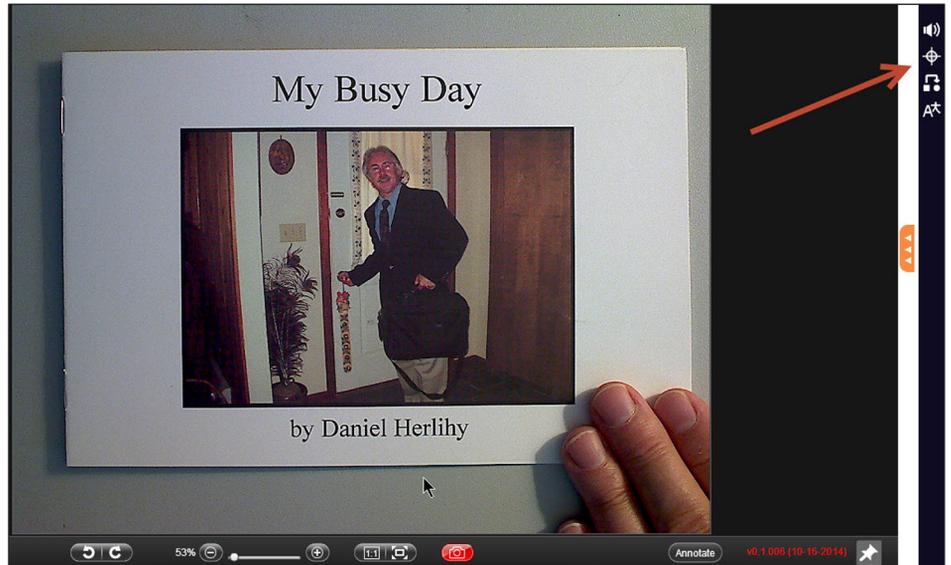


Figure 1 -

connected to computers in the teacher's room or in a room where a class was being held - not very accessible. And, for all those students who needed access to the printed page right now, they were rarely, if ever, allowed to use the scanners themselves. The end result was, well, you've probably guessed it - the barriers remained.

Time goes on, software evolved; devices became less expensive, more portable and able to be operated from

software running in the cloud, instead of needing it to be installed directly on a computer. Along with software running from the cloud came the ability of applications to also follow you from one device to another through the Chrome Web browser, simply by logging into your Chrome account.

So, I sat in my sandbox one morning thinking about all the pieces that now exist and tried to imagine how they could all come together to provide a portable



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solution. What follows is that flash - well, the lights didn't flash and the sky didn't open up, but that's how it feels when all of a sudden the ideas come together, like when that last matching tile on a Rubik's Cube clicks into place!

The concept was to use a document camera whose software can run as a cloud-based application from any computer or Chromebook and putting a page, book, worksheet, etc. under it so it is displayed on the screen. Then, use an app or an extension that would allow you to select an area of text being displayed on the screen and read it aloud. Sound farfetched? Well guess what, all those pieces and possibilities already existed. The key was bringing them all together at the same time, into the same place.

The possibility already existed to select text on the screen and have it read aloud using products such as Snap & Read Universal from Don Johnston, Image Reader, a component of Kurzweil 3000 by Kurzweil Education or the Screenshot Reader, a component of Read&Write Gold by TextHelp. Those programs have the capability of allowing you to drag a box around an area of text in, for example, an Adobe Flash file displayed in a Web browser window, or to select text in a document displayed on the computer screen or posted on a Web page. Even if the computer sees what is being displayed as an image instead of selectable text, those programs could figure out what is text in the image and then read it aloud.

All that had to be done was to see if the same could be done if the image of the page was being display in the window of a document camera. To me, this seemed to be the same as viewing that Flash file. The computer saw it as an image, not as a text file, but Snap&Read Universal, Image Reader or the Screenshot Reader could see the text in the image and read it aloud. As you can guess, yes, it worked, and the rest of this article will give you examples and directions on how you can do this too, using

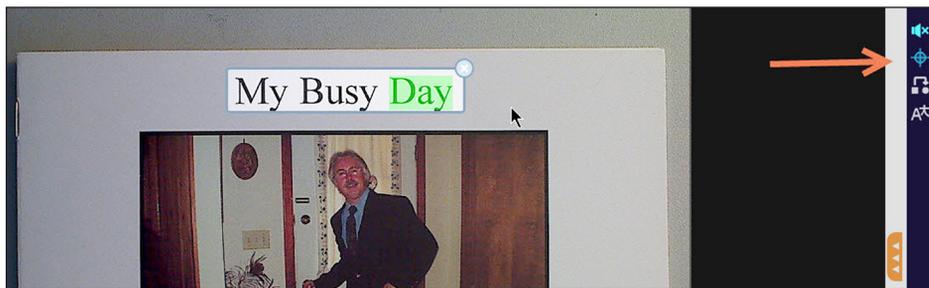


Figure 2 -

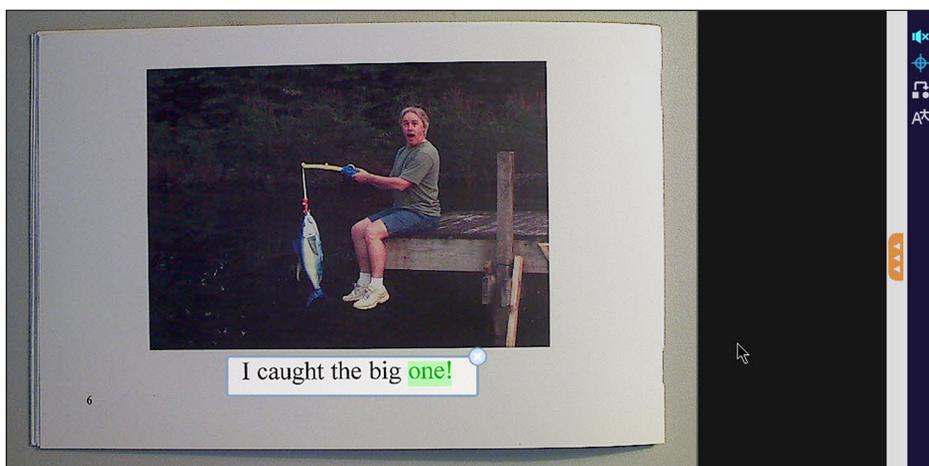


Figure 3 -

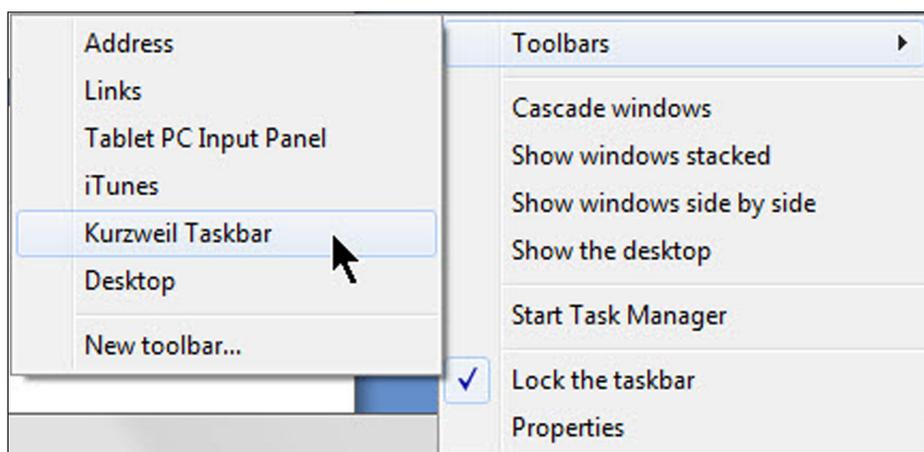


Figure 4 -

products from a variety of companies, on a variety of devices.

USING A COMPUTER:

Document cameras I've used include: The Hovercam T3, Hovercam Mini 5, Hovercam Solo 8 (www.thehovercam.com),

the iPevo Ziggy HD (www.ipevo.com) and the Ladibug DC-120 (www.myladibug.com).

USING SNAP&READ UNIVERSAL BY DON JOHNSTON (WWW. DONJOHNSTON.COM)

Connecting a Hovercam T3 to my computer, I launched my Chrome Web browser and then the Hovercam Flex software from the cloud (www.hovercamflex.com). I placed a printed page under the document camera and it is displayed in the live feed window in the software. See figure 1.

I next launched Snap&Read Universal from the installed Chrome extensions in my Chrome browser. Notice the Snap&Read toolbar along the upper right side of figure 1.

From the Snap&Read toolbar I selected the Select icon that will allow you to click and drag a box around an area of text (the circle with lines radiating from it), held the mouse button down and dragged a box around the text (click and drag) in the image, as shown in figure 2, then released the mouse button. Snap&Read identifies the text and begins reading it aloud, highlighting word by word.

I can click the pause button (speaker icon) to stop the reading at any time and click the close button (the X in upper right of selected text), enabling me to now select another block of text.

I can then simply turn the page, slip it under the document camera and repeat as shown in figure 3. No pictures need to be taken or converting files, using OCR software, and stored. All of this is done on the fly within the live broadcast window of the Hovercam Flex software.

USING IMAGE READER a (PC only) component of Kurzweil 3000 (www.kurzweiledu.com)

In this next example, I first launched Kurzweil 3000 and right-clicked on my taskbar (on a PC), chose Toolbars, and selected the Kurzweil Taskbar so it would be displayed in the taskbar. See figure 4.

Figure 5 -

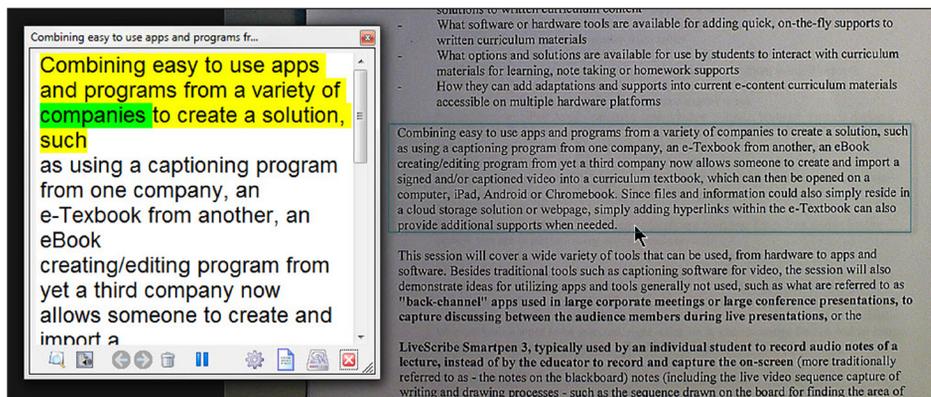


Figure 6 -

The far right button in this toolbar (figure 5) is the Image Reader. Selecting it turns your cursor into a cross hair, allowing you to drag a box around an area of text, which will then be processed live and read aloud.

Using the Hovercam T3 and the Hovercam Flex software to display a printed page, as I did in the previous example, I then selected the Image Reader tool and dragged a box around the text I wanted read aloud, as shown in figure 6. When I let go of the mouse button, Kurzweil processes the image, finds the text, displays it in a pop up box (shown on the left in figure 6) and reads it aloud, highlighting word by word. The text reading can be paused and re-read.

One again, I simply turn the page in the book, put it back under the document camera and repeat.

USING READ&WRITE GOLD and the Screenshot Reader component (www.TextHelp.com)

As in the other two examples, I first I connected my Hovercam T3 document camera to my Macbook Air and then launched the Hovercam Flex software from www.hovercamflex.com in my Web

Figure 7 -



browser. I then launched Read&Write Gold, which displays a floating toolbar that can be placed anywhere on the screen.

I next placed a book under the document camera and selected the Screenshot Reader tool (shown in figure 7) from the Read&Write Gold floating toolbar (Mac version shown in this example). I then dragged a box around the text on the page, as I did in the previous examples. The image was processed and the text read aloud, highlighting word by word, as shown in figure 8. Clicking on the Play button in the lower right of the selected text would read it aloud again. Clicking the X would close the selection.

USING A CHROMEBOOK

You can't install software onto a Chromebook, however, from the Chrome browser you can use the Hovercam T3 or Solo 8 document cameras by launching

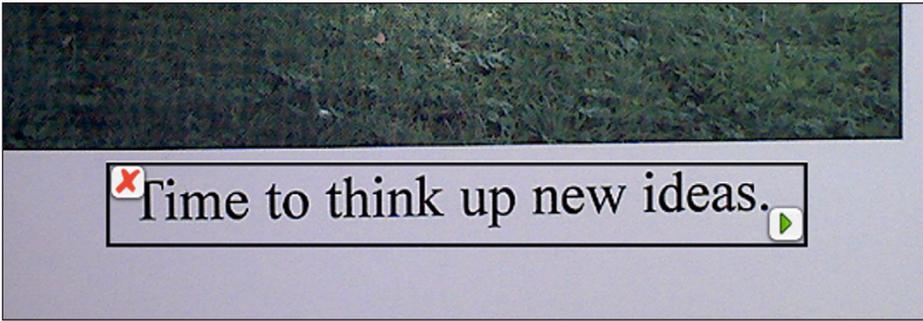


Figure 8 -

the Hovercam Flex software online from www.hovercamflex.com.

Snap&Read Universal is an extension for the Chrome browser. From the Chrome browser, I first launched the Snap&Read Universal extension. The toolbar is displayed in the upper right of the browser window (enlargement shown here in figure 9.) You need to make sure to activate it first, otherwise the Hovercam Flex program will hide the Snap&Read toolbar.

With the document camera plugged into the Chromebook, I then launched the Hovercam Flex software from www.hovercamflex.com and placed a book under the document camera. Then I chose the Snap&Read select button (the circle with the lines radiating out from center) and dragged a box around the text on the page being displayed in the document camera window, as shown in figure 10.

Once I let go of the mouse button, the image is processed for text, and the text is read aloud, highlighting word by word, as shown in figure 10.

Turn the page, place it back under the document camera, choose the Snap&Read select button and select text in the document camera window to continue reading!

USING A IPEVO IZIGGY HD WIRELESS DOCUMENT CAMERA (WWW.IPEVO.COM)

The same can be done on both, computers and Chromebooks, using the iPevo iZiggy HD Wireless camera and

Figure 9 -

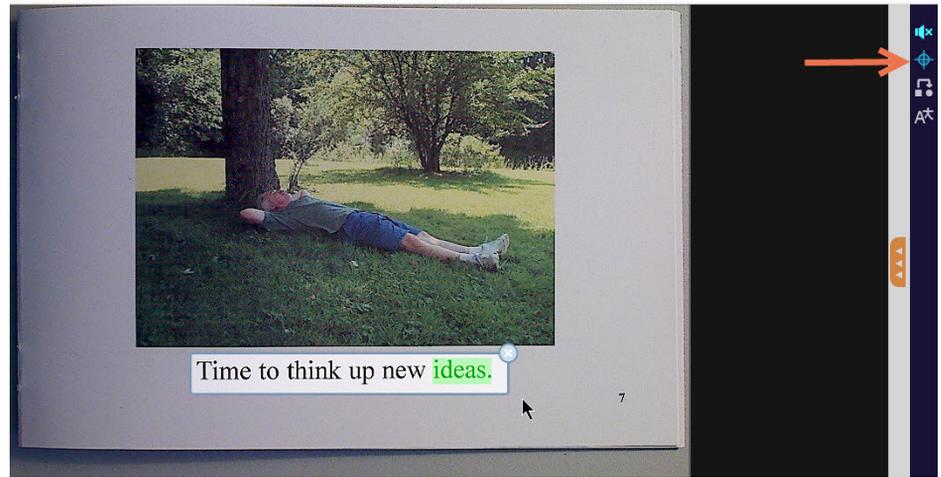


Figure 10 -

the Chrome Web browser. Once you've connected to the wireless network that the iZiggy HD Wireless document camera creates, from the Chrome browser, launch the I.P. Address for the camera listed under the base of the camera. This will launch the iPevo software and display the live feed under the document camera.

WITH SNAP&READ UNIVERSAL ON A CHROMEBOOK OR COMPUTER

Switch to full screen mode first in the iPevo window, as shown in figure 11 - I know, sounds counter intuitive, then launch the Snap&Read Universal extension for Chrome, displayed on the right side of figure 12. Otherwise, the initial iPevo document camera window that opens has many other menus and buttons taking up window space that

will block the Snap&Read toolbar from being displayed in the upper right.

Select text in the image being displayed under the document camera, as described in the previous sections, using Snap&Read for text to be read aloud.

USING THE IZIGGY HD OR THE LADIBUG DC-120 ON A PC

Both the iZiggy HD and the Ladibug DC-120 document cameras connect to a PC via the USB port, and the software that comes with the cameras can be installed. By connecting the cameras and launching the software, you can then, on a PC, launch Kurzweil 3000, which then allows you to activate the Image Reader tool (PC only) to select text in the image displayed under the document cameras, as described earlier in this article, to read the selected text.

Since this solution is using an installed version of the camera software, which doesn't need to be launched from a Web browser and can be installed on both, Mac and PC, you can use Read&Write Gold's Screenshot Reader or an installed version of Snap&Read Universal to also select text to be read aloud on either Mac or PC.

The key to any of these solutions starts with the software running the document camera and quality of the camera. The software needs to either not completely capture the screen, thereby blocking the ability to activate other tools used for converting the image to text, or be able to be run in a browser window and allow you to then use extensions. The document camera image needs to be sharp enough and the camera raised high enough to place large pages or books underneath. Books containing text that is drawn in freehand on the pages, rather than typed text, typically will not work. I've had good luck with the Hovercam T3.

These solutions are portable and relatively inexpensive. The iPevo iZiggy HD Wireless goes for around \$159, the Hovercam T3 for about \$200 and the Ladibug for about \$270. There are other inexpensive cameras that might work. Students can use them, then unplug and simply pass the document camera to another student, or in the case of the iPevo Wireless, simply log out of the software and let another student simply log into it.

Next month, how this can be done on the fly from one device in the palm of my hand, using iPads or Androids!

PRODUCT INFORMATION

- **Snap&Read Universal**
Don Johnston, Inc.
www.donjohnston.com
800.999.4660 – USA & CANADA
847.740.7326 – USA, FAX
26799 West Commerce Drive
Volo, IL 60073
- **Read&Write Gold**
TextHelp, Ltd
www.texthelp.com



Figure 11-



Figure 12 -

Toll free phone: 888-248-0652
Toll free fax: 866-248-0652
600 Unicorn Park Drive
Woburn, MA 01801

- **Kurzweil 3000**
Kurzweil Educational Systems
www.kurzweilededu.com
800-894-5374
24 Prime Parkway
Natick, MA 01760
- **Hovercam T3 Document Camera**
www.thehovercam.com
10211 Pacific Mesa Blvd, Ste 412
San Diego, CA 92121
United States
Tel: (858) 750-3499

Fax: (858) 357-9945

- **iPevo iZiggy HD Wireless Document Camera**
www.ipevo.com
440 N. Wolfe Road, Sunnyvale, CA 94085
Tel: 1-408-490-3085
Fax: 1-408-516-8168
- **Ladibug Document Cameras**
<http://www.lumens.com.tw/>
Lumens Integration, Inc.
4116 Clipper Court
Fremont, CA. 94538
United States
Phone 1-(888)542-3235 ■

To PowerPoint and Beyond! AT Training Tools from a Distance

Requests for assistive technology (AT) training from a distance are ever increasing. With readily available Internet access, coupled with reduced budgets, increased caseloads and long travel times, distance-based training can be a viable option to reach both small and large audiences. However, as many have experienced through online learning pursuits, the standard webinar or narrated PowerPoint session may feel “flat” and not have that same energy and connection felt during a face-to-face training session. This article will introduce a range of free tools that may enhance online trainings in the areas of presenting, responding, meeting and feedback. The knowledge and experience offered are based on the authors’ extensive AT training and instruction through George Mason University’s online assistive technology masters and certificate program.

One way to frame this online training discussion is through Bloom’s taxonomy. Bloom’s taxonomy is a learning model that suggests that learning is a hierarchy and that educators and trainers need to provide opportunities at all levels to ensure that learners acquire optimal knowledge and skills. The hierarchy begins at the base with remembering and then moves up in a triangle shape from understanding, applying, analyzing, evaluating, and finally to creating. The tools included in this article will enable trainers to develop learning activities at each of the six levels, ensuring development of important knowledge and skills, while also considering participants’ individual learning styles.

PRESENTING TOOLS

As the foundation of the Bloom’s taxonomy, it is critical for trainers to devote enough time to ensure learners’

understanding of critical content knowledge. There are several approaches to establishing content knowledge; the most widely used approach is the “lecture” or the “walkthrough.” There are several benefits to using recorded content sessions in online training, but it is also important to remember that the use of presenting tools is only one key area to develop effective, interactive trainings.

POWERPOINT: WWW.MICROSOFT.COM

PowerPoint is the go-to tool for most training workshops because it is readily available and generally easy to use. Trainers may use PowerPoint during live presentations, create narrated PowerPoints for guided learning and/or provide copies of their PowerPoint training as a handout. However, it is important to ensure that all learners have equal access



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CINDY L. GEORGE is the director of production for Virginia’s statewide AIM project. She is a member of the faculty at George Mason University and teaches in the online assistive technology masters and certificate programs. She has worked extensively in the field as an assistive technologist for many years.



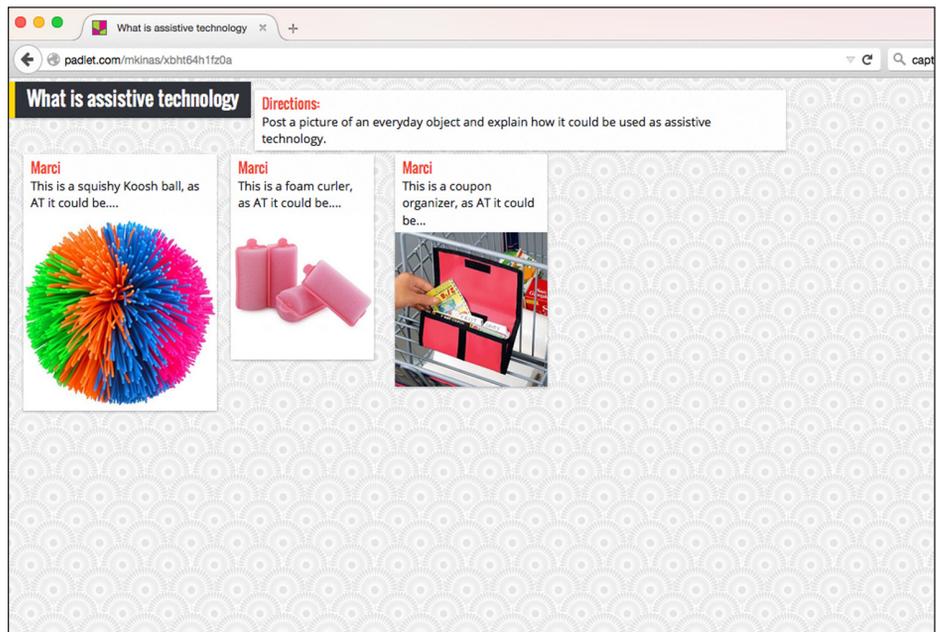
to the content provided through this medium. Factors to consider include text size, screen layout, navigation, and the inclusion of graphics, pictures, multimedia and animation.

For learners with low vision and/or various learning disabilities, it is imperative to provide content on the screen that is visually uncluttered, ensure fonts and styles are large and clear (using sans serif typeface, such as Verdana or Helvetica, and a font size of 18 point or larger), minimize complex animations and transitions to reduce visual distraction, and use pictures and graphics only that support the content (no eye candy). In addition, for learners who have blindness or deafness, it is imperative that all graphics have alternative text and that all media are captioned. From a usability perspective, most participants with and without disabilities can benefit from these presentation considerations.

Another essential factor in using PowerPoint is to structure the presentation in such a way that all elements are accessible to individuals who use external assistive technologies (such as screen readers). To begin, trainers should select a default PowerPoint template because such slides are designed to provide the proper headings, listings and reading order when accessed by external AT. By default, PowerPoint creates a text outline of each slide in the presentation; it is from this outline that you can generate an accessible and navigable Word document or PDF file. From a usability perspective, most participants would benefit from having the content available in multiple formats.

JING: WWW.TECHSMITH.COM/JING

Sometimes the best way to teach someone how to do something is to show them. There are several screen capture tools (or sometimes known as screencasting tools) available for trainers to record their computer screen. One popular tool is Jing, a free screen



Padlet wall asking users to post their own AT examples

capturing tool that works on both Mac and PC. Jing allows one to take still images of the computer screen, which is a great resource when creating tutorial handouts. Even better, Jing can capture up to five minutes of what is happening on the computer screen, perfect for creating video tutorials and walkthroughs. The computer's built-in microphone or an external microphone can be used to record audio at the same time the computer's video is recorded. With Jing, there is also the option to save a video to the computer or host it on Jing's video server (similar to YouTube).

RESPONDING TOOLS

A typical recorded webinar provides limited opportunity for interaction and responding by participants. However, incorporating responding elements adds an interactive, connected component to the training that makes learning more dynamic and, hopefully, more fun. Responding may include answering questions, sharing perspectives and reflections, gaining insight from others and demonstrating learned knowledge and skills. In addition, these activities

correspond with higher level learning skills, as outlined in Bloom's taxonomy.

PADLET: WWW.PADLET.COM

Padlet is a free online workspace that allows a user to create a "wall" to visually post text, images, URL links, video and/or audio. The wall can then be shared with others who may simply view it or contribute additional information to it by creating posts on the wall. Walls are public by default, but can be modified to become password protected and shared with only specific people. Padlet can be used for a variety of training activities, such as group introductions, resource sharing and case study discussions. Padlet is a great alternative to the traditional discussion board because it enables both trainers and learners alike to scan information quickly, is visually appealing and can easily incorporate multimedia elements.

GOOGLE DOCS: WWW.GOOGLE.COM/DOCS/

Google Docs is a free, cloud-based document creation and storage system available to anyone with a Google account. Google Docs provides a

managed way to collaborate and share information with participants. Google Docs includes a word processing program, spreadsheet program and presentation program very similar to Microsoft Office. Some benefits of using Google Docs are the ability for both the trainer and participant to access documents from multiple platforms at any time, collaborate in real-time by sharing with other people and tracking changes, and the ability for multiple users to view, comment, and/or edit documents. Participants do not need to have a Google account in order to interact with shared documents.

MEETING TOOLS

Not all trainers have access to fee-based, Web conferencing platforms, such as GoToMeeting, yet they still want to host real-time collaborative sessions, either in individual conferences or group meeting settings. Meeting spaces enable trainers and participants to have discussions, question and answer sessions, planning and brainstorming sessions, as well as problem-solving sessions. Web conferencing tools can support audio, video, chat, desktop sharing, and often file transferring. In keeping with Bloom's taxonomy, a meeting is a great opportunity to assess learners' application of higher-level thinking.

SKYPE: WWW.SKYPE.COM AND GOOGLE HANGOUTS: [PLUS. GOOGLE.COM/HANGOUTS](http://PLUS.GOOGLE.COM/HANGOUTS)

There are many free tools, such as Skype and Google Hangouts, available, but it is important to understand the features and limitations of them for use in training. Considerations include the number of people who can connect into a discussion, the mode of discussion (audio, video, text chat), the access platform (computer vs mobile app, PC vs Mac), the necessary bandwidth to participate (calling from home/work vs. Starbucks' free WiFi), and additional discussion features, such as the ability to

How would you rate your AT experience?

Respond at PollEv.com/marcijerome573
Text **MARCIJEROME573** to **37607** once to join, then **A, B, or C**

what is AT?? **A**

I can hold my own **B**

I am an AT master!!! **C**

0

powered by Poll Everywhere

Live Audience Polling

Poll Everywhere poll where users can text their answers during a training session.

share the computer screen with a group or transfer files. One of the most important features to consider when using a Web conferencing tool is accessibility. An example of such a tool is Skype – a robust and accessible platform that allows those who use screen readers to have full keyboard access to the program features. Web conferencing tools are ever evolving. Thus, it is important to occasionally check for program updates to determine if features have been added or modified.

FEEDBACK TOOLS

Trainers often utilize evaluation surveys as a way to receive feedback. SurveyMonkey is a popular survey tool, but it has limited features available without a paid subscription. However, there are other free survey tools available that can provide trainers with an effective way to collect and analyze data and provide feedback to participants.

GOOGLE FORMS: WWW.GOOGLE.COM/FORMS/

Google Forms is part of the Google Docs suite of document creation tools. With a Google account, trainers can create, save and share surveys with their

participants. Google Forms provides real-time statistics and enables the use of multiple question formats.

POLL EVERYWHERE: WWW.POLLEVERYWHERE.COM/

Those who have attended a college class in recent years may have used a clicker device to answer multiple choice, true/false or yes/no questions during a large lecture. The ability to capture quick, real-time data is important to help trainers ensure they are moving at the right pace, check for understanding of content and to better understand the needs of their audience. There are several tools that trainers can use to capture real-time polling data in a distance environment.

Poll Everywhere is a Web-based service that enables trainers to create and embed polling questions through multiple formats and response types. Trainers can choose to embed polling questions directly into their PowerPoints or they can direct participants to their polling website. During a session, participants can answer questions by sending a text message, selecting an answer on the polling website or even respond via Twitter. All results are displayed in real

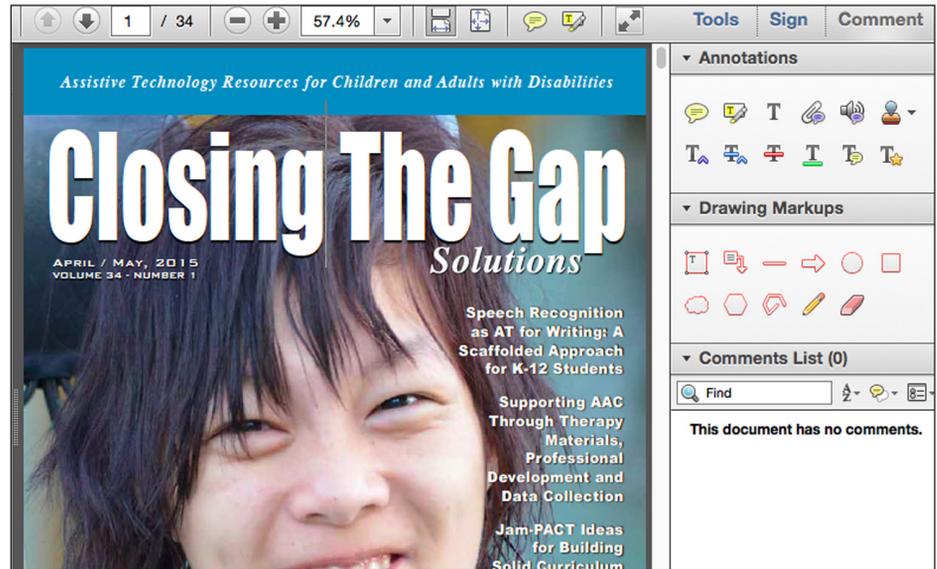
time. Poll Everywhere will work whether participants are right in front of you or are hundreds of miles away.

ADOBE ACROBAT READER AND PRO: ACROBAT.ADOBE.COM/

Adobe Acrobat Reader is most often associated with the viewing of documents available on the Internet, but Acrobat is also a very convenient way to provide commentary feedback on participant-developed materials and is an ideal tool for visual learners.

Using the built-in comments toolbar, documents saved in PDF format can be marked up using a number of features, such as adding sticky notes or text boxes, to provide written feedback to participants and direct attention to specific parts of their work. In addition, Acrobat enables one to record audio clips and place them in the document to provide verbal feedback or directions to learners. Using audio is an effective strategy to create a more personal connection with your audience and establish a better presence within the learning experience. Audio is a natural medium to capture your emotions, allowing one to laugh, praise and establish that light, conversational tone that often occurs in a face-to-face training session.

Most of these feedback tools are available for free with Adobe Acrobat Reader. With the paid Adobe Acrobat Pro license, text can be made accessible via screen and text readers by running it through Adobe's built-in optical character recognition (OCR) program. Pro also allows for the structuring of a document using bookmarks and headers to ensure that learners can navigate through the document in a more efficient manner. Bookmarks allow one to target text or areas within the document to easily return to them again in the future. Bookmarks can be used as a feedback tool, directing learners to find information within specific locations in the document or suggesting that they create bookmarks "on the fly" for future reference or for



Adobe Acrobat Reader comment toolbar to add notes and feedback.

personal notes. Structuring the document by adding headings is an invisible structure that enables those using AT to fully navigate the document.

SUMMARY

The goal as trainers is to ensure that, by the end of any training session, our participants have acquired the targeted knowledge and skills as active learners. We also hope to present this information in such a way that the learning experience is meaningful for the learners, they enjoy it and hopefully make a connection with the content and/or with others around them by sharing their perspectives and skills learned. Keeping Bloom's taxonomy in mind and using a variety of tools, it is certainly possible to meet training goals from a distance. Since the availability of online learning tools change, the considerations discussed in this article for selecting presenting, responding, meeting and feedback tools remain critical in developing effective online training. ■

An advertisement for George Mason University's online Assistive Technology Degree. The background is green. At the top right is the George Mason University logo. The main text reads "Get Your Assistive Technology Degree Online". Below this is a list of benefits: "Earn a Graduate Certificate or Master's Degree", "Special Tuition Discounts", and "100% Online Program designed for:". A circular inset photo shows a woman with a headset. Below the list is another list of target audiences: "Families", "Therapists", "Educators", "Employers", "Military Personnel", and "Adult Service Providers". At the bottom of the ad is a photo of two young girls looking at a tablet together.

33rd ANNUAL CONFERENCE

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ADMINISTRATORS PARTICIPATE FREE

When any school district staff member registers for a preconference workshop or the conference, one administrator (Special Education Director, Principal or Superintendent) from that school district can attend the conference, Wednesday through Friday, and the exhibition preview, Tuesday evening, for **FREE!** Limits apply.

ONLINE REGISTRATION



Conference - Wednesday, Thursday, Friday, October 14-16, 2015 Includes Preview of Exhibits – Tuesday Evening, October 13

Registration Received	On or Before June 30	July 1 - September 10	September 11 - October 1	October 2 - Onsite
Standard Rate	\$440	\$490	\$515	\$540
Group Discount - 5 or more	Groups 5+ Deduct \$30	Groups 5+ Deduct \$30	Groups 5+ Deduct \$30	Groups 5+ Deduct \$30
Group Discount - 8 or more	Groups 8+ Deduct \$50	Groups 8+ Deduct \$50	Groups 8+ Deduct \$50	Groups 8+ Deduct \$50
<i>All group registrations must be received at the same time.</i>	Groups 20+ Deduct \$70	Groups 20+ Deduct \$70	Groups 20+ Deduct \$70	Groups 20+ Deduct \$70
Parent Rate (A letter describing your child's disability must accompany registration)				\$275
Full-time Student Rate (Proof of full-time student status must accompany registration)				\$300
Presenter Rate		\$350		\$400
Exhibitor Rate		\$350		\$400

Single-Day and Exhibit Hall Only Registration

	Price
Thursday Only - October 15	\$275
Friday Only - October 16	\$125
Exhibit Hall Only - Tuesday evening through Friday, October 13-16	\$150

Preconference Workshops - Monday and Tuesday, October 12-13, 2015

	Price
Monday, October 12 (Some preconference workshops carry an additional fee for materials)	\$275
Tuesday, October 13 (Some preconference workshops carry an additional fee for materials)	\$275
BUNDLED PRICING! Monday and Tuesday Bundle (\$60 savings)	\$490

Accessible Educational Materials in the IEP

Part I: Including AEM in Evaluation, Present Levels and Special Factors

Questions often arise about how accessible educational materials (AEM) might be included in individualized education programs (IEPs). This article discusses a number of locations in the IEP where it might be appropriate to consider a student's need for and use of AEM.

WHAT ARE AEM?

In the broadest sense, AEM are materials that are designed or converted in a way that makes them usable across a wide range of student variability, regardless of format (print, digital, graphic,

audio or video). The Individuals with Disabilities Education Act (IDEA) focuses specifically on the conversion of print instructional materials into the specialized formats of braille, large print, audio or digital text (20 U.S.C. §§1412(a)(23), 1474(e)(3)(D)). Therefore, throughout this resource, AEM will be used to refer to materials that have been converted into the specialized formats that have been identified under IDEA. AEM has the same meaning as accessible instructional materials and accessible learning materials.

WHY SHOULD AEM BE INCLUDED IN THE IEP?

The U.S. Department of Education has stated that timely access to appropriate and accessible instructional materials is an inherent component of the obligation of public agencies to ensure that a free appropriate public education (FAPE) is available for children with disabilities and that children with disabilities participate in the general education curriculum as specified in their IEPs (71 Fed Reg. 46618). Given the strong connection between AEM, the provision of FAPE and



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participation in the general education curriculum, it is important for IEP teams to consider students' needs for AEM and to specify what is needed in students' IEPs.

WHERE IN THE IEP SHOULD AEM BE INCLUDED?

There is no specific requirement in IDEA regarding the consideration of AEM or where it should be documented in the IEP. It is, therefore, helpful for a state educational agency (SEA) or local educational agency (LEA) to provide guidance on the consideration and placement of AEM in the IEP in order to promote clarity and consistency across IEP teams.

In sample forms, SEAs and LEAs can include specific language that prompts IEP team members to discuss a student's need for AEM. In the absence of – or in addition to – such a prompt, there are a number of components in the IEP where it is appropriate to refer to a student's use of AEM. These include the following:

- Summary of Evaluation Results

- Present Levels of Academic Achievement and Functional Performance
- Special Factors
- Measurable Annual Goals
- Special Education and Related Services, Supplementary Aids and Services, Program Modifications and Supports
- Participation in Statewide Assessments
- Postsecondary Goals and Transition Services

Part One of AEM in the IEP will focus on the areas of evaluation, present levels and special factors. In Part Two, annual goals; special education and related services, supplementary aids and services, and modifications and supports; participation in statewide assessments; and transition services will be explored.

SUMMARY OF EVALUATION RESULTS

In developing the IEP, the IEP team must consider the results of a child's initial or most recent evaluation (20 U.S.C. § 1414(d)(3)(A)(iii); 34 C.F.R. § 300.324(a)(1)

(iii)). Because the evaluation process is a critical, first step in the development of the IEP, it is important for the evaluation to consider the student's needs in relation to instructional materials. For example, the evaluation should consider (1) whether printed text poses a barrier to the student's participation in the general education curriculum, (2) whether the student needs a specific specialized format (braille, large print, audio, or digital text) and (3) whether the student needs assistive technology (AT) in order to use a particular specialized format. Other than hard copy braille and hard copy large print, which are by definition paper, specialized formats require assistive technology to deliver the content to the student. Both, the content and the technology, must be accessible to the student.

The chart below presents some of the legal requirements related to evaluations, as well as some suggestions for how AEM might be considered as part of the evaluation process.

REQUIREMENTS IN IDEA

In conducting an evaluation, the LEA must:

- Assess students in all areas of suspected disability. *20 U.S.C. § 1414(b)(3)(B); 34 C.F.R. § 300.304(c)(4)*
- Use a variety of assessment tools and strategies *20 U.S.C. §§ 1414(b)(2)(A), (B); 34 C.F.R. §§ 300.304(b)(1), (2)*
- Obtain information that may assist in determining the content of the IEP, including information related to enabling the student to be involved and progress in the general education curriculum. *20 U.S.C. § 1414(b)(2)(A)(iii); 34 C.F.R. § 300.304(b)(1)(ii)*

AEM CONSIDERATIONS

- Is printed text a barrier for the student?
- Does the student need AEM in specialized formats to access the general education curriculum?
- Does the student need AT to access specialized formats (braille, large print, audio and/or digital text)?

EXAMPLE IEP STATEMENT FOR SUMMARY OF EVALUATION RESULTS

Sean is a seventh grade student who has been previously identified as having a learning disability. According to the most recent evaluation data, reviewed by the team, Sean is able to understand grade-level content but is unable to independently derive meaning from print-based materials. These data

suggest that Sean needs a specialized format of printed materials and assistive technology. Further evaluation indicates that, to participate and progress in the general education curriculum, Sean requires a digital text format of printed materials and assistive technology that enables him to see and hear the content at the same time.

NOTE TO IEP TEAM:

For further information, refer to the [AEM Navigator](#) (online or print version) and review the following sections: Need, Selection and Supports for Use.

PRESENT LEVELS OF ACADEMIC ACHIEVEMENT AND FUNCTIONAL PERFORMANCE

IDEA requires that IEPs include a description of the child's present levels of academic achievement and functional performance, including how the child's disabilities impact involvement and progress in the general education cur-

riculum. Present levels are important in the design of an appropriate educational program and should include a focus on student strengths, as well as needs. In relation to AEM, this statement should indicate how the student's disability-related needs affect the student's ability to access and derive meaning from the printed text of instructional materials

that make up the general education curriculum.

The chart below presents some of the legal requirements related to present levels, as well as some suggestions for how AEM might be considered as part of the IEP process.

REQUIREMENTS IN IDEA

The IEP must:

- Describe the student's present levels of academic achievement and functional performance.
- Describe how the student's disability affects the student's involvement and progress in the general education curriculum. *20 U.S.C. § 1414(d)(1)(A)(i)(I); 34 C.F.R. § 300.320(a)(1)*

AEM CONSIDERATIONS

- Is the student able to access and derive meaning from print-based instructional materials?
- Is the student currently using AEM and AT to access the general education curriculum?

EXAMPLE IEP STATEMENT FOR PRESENT LEVELS

Sean is a seventh grade student who has a learning disability. He understands instructional content at grade level, but is only able to read printed materials independently at

the fourth grade level. When using classroom computers with supported reading software, Sean successfully perceives and interacts with digital text formats of grade-level textbooks and other printed materials across content areas.

NOTE TO IEP TEAM:

It is important to be specific in describing competencies and areas of difficulties. The present levels statement provides information about a student's current levels of academic achievement and functional performance. This information, in turn, is used as the basis for developing measurable annual goals in the IEP. If the student is currently using AEM, be specific in describing the competencies, as well as the use of AT, if needed, to access the content.

SPECIAL FACTORS

IDEA requires that IEP teams consider several "special factors" in the development, review, and revision of IEPs. Three of these special factors are specifically important to the issue of AEM: (1) For blind students and students with other visual impairments, the team must provide for instruction in braille and the use of braille unless the team determines, after an evaluation of the student's reading and writing skills, needs and appropriate reading and writing media (including an evaluation of the student's future needs for instruction in braille or the use of braille), that such instruction or use is not appropriate for the student. (2) For

all students, the team must consider communication needs, including, but not limited to, students who are deaf or hard of hearing. (3) For all students, the team must consider whether the student needs AT devices or services.

These special factors emphasize the importance of AEM as part of the right to FAPE. If students with visual impairments have difficulty perceiving and using standard print materials, they may need braille and instruction in its use to provide access to educational materials. As part of the communication special factor, the needs of all students with disabilities must be considered, not just those who are deaf or hard of hearing. Since

communication includes both visually and aurally presented information, the need for accessible educational materials should be considered as part of this factor. In considering if students need AT, IEP teams must determine if AT is necessary to help the student use specialized formats. Except for hard copy braille and hard copy large print, other specialized formats require technology to deliver the content to students.

The chart below presents some of the legal requirements related to special factors, as well as some suggestions for how AEM might be considered as part of the IEP process.

REQUIREMENTS IN IDEA

The IEP team must consider:

- braille instruction and use for students who are blind or visually impaired, unless the team determines, after an evaluation of the student's reading and writing skills, needs and appropriate reading and writing media (including an evaluation of the student's future needs for instruction in braille or the use of braille), that such instruction or use is not appropriate for the student.
- Communication needs of the student, and in the case of a student who is deaf or hard of hearing, consider the child's language and communication needs.
- Needs for AT devices and services. *20 U.S.C. §§ 1414(d)(3)(B)(iii), (iv), (v); 34 C.F.R. §§ 300.324(a)(2)(iii), (iv), (v)*

AEM CONSIDERATIONS

- Does the student need instruction in braille or use of braille in relation to AEM?
- Does the student need AEM to perceive and interact with written or aurally presented information?
- Does the student need AT to perceive and interact with specialized formats of printed materials (braille, large print, audio and/or digital text)?

EXAMPLE IEP STATEMENT FOR SPECIAL FACTORS

Sean understands educational content at grade level, but is unable to read independently with sufficient accuracy and fluency to support comprehension at that level. Sean needs materials provided in a digital format to access the general curriculum. He needs a tablet and/or other computer with text-to-speech and word predication capabilities in order to perceive and interact with a digital text format of grade-level textbooks and other printed materials used across content areas.

NOTE TO IEP TEAM:

A recent Dear Colleague Letter (DCL) and a Frequently Asked Questions (FAQ) document were issued jointly by the Department of Education and the Office of Civil Rights of the Department of Justice discussing "Effective Communica-

tion for Students with Hearing, Vision or Speech Disabilities in Public Elementary and Secondary Schools." Three federal statutes (IDEA, Section 504 of the Rehabilitation Act and Title II of the Americans with Disabilities Act) address the obligations of public schools related to effective communication. IDEA and Section 504 provide the right to FAPE, while Title II stipulates that communication with students with disabilities must be as effective as communication with students without disabilities. Both analyses should be applied in determining a school district's obligation related to oral and written communication for students with disabilities. Moreover, the need for accessible educational materials should be considered as part of the IDEA special factor related to communication.

Although the communication special factor indirectly requires consideration of the need for AEM, SEAs and LEAs might consider explicitly adding a student's need for AEM as a sixth factor for IEP teams to consider. The IEP form might include a specific prompt for the consideration of AEM (e.g., "Does the student require one or more specialized formats – braille, large print, audio and/or digital text – of educational materials because disability prevents effective use of standard educational materials?").

Regardless of whether the team ultimately determines that the student needs AEM, it is helpful to include all considerations in the IEP document. Future IEP teams will need that information to understand how determinations were made. During consideration, the primary focus of the IEP team should be on determining whether or not the student needs AEM and should not be limited to determining whether or not a student's situation satisfies eligibility requirements, such as copyright criteria for sources of specialized formats.

For further information, refer to the [AEM Navigator](#) (online or print version) and review the following sections: Need, Selection and Supports for Use.

COMING SOON! PART TWO: AEM IN THE IEP!

Join us for Part Two to discuss including AEM considerations in annual goals; special education and related services, supplementary aids and services, and

modifications and supports; participation in statewide assessments; and transition services.

In the meantime, visit the new National Center on Accessible Educational Materials (AEM Center) website and check

out how to stay connected by signing up for the AEM Connector and participating in upcoming and archived webinars and presentations. ■

If the Shoe Doesn't Fit

Have you walked into a shoe store with the intent to buy a certain kind of shoe, and left purchasing something totally different than you expected? Was it because that salesperson was just so convincing about knowing what you needed, based on that brief meeting? At times, the end result is wonderful and, other times, a disaster. As therapists, we can sometimes be that "salesperson." Often, as AAC and AT evaluators, get stuck recommending the "wrong shoes." It can turn into a never ending cycle.

The typical scenario is to

1. Conduct an AAC / AT evaluation
2. Have a tool in mind
3. Try IT
4. Get IT
5. IT doesn't work!

How do we know "IT" doesn't work? Because of repeated returns to clinic or evaluator with the hopes of finding a new tool, despite having one; because it has limitations to one environment, rather than working across all environments; and because of device abandonment. We have to ask ourselves "Is IT truly not working?" The answer is, quite simply, "No, there is nothing wrong with

IT." IT simply may not have been the best fit. How do we, as evaluators and consumers, get stuck with these "shoes that do not fit?" It is partly because we get swayed by misconceptions during the evaluation process. We are all guilty of it ... and we admit it. However, let us share some of our mistakes, as well as those we have been able to correct. In this article, we will examine the following five commonly seen misconceptions during AAC/AT evaluations:

1. High tech is the best tech
2. Communication tools come first (before other types of AT tools)
3. Communication happens only in the clinic
4. Everybody is using IT or IT's my favorite tool
5. "No" (you don't qualify for a device)

Our first topic is the error in thinking that "high tech is the best tech." Consider this example: A young client with ALS (amyotrophic lateral sclerosis) who was, at the time of the evaluation, non-verbal and locked in, except for some head movement. The family wanted the client to be able to communicate. We thought ... that's easy... an EYE GAZE device!

Yes – it met all the requests of the client and family. So we tried it and got it. The client had nystagmus; however, vision did not affect the ability to use the eye gaze when he was in certain positions. The problem emerged when we learned, after several visits with the family, that the two positions the client was in when the eye gaze worked were positions the client could only physically tolerate for 10-15 minutes per day. In this case, the high-tech device wasn't the best option for him to access communication at all times. Most of the time, this client was lying in bed. A low-tech solution ended up being the better fit. We enlarged a communication board in the photo shop at a local drug store and taped one on ceiling and one on the door. A laser pointer was mounted on eyeglass frames. The family was able to communicate with the client and have full conversations using messages generated on the communication board.

How do we avoid falling into thinking that high-tech is always the solution? While we may have a great understanding of the doors that high-tech can open, we cannot force others to use it if



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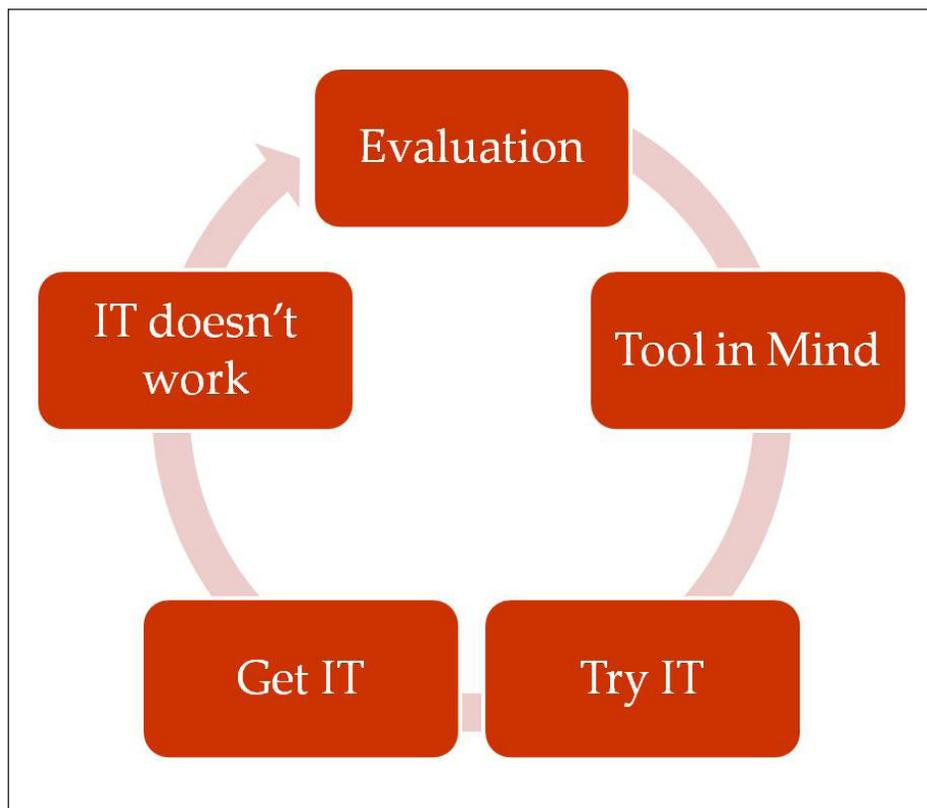
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they are not ready or if it doesn't fit into their environment/lifestyle. Don't be that salesperson. If the person has a disorder that is progressive in nature, it is always wise to consider tools that will progress with them, meaning tools that have the capabilities of adapting to their future needs. In such cases, it is wise to not rely solely on high-tech, but to always have a low-tech emergency option that you have trained caregivers to use.

Our second and third topics are the error in thinking that "communication tools come first before other types of AT" and "communication only happens in the clinic." Consider this example: A teenager with a traumatic brain injury is unsuccessful with communication tools while in the clinical setting. In therapy, the client is very uncooperative, often yelling, hitting, lashing out or simply shutting down. We were able to see him in the home and discovered a love of music. Starting with environmental controls first was his bridge to other forms of AT, such as a high-tech device for communication. So, while in the clinic, there was no success with using AT tools for communication, there WAS great success at home because it was the client's familiar territory. Working in the home setting and starting with his musical interests provided cues that eventually led the client to communicate his wants and needs and to participate in conversation.

How do we avoid such thinking - that communication must always happen first and that it only happens in the clinical setting? It will take you forever to find the right fit if you are waiting for communication to happen first. Engagement happens first. If you do not engage the client in a motivating activity, you will lose the chance for good communication opportunities, especially if you are waiting for an appropriate answer to "yes" and "no" questions. When you engage your client in an activity, you are communicating with them, and you can build upon it once you have a good



connection. Environmental controls and other AT tools are assets during AT/AAC evaluations. Remember, communication and assistive technology happens across all environments, so to avoid the wrong fit, we need to find out more about each place the tool will be used. Whenever and wherever possible, we need to try out the tool in those environments. At the minimum, we should be consulting with others from those environments who will be working with the child, client or family member. This should include, but is not limited to, parents, caregivers, teachers, other therapists, day program workers, etc.

Our fourth topic is the error in thinking that "everybody uses it" or "it's my favorite tool." True, we may have a "go-to" tool as a place to start. However, we need to be cautious because these tools are not one size fits all. Often times, as a clinical team or school system, we may have been trained on a particular tool that works for some, but not all. Consider an example: A kindergartener with autism struggles to communicate

at home and school. The child often requires an aide to remain seated and to attempt to include the child in classroom participation. The child presents with no eye contact, no verbal ability, limited attention span and is sensory seeking. The school therapist and teachers have tried a picture exchange system. However, no progress is being made after a year of exposure. In this case, we ignored the misconception that the child needs to master picture exchange before moving on to a higher-tech device. We dove right into exposing her to a high-tech device with auditory output during play. The child reacted to it immediately! It was the auditory output, or feedback, that allowed this particular child to become successful with communication exchanges.

How can we avoid holding on to our favorite tools? We can make sure that we are presenting our students, clients and patients with a variety of options, including low-tech, lite-tech and high-tech. If we only try one tool, then when

we get it, we run into the danger of it being the wrong fit.

Our fifth and final topic is the danger of saying “no, you do not qualify for a device.” Over the years, we have heard some strange but, sadly, common reasons for a therapist, clinical team or other professionals denying someone’s ability to use a device before the evaluation even starts. Some of the “no” responses we’ve heard have been in reference to someone’s inability to answer “yes” and “no” questions correctly, poor or low cognitive skills, literacy status and mobility status.

When thinking about the ability to answer a “yes” and “no” question, please consider a young toddler. They often answer “yes” to everything or “no” to everything. They haven’t developed the skill to do so appropriately, or they misunderstand the question. However, they are able to communicate basic wants and needs. “Mommy up,” “my cup” or “Daddy car go.” Do we stop them from talking because they cannot answer yes and no questions yet? NO! Likewise, if we are working with someone that is cognitively impaired due to development or due to an injury, we do not wait until they have gained or regained the ability to answer yes and no questions before moving on to communication. We should expose them to a variety of communication tools until we find the right fit for communicating.

When thinking of poor and low cognitive skills, we often hear “no, that person

isn’t appropriate,” without ever putting technology in front of the person to try. This happens with both adults and children. When it is a child, then we often hear, “their cognition is too low, we can’t even test for it, so why try a device or AT tool.” Our response to that type of thinking is, you want to try tools to see what they can do and also to develop cognitive skills, such as cause and effect. For example, we were working with a non-verbal toddler with severe vision deficits and no motor control or intentional movement. It was unclear whether the child could see, but they did react to sounds and lights in the room. The decision to try an eye gaze device was not fueled by the hopes that they would be able to communicate with it that day; however, it was to gauge cause and effect using a dark room, with lights and sounds on the screen, when the eye gaze was being utilized by the child. Soon it became like a game, once the child realized their eyes were causing the lights and sounds to appear on the screen. Now we’ve laid a foundation to explore this type of technology for other functional uses, such as environmental controls and communication. When working with adults, sometimes it’s dementia or a developmental delay that prevents others from recommending a communication device. For example, some persons with ALS* have the potential of developing frontal temporal lobe dementia, which affects their decision-making skills, planning

and ability to filter what they want to say. We often hear they are not appropriate for a speech generating device, however, pictures seem to help some focus on communicating. Consider this example: A non-verbal patient with frontal temporal lobe dementia wanted to return borrowed equipment, but could not express where to locate it. A communication device was set up that used text-to-speech with picture symbols. With this, the patient was able to communicate in full sentences and gave step-by-step instructions on where to locate the equipment. The auditory feedback and the device’s predictive text with picture symbols appeared to keep the patient focused on what they wanted to say.

So, how do we avoid getting stuck at “no?” Take a step back, think about the reason you have said “no” or have heard it from a professional. Then educate yourself and others. Do not be quick to say “no.” Just try something, anything and everything! We guarantee you may get surprises. You may even think it’s a miracle this person is communicating! Just remember, it isn’t a miracle, they could always communicate because that is an innate ability, and you just brought it out by finding the right fit!

**Frontal temporal lobe dementia does NOT occur in all patients with ALS and is a rare occurrence ■*

GUIDELINES THAT SHOULD BE TRUE OF ALL AAC/AT EVALUATIONS AND EVALUATORS IN ORDER TO AVOID “GETTING THE WRONG FIT”:

- Have more tools in your tool box; do not rely on just one set of tools.
- Evaluate the WHOLE person - this includes ALL environments.
- Evaluate the WHOLE person - this includes conditions and contributing factors
- Spend more time in the “try it” stage. Rome wasn’t built in a day! (For individuals with a fatal progressive disorder, the “try it” stage will include massive education and exposure in a shorter period of time.)

Fill the Gap with Bookshare

Get Students the Accessible Educational Materials (AEM) They Need to Succeed

All students deserve access to a quality education. The Individuals with Disabilities Education Improvement Act (IDEA 2004) requires timely delivery of accessible educational materials (AEM) to students who have a print disability that makes it difficult to use traditional print materials. All too often, however, students with disabilities are unable to access the materials they need to succeed in the classroom. The 2011 National Assessment of Educational Progress found that only 11 percent of fourth grade students with disabilities performed at the proficient or advanced level in reading. For eighth grade students, this number dropped to 8 percent. When considering the numbers of students who scored at proficient or advanced levels, a 27 percent achievement gap was found between fourth graders with disabilities and their non-disabled peers in reading, and a

31 percent achievement gap between eighth graders with disabilities and their non-disabled peers ([Council for Exceptional Children, 2013](#)).

[Bookshare®](#) is an accessible online library that bridges this gap for many students across the country. We help students with qualified print disabilities, like blindness, low vision, physical disabilities and learning disabilities, read books in ways that work for them. Students can listen to words read aloud, follow along with word highlighting, enlarge font sizes, read in braille and more. We serve over 350,000 student members with a vast collection of over 350,000 educational titles, including more than 16,000 textbooks. Moreover, Bookshare is available for free to all qualified students in the United States through funding from the U.S. Department of Education's Office of Special Education Programs (OSEP). In just the past two years, our student



members and the educators working with them have read over 1.6 million books.

This article provides proven strategies for getting your school and district set up with accessible educational materials so your students with print disabilities can access the information they need to be lifelong learners.



KRISTINA KING COHEN is a Senior Manager at [Benetech](#). Kristina brings over fifteen years experience working in public education and human and health services. Her main focus at Benetech is to educate teachers, parents, and students on the benefits of [Bookshare](#) tools and resources. For more information, please contact training@bookshare.org

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GET YOUR STUDENTS THE RIGHT TECHNOLOGY

As you begin to implement Bookshare in your school or district, it is crucial to provide sufficient time and space to explore the range of technology options available to students with print disabilities. Students can read Bookshare books on a wide variety of tools and technologies. These include computers and laptops (including Chromebooks), tablets, smartphones, assistive technology devices, MP3 players and more. We recommend new members begin with [Bookshare Web Reader](#), the free and easy-to-use reading tool that lets students read books directly from a browser, like Chrome or Safari, simply by selecting "Read Now" on the Bookshare website. We also offer apps, such as [Read2Go](#), available in the Apple App Store for \$19.99, and [Go Read](#), a free Android app. Go to the [Bookshare website](#) and learn more about the [variety of technologies that work with Bookshare](#).

It is important to experiment with the various tools available to your students in order to determine student preferences, such as text-to-speech, rate of speech, font size, background color and other functionalities. Take advantage of your local assistive technology resources, parent support centers and educational resources to help your students discover what works best for them. You can also learn more about the variety of assistive technologies available by visiting [Tech Matrix](#), an online repository of information about assistive technology tools. Encourage your young students to start exploring early. This encourages independence and supports successful transitions. Your students will appreciate being introduced to the various resources available and, in most cases, will take these tools with them into post-secondary education, job training and into the work force.



INSPIRE LIFELONG LEARNING

Once your school account is underway and your students get comfortable using Bookshare, they are ready to use Bookshare independently. A Bookshare [Individual Membership](#) is an important step towards lifelong learning. With an Individual Membership, students can manage their own accounts, find and download their own books and take Bookshare with them throughout all their school, career and life transitions. You can help your students sign up for an Individual Membership by following some [simple online steps](#). For students under 18, we require parent/guardian authorization. For those students over 18, they can set up the membership on their own.

MAKE AEM A PART OF EVERY DAY LEARNING

It is also critical to have a plan for incorporating AEM into classroom instruction, practice and learning and to ensure home and community access. Bookshare has partnered with Vanderbilt University's [IRIS Center](#) that provides an easy-to-use [online learning module](#) to determine how best to implement AEM in the classroom. Some of the IRIS Center's top recommendations for integrating AEM into the classroom include:

1. Create seating arrangements that support the use of hardware without excluding the student from the class.
2. Provide time for other students to learn about and become familiar with the equipment. It's natural that they should be curious about the device

and may be distracted by its use during instruction.

3. Be sensitive to variations in time requirements for different instructional tasks. For example, it may take a student more or less time to locate or read a text passage than might be the case with his or her peers.
4. Use pre-determined signals to communicate with a student who is using headphones. The use of headphones may hinder a student's ability to hear the teacher or other students.
5. Assign a buddy for a student with mobility or fine/gross motor challenges. The student with these challenges might have difficulty manipulating equipment (e.g., putting on and taking off headphones).

Additional best practices can be found at the [National Center on Accessible Educational Materials](#) and [Bookshare Academy](#), including information about assistive technology, support for students with disabilities and tips for creating classrooms that are accessible to all learners.

ENGAGE PARENTS

Engaging parents is also a critical component of implementing AEM. There are many ways to involve parents and educate them on Bookshare resources. For example, you can involve parents in any tutorials you provide your students on how best to access Bookshare. You can also set up parent trainings in collaboration with Bookshare or recommend our upcoming webinars. Visit Bookshare Academy for additional training and learning resources for parents. We also recommend contacting your local [Parent Training and Information Center \(PTI\)](#) or [Community Parent Resource Center \(CPRC\)](#) for additional information and support services for parents of children with disabilities.



GET YOUR COMMUNITY TRAINED UP

Once you have had a chance to learn about Bookshare and use it with your students, we encourage educators to take advantage of our various professional development learning opportunities and share your knowledge with your co-workers and other parents and students. Many teachers, across the country, participate in professional learning communities focused on AEM implementation in the classroom. For continued learning, [Bookshare Academy](#) offers online courses through [Perkins eLearning](#). These are self-paced courses that you can take for professional credit. You can also find tools for trainers if you are inspired to share this valuable resource with other teachers and district administrators.

CONNECT WITH A BROADER COMMUNITY

We are inspired every day by student success stories. We have seen how students with print disabilities can succeed once they are given the accessible educational materials and tools they need to excel in the classroom and

beyond. We encourage you to connect with other professionals and community members who are on a similar journey to provide learning opportunities for struggling students. Follow us on Facebook, Twitter and Pinterest, and join our [network](#) of mentor teachers, parent ambassadors and volunteers who connect and collaborate to ensure that all students with print disabilities get access to the materials they need to succeed. Join the conversation and continue to be inspired!

This project is supported by the U.S. Department of Education, Office of Special Education Programs (Award Number H327D120002). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education. ■

DISKoveries

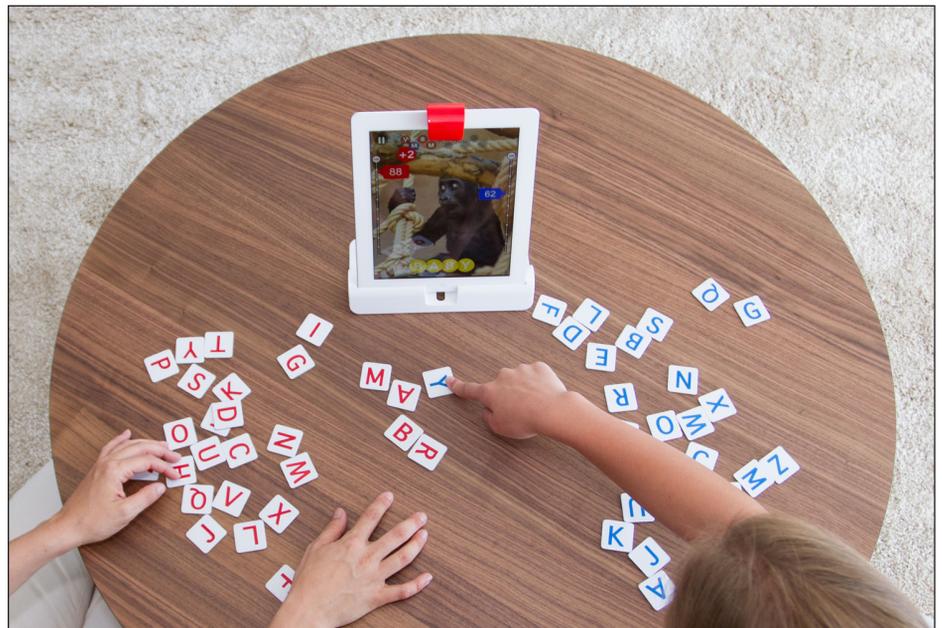
New Ways to Play and Learn with the iPad: Interactive Play with Offscreen Manipulatives

By Joan Tanenhaus

The following two products have taken the iPad to the next step – children can now interact with their iPads, individually and/or in groups, by using and manipulating related physical objects – shapes, number lines, puzzle pieces, letters and more. Great for language learning, fine motor skills, visual spatial abilities, literacy, creative thinking and problem solving, as well as cooperative and/or competitive play.

OSMO (WWW.PLAYOSMO.COM)

Osmo is a new gaming accessory for the iPad that is designed for ages six and up and comes with four games that work with an iPad Mini and iPad version 2 or higher. (Currently, the iPad must be out of its protective case to work with Osmo.) The Osmo package comes with a reflective mirror for the iPad camera, a white iPad stand and two sets of game pieces – two complete alphabet letter tile sets and seven wood tangram shapes. Instructions are included for downloading four free apps from the Apple App Store. The reflective mirror is a red attachable



Osmo Words (www.playosmo.com)

piece that lets the iPad see the environment below and in front of it and translate movements to the iPad. The four games are: Tangrams, Words, Newton and Masterpiece.

The first game, **Words**, is outstanding

for all ages. At its easiest level, it presents a large clear concrete picture (i.e. a cat) and three circles. The first circle is blank and the last two contain the letters A and T. Players then slide, flick or fling their tiles into the game area to complete

the word. The letters can be placed anywhere the camera can see them. When they are recognized, they light up on the iPad. You can select the level of difficulty or start at the beginning, and the words will get harder as you go along. Some of the higher levels show pictures that are more abstract and show only blank circles (like Hangman). If you connect to the Library, you can download additional albums from a wide range of topics. You can also create your own picture collections with the pictures and words of your choice. It's a great way to work on spelling words, sight words, phonics skills, vocabulary and many other language and literacy skills, while also encouraging independent use and/or collaboration and cooperative play. There are two sets of letters included (red and blue), and if the game is played by two, it keep scores for each person.

Tangram, the second game, comes with seven colored wooden Tangram puzzle pieces. Players arrange them in the area in front of the iPad to match on-screen shapes. Puzzle completion is guided, piece by piece, and accompanied by soothing music, with no time limits. The shapes on the screen light up when you put two pieces together in the right place. There are four levels of puzzle complexity, including an Intro to Tangram mode for younger children (4+). New puzzles get more challenging as easier ones are completed. There are over 400 puzzles for players to unlock as they play the game. Tangrams is good for spatial thinking, eye-hand coordination and visual perceptual skills – and motivating and challenging for all ages.

Newton, the third game, consists of on-screen rolling balls that come down from the top of the screen and groups of targets. Players use paper and pen to draw lines and shapes to guide the balls into the targeted zones. They can also use objects like keys, sticks, even the Tangram pieces and Word tiles. There are many different levels of difficulty that become unlocked automatically upon



Osmo Tangram (www.playosmo.com)

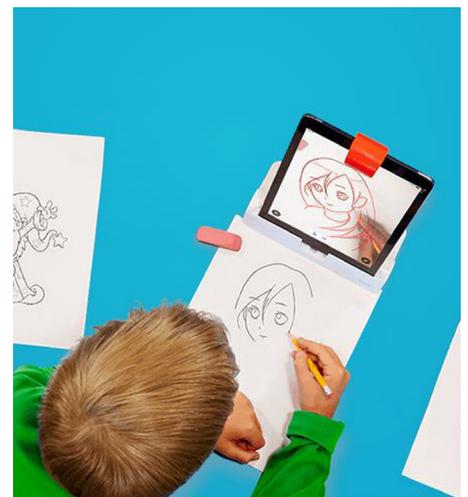
completion of easier levels.

One additional activity available is called **Masterpiece**. Players pick a picture from their photos, take one with the iPad camera, find one in the program gallery or from the Web and Masterpiece then converts it to a line drawing. Users trace the line drawings on paper placed in front of the iPad while watching the onscreen lines. Pictures can be saved and emailed to others. Other Osmo games are being planned.

Osmo is an interesting and educational expansion of traditional tablet use. Visit the website to see videos of the different activities and applications and visit <http://my.playosmo.com> to explore making custom albums for Words game. Osmo also has a "Buy One-Gift One" program. If you buy one for personal use, Osmo will gift one free to your child's school or teacher.

TIGGLY (WWW.TIGGLY.COM)

Tiggly has created three learning systems, which have manipulatives that work along with a series of apps on the iPad 2, 3, 4, Air and Mini. (Only Tiggly Shapes works with the iPad 1st generation.) The interactive pieces that go with



Osmo Masterpiece (www.playosmo.com)

the sets are 3-D objects that the iPad recognizes when they are placed on the screen. The shapes, counting pieces and letters have silicone touch points so the tablet recognizes and reacts to them when they touch the screen. Once the sets are purchased, users download the free Tiggly apps, which can also be played in eight different languages. (Some of the Tiggly sets work with some Android tablets and software. Please check the website for more specific information before purchasing if you own an

Android tablet.)

Tiggly Shapes comes with a red square, a green circle, a yellow triangle and a blue star and three free apps. In **Tiggly Safari**, children use the shapes to construct animals from the jungle and the farm. In the first level, children match shapes; as the levels increase, children create more complex animals with combinations of shapes, in various orientations and with movements. In **Tiggly Stamps**, children use their shapes to build characters, objects, fruits and veggies related to winter and summer. They can take pictures of their scenes or tell a story and create a video. In **Tiggly Draw**, children can create characters with the shapes and add mouth, eyes, hats, nose, tails, wings and more. They can change the background color and add music too! Pictures can be saved and sent to friends.

Tiggly Math comes with five different number strips: a red with one square, yellow with two, green with three, blue with four and purple with five and three more free apps. In **Tiggly Chef**, children match up and combine their number strips to food items (i.e., five bananas, three pineapple rings, etc.). To add five pineapples, users can use the number strip for 5, or use the single square, placed one at a time, on each pineapple, or make their own combinations ($3 + 2$) while being reinforced with visual and counting cues that will all lead to greater understanding of numbers and their relationship to each other. Another activity asks for “5 peppermint candies,” “1 radish,” “4 yellow peppers,” etc., encouraging users to not only count, but understand vocabulary, attend to the screen and select only the appropriate pictures. Children can also create their own recipes for others to prepare. In **Tiggly Cartoons**, children chose their counting toys to create coins, count coins, drag coins to targets and watch them turn into animated cartoons. **Tiggly Adventures** has many number line activities to help with count-



Tiggly Shapes (www.tiggly.com)

ing, adding and skip counting.

Tiggly Words comes with five different letters – all the vowel – in all different colors and with three free apps. In **Tiggly Submarine**, there are four different activities in the ocean, each designed to help users learn about short vowels and the sounds they make. There are errorless activities (pick any letter to open the elevator door, the turtle’s door or to feed the octopus and then hear the vowel sounds and discover pictures and objects) and an activity to choose the correct vowel to complete words to rescue trapped animals and objects. In



Tiggly Math (www.tiggly.com)

Tiggly Tales, children touch to see a CVC (consonant, vowel, consonant) pattern, with the vowel missing (i.e., b_g). Place a vowel on the screen, and if the word has meaning, it will appear on screen with a silly animation. They can record and narrate a story about the objects and animations. The third app is **Tiggly Doctor**, which is a word completion game with emphasis on verbs. Children fill in the missing vowels to complete the spelling of verbs and other words and then watch the actions or hear the definitions spoken aloud. (All of the Tiggly apps can also be played without the manipulatives, so if they sound interesting, check them out in the App Store.)

Tiggly toys and their included apps provide young children with many opportunities for language learning, counting skills, beginning number and math concepts, motor skills, visual discrimination, problem solving and creative thinking.

Joan Tanenhaus, M.A., CCC, Speech-Language Pathologist/Assistive Technology Specialist, is Founder and Executive Director of Technology for Language and Learning, Inc., a non-profit organization dedicated to advancing the use of computers and technology with children and adults with special needs. (email: ForTLL@aol.com)! ■



Tiggly Words (www.tiggly.com)

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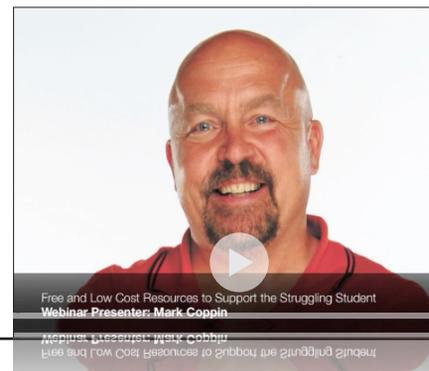
THE MOST COMPREHENSIVE ASSISTIVE TECHNOLOGY GUIDE AVAILABLE TODAY!

This directory is the culmination of a year-round search for products for children and adults with disabilities. By knowing what initial steps to take, this directory will prove indispensable for development and implementation of this technology.

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product spotlight

Smart Device Access for Those Who Can't Touch



Tecla brings smart device access to all. It connects people with limited physical mobility to technology. Tecla allows interaction with iOS and Android devices via the specialty switches or wheelchair driving controls that are already used.

With Tecla, life changes in many ways:

- Send and receive email and text messages
- Browse the Web
- Watch videos
- Launch and use apps
- Read books
- Change the TV channel or turn the heat up
- Make (or hang up) phone calls at any time
- Enter text and commands using Siri
- Do pretty much anything you can do with a smart device

Who is Tecla for?

Tecla is for anyone who can't easily access a touchscreen device on their own, but would like to. This includes individuals with upper body mobility limitations resulting from spinal cord injuries, multiple sclerosis (MS), ALS, muscular dystrophy, cerebral palsy, brain injuries or stroke.

How does Tecla work?

Tecla works with assistive switches, ranging from buttons, sip-and-puff controllers, head arrays to joysticks, and your wheelchair driving controls. This means you can use Tecla from your wheelchair during the day and from your bed at night, using switches. No need to choose one way or the other. Tecla adapts to you.

iOS or Android – take your pick:

The Tecla Shield works with both iOS and Android devices – that means your iPhone, iPad, iPod Touch or any Android smartphone or tablet. With any iOS device, setup is easy – just pair your smart device to the Tecla Shield. And with Android, download the free Tecla Access app from Google Play Store to get started.

Maybe you'd prefer to use a computer? With Tecla, the freedom is yours to choose between a Mac, Windows or Linux computer. You'll even have full control of the mouse pointer, too.

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JAWS 90-Day License Now Includes MAGIC Screen Magnification



Freedom Scientific recently announced the expansion of the popular JAWS for Windows Screen Reader 90-day license to include MAGIC Screen Magnification Software. When you purchase a timed license for JAWS, the MAGIC 90-day license will also be available to download and use. The 90-day period begins when the first product is authorized for use, and the same authorization will work for both JAWS Screen Reader and MAGIC Screen Magnification.

The dual product 90-day license is a great opportunity for companies to utilize these programs to test the accessibility of their Web pages and applications under development, said Eric Damery, Vice President of Software Product Management. Agencies can use the 90-day license for accessibility testing at job sites or to start new employees on MAGIC Screen Magnification Software immediately.

After purchase, customers will be given the Activation Code for the

90-day license, along with instructions for downloading and installing the software from the [Freedom Scientific Downloads page](#). Once the 90-day period has expired, the product can be reordered for another 90-day license, or a full license can be purchased for continued use of the installed software.

The JAWS and MAGic 90-day license (SKU: 340624-001) is available for purchase immediately from your local Freedom Scientific representative. For more information, please visit the [Freedom Scientific website](#) or call Freedom Scientific at 1-727-803-8000. Pricing in the U.S. for the 90-day license is \$179. Outside the U.S., customers should contact their local distributor for pricing and availability.

About Freedom Scientific

Freedom Scientific is a leading worldwide provider of assistive technology products for those with vision impairments. The company sells its products worldwide and has offices in Florida and Switzerland. Their products have been translated into 24 languages and are available in 55 countries.

[LEARN MORE](#)

A Guide To ModelTalker Voice Banking



Jamie Pauls was quick to recognize that Guide is “more than just a screen reader” during his recent evaluation of Dolphin Guide for AFB’s AccessWorld Magazine®.

Dolphin Guide

For many people with a visual impairment, their sight loss journey begins before they decide to tackle basic computing. Jamie succinctly describes why Guide works for this audience and many others with a vision impairment.

“Guide contains an array of programs and utilities for someone who is not an experienced computer user or who, for various reasons, may not be able to complete complex computing tasks. Guide provides simple, step-by-step instructions for completing projects in a safe, uncluttered environment.”

It’s these “step-by-step instructions” that make writing and reading emails with Guide so simple for the “more novice user who simply wishes to communicate with friends and family.”

Guide’s unique and simple step-by-step approach isn’t restricted to just email. Scanning and reading with Guide are just as simple and effective as Jamie discovered during his review.

“Guide offers a full-featured scanning and reading solution for those who want to read a good paperback novel or check the day’s mail. As with

everything else I explored using the program, I found Guide’s step-by-step instructions for scanning and reading documents to be straightforward and easy to understand.”

Turns out Web browsing with Guide is also a no-compromise experience.

“I was able to navigate the Fox News site with no issues. This site is rather large, with a lot of links on the front page. Guide loaded the page quickly and performed all tasks as I would have expected.”

Guide isn’t just about communication though! Hassle-free access to books and newspapers was recently introduced, with Guide’s same trademark step-by-step menus. Guide users have the choice to browse and read both newspapers and books from NFB-NEWSLINE®, Bookshare® and NLS BARD.

“I browsed Bookshare with Guide, downloading a book and reading articles from a local newspaper. It is possible to move from section to section in an article with Guide or to simply read from the beginning. I found Guide’s search functions and its handling of downloaded books to be quite speedy and easy to work with.”

Looks like Jamie Pauls at AccessWorld® Magazine is a fan of Dolphin Guide, concluding, “I would definitely recommend this product for anyone who needs assistance with basic computing skills.”

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Learning to Read with an App Curriculum for Students with Autism and Intellectual Disability



Early Reading Skills Builder is a new, just-released, age-neutral, blended curriculum for teaching the task of reading connected text, with comprehension, to students with intellectual disabilities and autism. It's proven to be effective with two years of classroom research funded by the Department of Education Institute for Educational Sciences (IES) under a Small Business Innovation Research (SBIR) Grant awarded to Attainment Company. The innovative blended curriculum uses systematic instruction to teach reading skills, including the phonemic elements in the English Language. The app or software technology sounds out each phoneme, teaching three new letter sounds in each lesson. Sounds are learned in isolation, as beginning sounds, as a part of whole words and as blended sounds that make up a word. Sounds are sequenced to sound out words. Sight word instruction with automaticity is combined within the curriculum, as well. A few additional words are taught in order to add connectors to make a story, then the students are set to read a story with the sounds and words that they have learned. Comprehension questions are incorporated into each story to insure that students not only read the text, but also understand what they have read. Writing instruc-

tion is provided in the curriculum to combine comprehension and tactile responses with reading development. In each consecutive lesson, students get more practice with the sounds they learned in the last lesson by including the last three sounds as review while learning the next three. The technology measures student success and automatically customizes instruction based on student responses to provide further review or move them forward when they are ready.

In the research classroom, some participating students were also non-verbal and used the specialized technology to demonstrate their phonemic prowess and understanding. In the final year of SBIR research and development, thirty-two classroom students participated in a randomized control experimental protocol and demonstrated statistically significant gains in reading skills, as compared to the control group. Educators have long awaited a complete reading curriculum designed for all students who need to work on building the skills to become readers, especially students in middle and high schools. ERSB is the only proven reading curriculum for special education designed to teach reading skills in an age-neutral manner. ERSB is an essential curriculum for students in middle school and high school, still working on learning to read, to build their skills so that they can read to learn. See the [Attainment website Early Reading Skills Builder](#), for complete information on this blended curriculum, peer reviewed publications documenting research results and great videos of students who learned to read with the Early Literacy Skills Builder curriculum.

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Crick Software Launches Clicker Communicator



Crick's award-winning literacy tool, Clicker, has been widely used in special needs settings for many years to create personalized communication grids. Now, Clicker Communicator brings the power and ease of communicating with Clicker to iPad users for the very first time.

Clicker Communicator provides a complete iPad communication aid for learners with speech difficulties. It uses the familiar Clicker Apps interface so that teachers can set up a Vocabulary Set in minutes and personalize the app to the specific needs and interests of their students. The SymbolStix symbols library is included as standard, with the Widgit and PCS libraries also available as in-app purchases. In addition to being able to create your own resources, there are three ready-made core words Vocabulary Sets to help users get started.

As with all Clicker Apps, Clicker Communicator users have access to a growing bank of free, ready-made resources via Crick's LearningGrids site.

"There are three key features that make Clicker Communicator really special; it's child-friendly, it's incredibly easy to create your own content, and it's been specifically designed to support communication within the classroom," says Crick Software CEO, John Crick. "Communicating in school isn't just about wants and needs; it's

about taking an active vocal part in lessons. There is already a lot of buzz about the potential Clicker Communicator has to transform the day-to-day learning experience for students with speech difficulties – it’s a very exciting prospect!”

Clicker Communicator is currently available on the App Store for \$149.99. For further information, please contact Crick Software at 203-221-2697 or visit the Crick Software website.

[LEARN MORE](#)

Tobii Dynavox Launches the New I-Series+ and Communicator 5



Tobii Dynavox , a global leader in assistive technology for individuals with communication disabilities, introduces the new Tobii Dynavox I-Series+ speech generating devices and accompanying Communicator 5 software. The focus of these innovations is on improving ease of use for users and caregivers, making communication more efficient.

The new I-Series+ and Communicator 5 are the next generations of the previous, and very successful, I-Series and Communicator suite.

“With I-Series+ and Communicator 5, our goal was to enable faster communication, with great focus on ease of use, for the end user, as well as for people around the users,” says Fredrik Ruben, president of Tobii Dynavox. “One of the features that we are extra proud of, currently introduced as a beta, is the ‘dwell-free typing’

where literate eye tracking users can simply gaze over letters to form words they intend to write. This has the potential to significantly increase communication speed for our users.”

“The Communicator 5 dwell-free typing is so quick. I find I have to really know what I want to say, it is sometimes quicker than my mind,” said Steve Burns , one of the beta testers, diagnosed with ALS.

The new I-Series+

I-Series+ devices come with a 12-inch or 15-inch touch screen and optional eye tracking capabilities, supporting communication through voice, email, text messaging, social networking, phone calls and more. Users can also access computer applications and control their environment, including electronic devices, lighting and doors.

Compared to its predecessor, the I-Series+ has a more powerful processor, making it possible to run Microsoft Windows 8.1, which is more suitable for users relying on touch and gaze input.

More detailed product information can be found on: www.tobiidynavox.com/iseriesplus

Communicator 5

The Tobii Dynavox Communicator 5 has been redesigned with the goal of making the user’s experience much easier and more efficient. Some key improvements are:

- Contemporary look - The contemporary flat design is not only for making Communicator look better, but, more importantly, to make it easier to use.
- Instant access to most commonly used functions – The Quick Menu function gives caregivers convenient access to the most commonly used settings and functions by pressing

the dedicated function button on the side of the device.

- Improved Edit Button tool for quick changes – The improved “Edit Button tool” allows you to make on-the-fly changes to buttons for keeping the user’s language up-to-date.
- Improved on-screen keyboards – The on-screen keyboards in Communicator 5 now have one consistent layout, regardless of the page-set being used, helping users to type more efficiently.
- Help to get started - With the set-up guide and its pre-defined user profiles, getting started and customizing it to fit the user has never been easier.
- Get support from “the cloud” - Works with the free myTobiiDynavox.com community where you can download page-sets, access user manuals, video tutorials and other resources.

Pricing and Availability

The Tobii Dynavox I-Series+ is available for purchase, either directly from Tobii Dynavox or from any of our resellers and partners. Please visit <http://www.tobiidynavox.com> to find the reseller closest to you.

Tobii Dynavox Communicator 5 is available for purchase at a price of \$599 (US) (US English version). Eligible users of Communicator 4 and/or I-Series can upgrade to Communicator 5 for \$99 (US) via www.tobiidynavox.com

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