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Creating Digital Text Files From Printed Materials

By Jim Kauppila

Sometime in the year 2005, and prior to the final regulations for Idea 2004, I was faced with a dilemma. We had kids that needed help with reading. Other than Web-based material, we had nothing to support them. There were no text and trade books available. The students had differing "labels," but one thing in common – they could not read well enough to comprehend core instructional material. I embarked on a process to create digital or electronic text versions of materials in use at our local schools. I assembled the following equipment and software making the conversion possible.

THE LIST OF OUR EQUIPMENT IS AS FOLLOWS

- 1 Xerox 252 Duplex Scanner
- 1 CanoScan LiDE 35 flatbed scanner
- Abbyy Finereader 9 (Scanning and OCR software)
- Adobe Acrobat Professional 9 (Document creation software)

The choice of a duplex scanner over a flatbed scanner is extremely important from the standpoint of efficiency. Duplex scanners will scan both sides of a page in one pass, versus a flatbed scanner that will do one side at a time with a great deal

Figure 1 - The Documate 252.

of intervention on the part of the person scanning. The Documate 252, (Figure 1) will scan 16 pages per minute and we have scanned over fifty thousand pages. The original price was about $1000.

Figure 2 - Flatbed scanner.

I use the flatbed scanner for single pages or books that cannot be cut apart. I really like the CanoScan series as they are USB powered. Prices vary from $50 and up, depending on the model; LiDE models 25 and 35 work well for me. (Figure 2)

PDF is my choice for the digital book format. When I receive digital text files from a publisher, they are always in PDF. Acrobat Professional 9 is necessary to create PDFs. Acrobat Professional creates documents and allows navigation options that will assist the user in moving through multi-page documents. For scanning workbooks, it has an easy interface to make the work book pages fillable forms, and has the potential of embedding comprehension supports, sound or video into a document. Educational pricing for Acrobat is affordable. In Michigan, the pricing runs about $75 per license (including the media); additional licenses are $50 each. Avoid "PDF creation software," as it does not have the same features as Acrobat Pro.

It is our desire to create electronic documents that mirror the printed version, including images, text, charts and graphs. Abbyy FineReader 9 does this and controls the scanning and Optical Character Recognition (OCR). OCR is necessary because the initial scan of a page is an image or a picture. You will need to use some type of OCR software to render the image to editable text. Of all other OCR software programs, none have performed as well as FineReader. It is my choice for scanning and producing digital work. FineReader is Windows or Mac based. Retail price ranges from $179 to $399.

Figure 3 - Our print department's paper cutter.

Figure 4 - Scanning begins.

THE PROCESS

First, separate the book's pages from the cover. Keep the book's cover and spine in one piece. With a utility knife, carefully cut the bundle of pages from the cover. I use our print department's paper cutter to remove the binding. (Figure 3, page 6) Always check for staples, as the blades on large paper cutters are razor sharp and can be damaged by metal staples. The one piece cover provides a good folder for holding the loose pages. If you don't have access to a paper cutter in your school district, most print shops, such as Kinko's or Staples, will do the job for a fee of $3 -$4.

Next, the pages are placed into the document feeder on the scanner and the scanning begins. Pages will occasionally stick together from static electricity. Incomplete scans can result, so fan the pages to get air between them to improve document feeding. Book paper is another part of the issue. Glossy paper displays images well, but pages tend to stick together. Paper found in most paperback books is coarse and feeds well, with few problems. (Figure 4, page 6). Placing less than the maximum number of pages on the feeder also prevents problems with miss-feeds. In some cases, pages may be loaded one at a time due to paper thickness and static electricity. Abbyy FineReader allows adding and repositioning of pages. Scan 50 to 100 pages at a time, check the page numbers and rescan missing pages. Adobe Acrobat Pro will allow insertion of pages in a nearly completed document. After 500 textbooks, I prefer to use the first method.

Scanning properties are set in Abbyy FineReader. Documents must be scanned at a minimum 300 dots per inch (dpi). To create a PDF, choose to have text and images be recognized. Final document colors should be the same as the original.

View a video on setting up Abbyy FineReader 9 at: www.mediafire.com/file/itzuzi2mfm0/Abbyy 9 get started.avi

EDITING

After FineReader completes the scanning/OCR operation, editing must be done. Editing is the process of making sure that a page's components are properly recognized. Editing involves reshaping text, image and table blocks. This is necessary with most textbooks. (Figure 5)

Novels or trade books require an additional step during editing. For each chapter edited, I save a PDF and an RTF. The chapters are combined in Acrobat Professional to create the finished document. Creating an RTF book by chapters makes MP3 conversion easier.
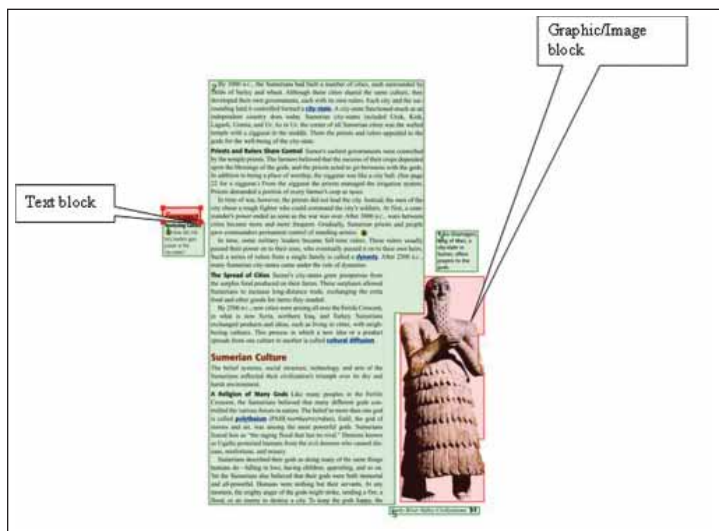
Figure 5 - Editing files after they are scanned.

View a video on editing page blocks at: www.mediafire.com/file/xfmmbonndmn/Abby 9 recognition and saving.avi

DOCUMENT CREATION – PDF

Once editing is complete, I save my work as PDF. Converting the PDF from a FineReader File can be time consuming. A book of one thousand pages will be finished in a few hours, so once the process is started, you may want to find something else to do.

PDF documents are complex. Proper reading order is necessary for comprehension. Acrobat Professional has accessibility options for setting reading order. This process can be set automatically in the Preferences option panel. (Figures 6 and 7, page 8)

Those interested in creating fully accessible documents in Acrobat Professional should refer to this link: www.adobe.com/accessibility/products/acrobat.

My experience has been that the accessibility features in Acrobat Professional meet the needs of the students I serve.

RENUMBERING PAGES

With the document complete, the next step is to re-number the book pages so each page in the PDF mirrors the actual book page numbers. Secondly, bookmarks are created for each chapter, creating a table of contents that links to each chapter.

Books are constructed in sections. The first section is called Front Matter. Front Matter can be defined as all pages from the

beginning of a book, up to the first page of text that relates to the book content. The second section is called Content. Content is defined as the text matter of the book. The third section is called Back Matter. Back Matter can be defined as all pages after the last page of text relating to the content. Renumbering the content pages is necessary as the newly created book's page numbering will begin with the first page. Renumbering the content allows the user to move to a specific page as needed. With the document open, select the Page navigation panel located near the upper left corner of the document window. (Figure 8)

1. Highlight all of the Front Matter.

2. Right click on the highlighted pages to display a drop down menu. From the drop down menu choose renumber pages (Figure 9). Select a numbering style (Figure 10) other than numbers. This forces the first page of the content to be identified as page number one. This need was painfully brought to my attention as a teacher requested the students open their books to a page number and my student could not. I had not imagined it happening, but IT DOES happen, so plan accordingly.

BOOKMARKING

Bookmarks are used to link sections of a PDF document. A user can navigate to chapters and sections within chapters. The bookmarking navigation tool appears as a book icon with a blue ribbon. (Figure 8)

Use the following steps to create bookmarks:

1. Using the page navigation tool, navigate to the first page of the chapter.

2. To add a bookmark, right click on the chapter page, opening a drop down menu. From the drop down menu, choose Add Bookmark. (Figure 11) The bookmark window will open with a new bookmark icon and text field.

3. Chapter bookmarks can contain subchapter bookmarks, depending on the complexity of the original work and student need.

View video support for renumbering and bookmarking here:

www.mediafire.com/?sharekey=34c13e033d43551bab1eab3e9fa335ca1df47ef8892a3259

DOCUMENT CREATION - RICH TEXT FORMAT (RTF)

RTF documents are used to convert text to Mp3 format. Save the file as a Microsoft Word Document. From the Save Pages window, change the file type to Rich Text. (Figure 12)

TIME REQUIRED FOR CONVERTING A PRINT BOOK TO A DIGITAL BOOK

Textbooks take approximately twenty hours to convert. This includes cutting, scanning, editing, saving, renumbering and bookmarking.

Novels or trade books take about one to two hours to convert.

MANAGEMENT

Districts converting or using digital materials must establish guidelines or policy for the creation and use of these materials. Suggestions based on the work of Mark Dennis, Eaton Intermediate School District, Charlotte, Michigan are a good starting point.
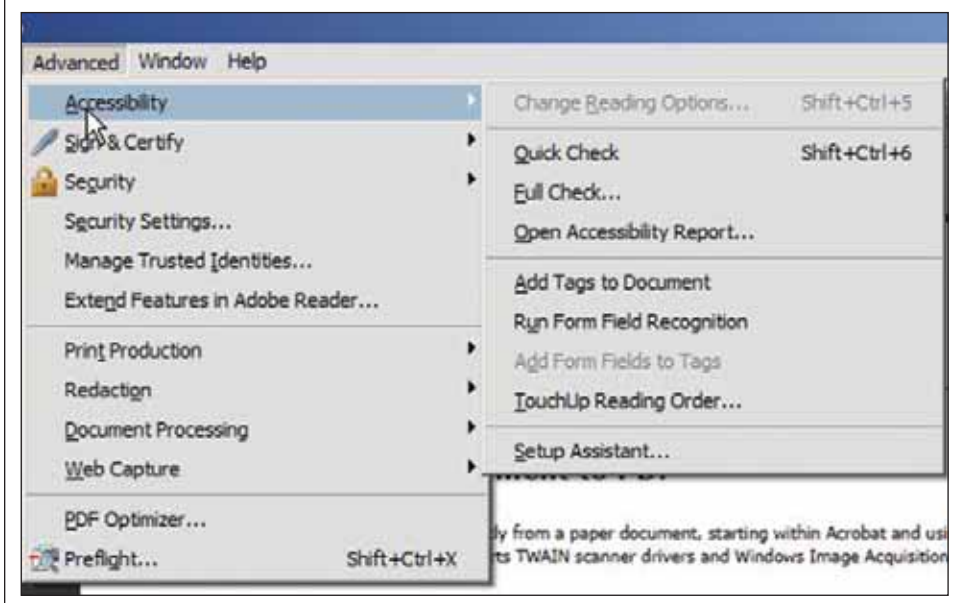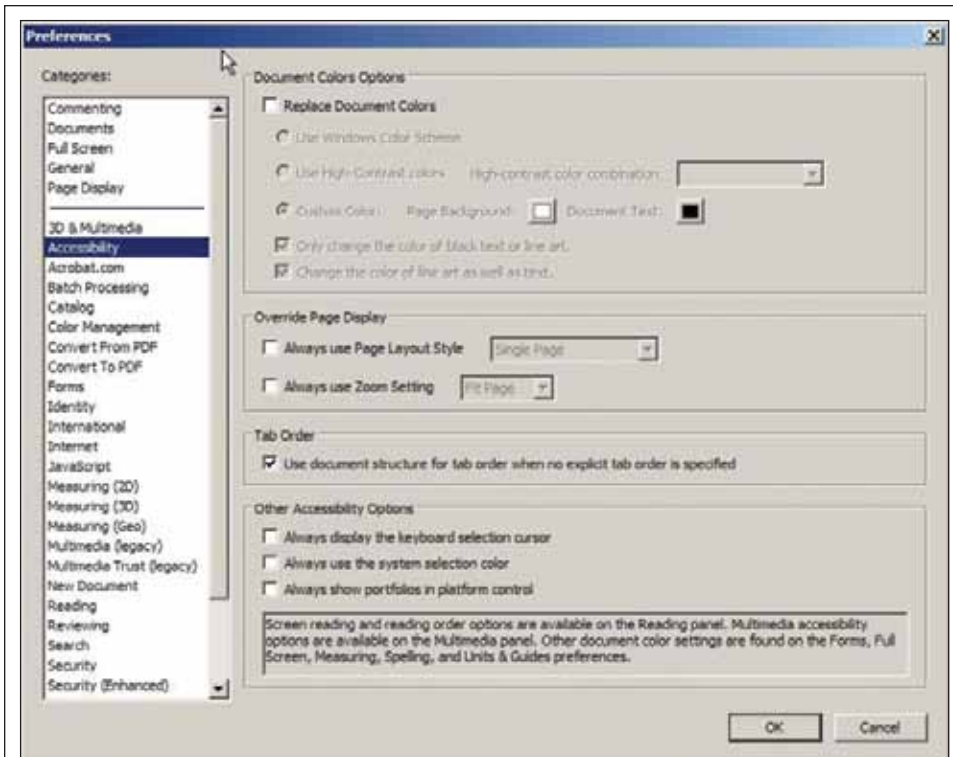
Figures 6 and 7 - Setting the accessibility options for reading order using Acrobat Professional.

Figure 8 - Navigation panels in Acrobat.
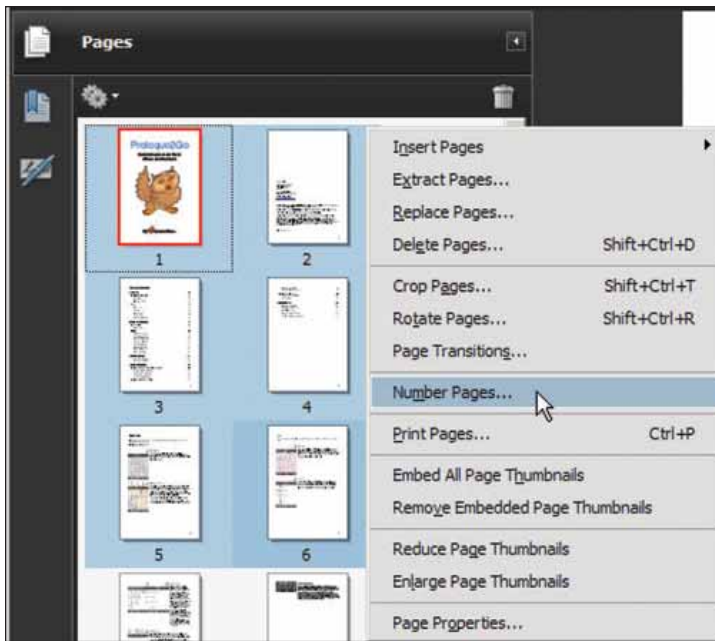
Figure 9 - Renumbering pages.
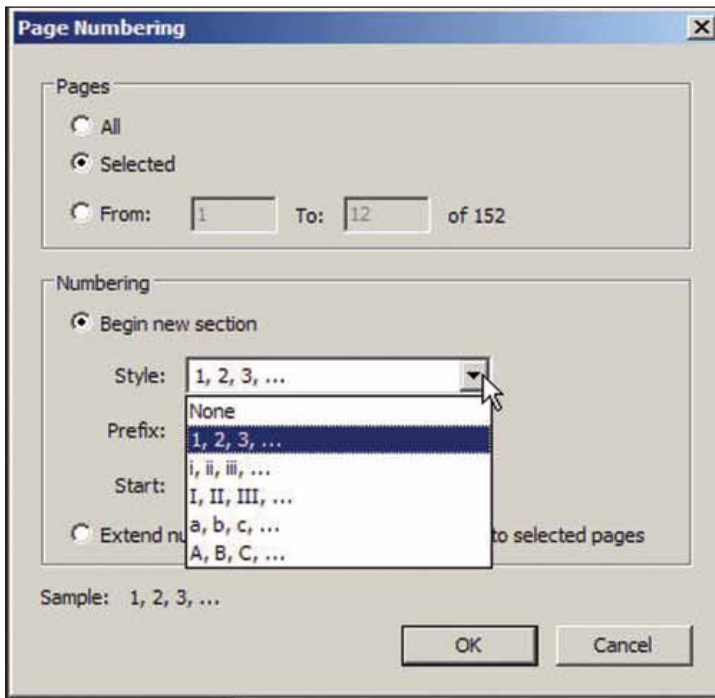
Figure 10 - Selecting numbering style.
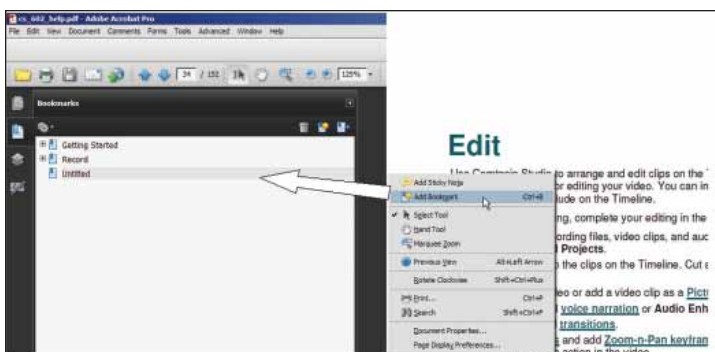
Figure 11 - Adding a bookmark.
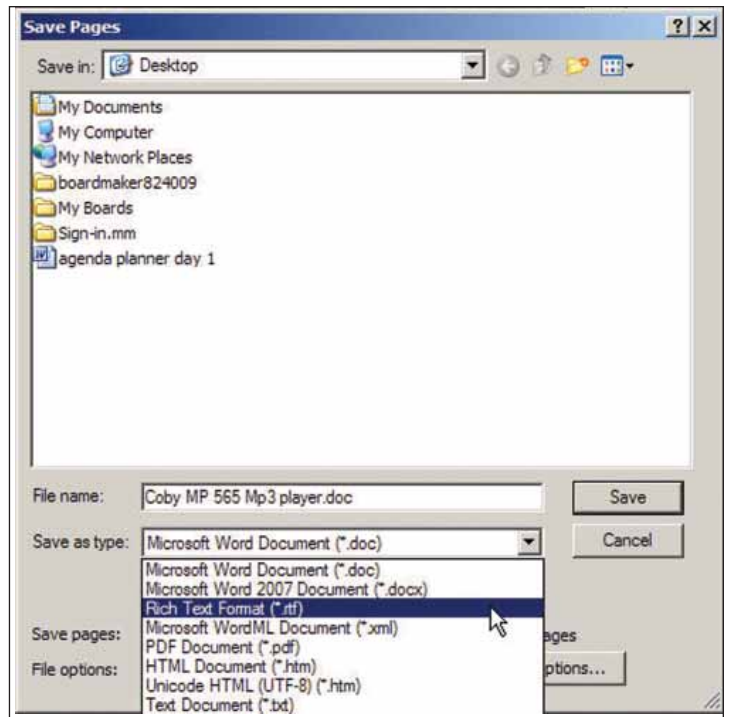
Figure 12 - Converting to RTF format.

1. Who creates and stores the materials?
2. What is the method for requesting book conversion?
3. How do the materials get from the producer to the student?
4. How is a student certified to use the materials?
5. What are the student's responsibilities?
6. What are the parents' responsibilities?
7. What are the local teacher's/district's responsibilities?
8. If equipment is loaned, a use agreement should be created.

This is a method to create digital materials using off-the-shelf software. Guidelines and policy are the glue holding the process together and keeping it legal.

Sample guideline documents may be found at: www.mediafire.com/file/j5mmjtuduyy/Guidlines on the Use of Accessible Instructional Material.pdf

Many thanks to the folks at Colligo Corporation, Premier Assistive Technology, Abbyy, and our Print, Technology and Special Education Departments at the Muskegon Area Intermediate School District for making this project come alive. Without their support I would have stumbled hard and often.

SOFTWARE AND EQUIPMENT SOURCES

Adobe Acrobat Pro 9 – www.adobe.com/products/acrobatpro
Abbyy FineReader 9 – www.finereader.abbyy.com
Xerox Scanners – www.xeroxscanners.com/en/us
Canon Scanners – www.usa.canon.com/consumer/controller?act=ProductCatIndex1Act&fcategoryid=104
Challenge Machinery Co., manufacturer of paper cutters – www.challengemachinery.com
Screen shots were captured with Snag it; Videos were created using Camtasia Studio; both products from TechSmith – www.techsmith.com

ABOUT THE AUTHOR

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Forming a Lasting Marriage of AAC and Literacy:

One Girl's Story

By Patti Murphy

Madison Leal, an eighth grader at Jean Little Public School, has a pretty good track record when it comes to accomplishing what she sets her mind to. A current goal she's particularly excited about is reading to a kindergarten class at the school in Guelph, Ontario, Canada, where she lives. An avid reader, Madi (as she likes to be called) pondered her book selections without fuss. Depending on the date and the teacher's lesson plans, she'll probably choose a seasonal book from the "Franklin the Turtle" series, a personal favorite. Also on her list is "So Don't and See What Happens" the book that her mother, Sarah Leal, published earlier this year. A whimsical lesson in the consequences of willfulness, the fictional story is also an unassuming tribute to Madi. She is its main character, depicted in her wheelchair with her DynaVox augmentative and alternative communication (AAC) device at her side. Except for the caricature, there is no reference to Madi's cerebral palsy disabilities in the book. Hard-pressed to find books featuring young people with disabilities, but not about the disabilities, Sarah decided to write one herself.

Its humor is the sort that Madi's kindergarten audience is bound to appreciate, if they haven't yet been treated to her delivery of the reading through the DynaVox Vmax she got last spring and accesses by pressing one switch with her foot to scan vocabulary selections, then another switch with her chin to choose her words.

Madi's presentation to the students, who are a bit older than she was when she got her first DynaVox device at age 3, has a place in the unique literacy experience that Madi, now 13, and close companions have shared since she was an infant. Almost anyone involved in setting a good foundation for a lasting marriage of AAC and literacy can take useful tips from her journey.

For Madi, early markers along the path of cultivating these skill sets were the hospital and medical office waiting rooms that she has frequented since she was just weeks old, medically fragile from the birth trauma that is often characteristic of cerebral palsy. Hearing her mother read aloud seemed to have a soothing effect on Madi before and between various exams, procedures and therapy sessions, Sarah Leal said. Knowing that such appointments could fill practically an entire day, they came prepared with seemingly as many as two dozen books in tow for entertainment, she recalled. "We read and read and read."

As Madi grew, so did signs of her overall interest – eye contact, smiles and a tendency to stay calmly engaged as her mother pointed to each picture and word, sometimes letter by letter. Though unsure how Madi's expressive language abilities would unfold, her mother had a hunch that she would be the kind of reader who cared about and readily comprehended the reading material at hand. Yet Sarah Leal and her husband, Luis, had no illusions about what it would take for Madi to reach that point. They followed their intention for Madi to have a conventional education, enrolling her at Jean Little as a preschooler, and planned accordingly for anticipated detours.

"I knew that literacy would be essential for Madi if she was going to be non-verbal," Sarah Leal said." We made sure she was on the early road with picture identification and familiar words so that she would be able to tell us what she wanted to say."

To help 2-year-old Madi link visual concepts with spoken language, her parents labeled scores of items in their home and filled the place with laminated communication displays that changed as her vocabulary increased, allowing her to build sentences with words and phrases made of sticky fabric, and the help of a partner. Some displays contained PCS symbols, others included photographs or drawings. Madi's preschool classmates eventually used the same boards to curb any chance that she would feel singled out by her mode of self-expression.

Coincidentally, Madi made helpful connections by watching her mother use American Sign Language in conversations. Sarah Leal had worked as an American Sign Language interpreter.

"You've got to give them everything," she says in response to a comment on her resourcefulness as her daughter's advocate. "I needed to know that she had the best tools possible."

Soon after Madi's introduction to electronic AAC devices, it became apparent that those with small static displays, while offering another way to see and hear words, did not match her quick and profuse acquisition of new language. But dynamic display technology did, and DynaVox products offered the best fit.

Madi Leal and her friends at Jean Little Public School – Emily Burkett, Kayla Pagnan and Alex Schram - have learned a lot from each other as partners in literacy learning and Madi's augmentative and alternative communication use.

Finding the best device access method, however, proved a lingering hurdle overcome through experimentation.

Shelly Schram, an educational assistant who has worked with Madi since preschool, recalled when her son Alex test drove the eye-gaze AAC system Madi used on a brief trial basis when both children were in primary grades. Instead of targeting his selections on the screen, he inadvertently chased the cursor with his eyes. The experience showed that working the system required inordinate effort, even for a typical child, as Alex Schram reported.

"So for Madi," Sarah Leal said, "it wasn't that she wasn't trying or that she is not literate, just that she couldn't tell us '"I am looking at the 'A' but the device is not responding.'" Over time, Madi found the row-column scanning that she used with her DynaVox 3100 and continues to use with the Vmax to be the most consistently reliable method. Speech communication technology, along with educational software on a laptop into which Alex has scanned written assignments for Madi to complete, became a staple of her literacy toolbox. As a way of getting used to each device, Madi pressed a "turn the page" button as Shelly Schram or a classmate held a book she was reading aloud with partners or silently. Madi planned to have a friend similarly assist her in the kindergarten class, with the friend holding the book while Madi reads aloud through her device. Her literacy success to date rests largely in planning.

Starting in preschool, Madi went from reading pictures, to pictures with words, to single words, to simple or illustrated sentences. By fourth grade, she was reading full pages of text without pictures.

From her earliest days, Madi Leal's parents, Sarah and Luis, made sure she had the best tools available to hone her communication and literacy skills for life.

Reading together remains an important part of literacy – and day-to-day communication for Madi Leal and her mother, Sarah.

Today, Madi uses symbol-based vocabulary on her device because it better matches her physical abilities than keyboard-based pages. When she reads a "Gingersnaps" novel by Cathy Cassidy, an installment of the E.D. Baker's "Frog Princess" series or another book popular with adolescent girls, her mother may point to the beginning of a paragraph but offers little, if any, further prompting.

Madi naturally enjoyed reading, so making it fun was not an issue. Often the bigger challenge was keeping the learning process practical. Vocabulary that Shelly Schram programmed on the device paralleled school lessons and low-tech materials Madi used. Madi practiced phonics with her parents as many typical children do, starting with initial letter sounds corresponding to two words and pictures – "c" for cat and "t" for turtle, for instance. They exaggerated the "c" sound while asking her to tell them the matching word. She indicated her choice by raising her left or right hand, a technique she also has adopted for stating personal preferences in many everyday situations.

In the same manner, her parents taught her to recognize successive letter sounds in words – the short "a" in "cat" and "van," for instance. "It started easy with 'cat' and 'van,' then 'cat' and 'car,' and just progressed," Sarah Leal said. I was hoping that she would learn whatever it took for her to read." Sarah and Luis videotaped the informal sessions to see whether their coaching appeared too helpful and so Madi could view her performance.

Madi also benefited from Jolly Phonics, the British multi-sensory curriculum taught at school that combines auditory, visual and experiential language learning. As part of learning the word "umbrella," for example, students opened an umbrella while saying "uh-uh-uh" to master the initial letter sound.

Hand-over-hand assistance, which Madi requires with such motor tasks, shaped her early writing experiences. Wanting her to have

a true feel for the alphabet, her care team members guided her as she formed each letter with a pencil. Though she realized Madi could not later apply the exercise to cursive writing, Sarah Leal saw value in the exposure it afforded her daughter.

"You never know, it might spark something," she said. "We still practice speech with her, but we know she's not going to say she wants to get on a bus and go downtown."

The social slant to Madi's academic pursuits has also made them fruitful. Whether reciting days of the week and describing the weather during preschool circle time or demonstrating reading comprehension skills through group discussion in higher grades, classmates looked eagerly to content on her device or manual board as their own guidepost. They formed the habit of guessing by process of elimination when Madi acts out clues in games of Charades at recess and lunchtime. Using her device, she voices her guesses for their clues in turn. Shelly Schram has always made sure that Madi had ample social vocabulary on the device, allowing her to utter sentiments like "Whatever!" or "This is so boring" in spontaneous conversations with peers. Friends respect Madi's will to speak for herself. "I'd constantly say, 'I'm not Madi – I don't know what she's thinking,'" Schram said.

Luis Leal takes daughter Madi for a spin in the adaptive kayak he built for her. Social and leisure activities steadily complement her academic pursuits, ensuring her a truly well-rounded education.

Schram worked closely with teacher Erin Kent to ensure that the device contained the vocabulary Madi needed to participate in class discussions. "As soon as she was too quick on getting the answers and was correct every single time, we made it more challenging," Shelly Schram said.

From Kent's observations, actions sometimes have a stronger voice than words among those in Madi's social circle. "It is not unusual to see them stretching out on a mat enjoying a good book or playing a game."

Kent, who taught Madi in grades three, six and seven, may have something in common with Madi's young friends. "There are days when I learn more from Madi than she learns from me," she said.

Adult team members help Madi prepare for tests carefully. She took the Educational Quality and Accountability Office language and math exam administered to third and sixth graders in Ontario in a double-blind format, responding to multiple-choice questions by pointing toward letters printed on poster board large enough that her answers could not be misinterpreted. One assistant facing Madi held the board. An assistant at the back of the room recorded Madi's answers.

The Leals have given Madi informal multiple-choice quizzes on her developing literacy skills since she entered fourth grade. When using her device, she pays extra attention while scanning her selections because her parents keep the quizzes challenging. A sample question that Sarah Leal mentioned seems to sum up their family learning experience: "We cannot direct the wind but we can adjust the sales." versus "We cannot direct the wind, but we can adjust the sails."

AUTHOR CONTACT

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QIAT-PS – Quality Indicators for Assistive Technology in Post Secondary Education

By Russ Holland, Bryan Ayres, Janet Peters and Dawn Wilkinson

THE NEED

A person with a disability that uses or needs assistive technology and enters post secondary education can face a number of very real challenges and barriers and it becomes critical that self-advocacy skills are well established. Research has demonstrated that students with disabilities complete considerably less college preparatory coursework than their non-disabled peers and face increased frustration in managing their support needs in the post secondary environment.[i] Often in the high school setting, parents, special education and general education teachers, counselors and other school personnel work together to ensure that accommodations and assistive technology are in place. In a very rapid transition, the student leaves high school and enters an environment where strong self-advocacy skills that are self directed become very important. Independent decision making, strong communication skills, the ability to understand one's disability and their rights and responsibilities under a different set of laws is critical. The ability to communicate and negotiate with college disability resources staff, professors and other post secondary personnel directly contributes to success in the post secondary environment. A strong ability to utilize technology literacy can also assist in managing a successful experience in the post secondary settings.

During 2009, a survey was developed and distributed nationwide to former students with assistive technology needs in post secondary settings or students with current assistive technology needs.[ii] The results indicated that there was indeed a prescribed need for post-secondary education settings to improve their service delivery but also that the student, the consumer of these services, bears a great level of responsibility for the quality and

effectiveness of the integration of the use of assistive technology in the higher education setting. This further demonstrated the need for the principal investigators in this project to pursue tools and guides to provide support for improving self-determination and self-advocacy efforts, both from the students' perspective and from the viewpoint of the post-secondary setting.

THE MODEL

If you've been involved with Assistive Technology for any length of time, you may recognize some of the "QIAT" (Quality Indicators for Assistive Technology) language.[iii] The QIAT-PS project is modeled on the successful grass roots effort of over 10 years to create benchmarks for assistive technology service provision in public K-12 education, as it became a legal mandate to consider assistive technology in the reauthorization of the Individuals with Disabilities Education Act in 1997.

This effort has generated some remarkable work, including a conceptual framework of quality provision of assistive technology services that is very well respected, validated and used by school assistive technology teams, administrators, districts and states to improve services and plan needed supports. QIAT develops and supports guidance documents, a very active list serve and an active group of contributors to the improving practices of assistive technology.

THE PROCESS

Building on the success and impact of the QIAT process, some within the QIAT Leadership Consortium, such as Joy Zabala and Gayle Bowser, and project consultants Russ Holland, Bryan Ayres, Janet Peters, and Dawn Wilkinson have devoted considerable time and effort to facilitating the consideration of a "QIAT-like" model of indicators that could support success in

post secondary education. The ideas associated with QIAT as a model for additional adult environments has been discussed in several successive summits over the past two years. This initiative has been funded by the DBTAC:Great Lakes ADA Center and the DBTAC, Southwest ADA Center.[iv]

One of the categories of Quality Indicators for Assistive Technology (QIAT) in K-12 is Transition, which deals with the factors related to assistive technology that are involved any time a student changes environments, i.e., elementary to middle school. As discussed by Gayl Bowser here in the October/November, 2009 issue of Closing The Gap, the transition that is perhaps one of the greatest changes in environment, however, is that from public to post-secondary education environments.[v] Not only is it a drastically different environment with different teaching styles, student expectations and often living arrangements, but the rules also change. IDEA provides an entitlement law that guarantees similar procedures for all students and the standards of FAPE (free and appropriate education) and LRE (least restrictive environment), for which the QIAT scaffolding was built. Post-secondary education on the other hand, responding to the civil rights legislation of the ADA and sections 504 and 508 of the Rehabilitation Act, and a competitive marketplace, is basically dealing with an eligibility law based on self-disclosure and driven by self-advocacy.

The development of the QIAT-PS indicators and guidelines has been open-source collaboration, with hundreds of professionals participating in face-to-face presentations and collaborative input sessions, including the QIAT Summits in Minneapolis, ATIA in Orlando, CSUN, an Ohio AT Conference and the New Mexico AT conference. A literature review was conducted that included the Association for Higher Education and Disabilities (AHEAD) and Assistive

Technologists in Higher Education Network (ATHENS) organizations, as well as the work from Do-It at the University of Washington and a number of other disabilities services organizations.

As noted, we not only needed to be looking at the colleges and the environments they were providing, but also the role and responsibilities of the student to bring their own technology skills and tools, as well as appropriate self-disclosure and self-advocacy abilities, to the table. Therefore, the project added and focused on a new category of Self-Advocacy and Self-Determination in addition to the original eight QIAT indicators for the post-secondary environment.

To supplement the online and face-to-face collaborative opportunities, QIAT-PS launched a wiki www.qiatgrowsup.pbworks.com in February 2008 with an invitation through various list serves and other networks to participate that generated not only generic indicators, but a number of suggestions for specific applications of the generic indicators to be applied to post secondary.

THE PRODUCT

In addition to the Self-Advocacy and Self-Determination Indicators, we also developed guidelines, both for the students and colleges. In each case, the indicators are augmented by related questions that might be asked, as well as suggested possible tasks to support successful transition.

The QIAT-PS *Student Guidelines* are intended as a tool for students and families as they consider the transition from public school to the college environment. They correspond to the *College Guidelines.* The intent of the Student Guidelines is to help students prepare for transition to post secondary environments while still in high school, as well as help those working in the college environment guide prospective students considering the transition. The Student Guidelines are complementary to Quality Indicators for Assistive Technology Transition Area in K-12, since many of the noted student skills ideally need to be developed prior to arrival at college. (Please see table on page 14)

The QIAT-PS College Guidelines are intended as a tool for college personnel as they consider their accessibility and accommodations for the entry of students with disabilities. They correspond and are complementary to the Student Guidelines. The intent is they are useful tools in the development, articulation and implementation of policy and procedures that contribute to successful transition and inclusion of students with disabilities in all areas of college life. (Please see table on page 15)

NEXT STEPS

Open source work on all nine categories of QIAT indicators and guidelines is ongoing. All are invited to contribute on the wiki at www.qiatgrowsup.pbworks.com and the Web site www.qiat-ps.org.

In addition, the Great Lakes ADA Center and Southwest ADA Center DBTAC have expressed an interest in similar work in the area of Employment and Vocational Rehabilitation. To join in the QIAT-PS discussion or express interest in the area of indicators for employment or vocational rehabilitation, please contact Janet Peters, Consultant at the Great Lakes ADA Center, DBTAC at jpete@uic.edu.

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Quality Indicators in Assistive Technology – Post Secondary (QIAT-PS)
Self-Advocacy and Self-Determination Indicators and Student Guidelines

Indicator	Student Question	Related Task
1. Self-awareness - The student is aware of the various factors of their disability and is knowledgeable about their needed accommodations	Can I accurately describe my disability and its impact on my educational process, including educational achievement and participation in academic and campus life activities?	Participation in IEP and involvement of Vocational Rehabilitation Counselors.
2. Self-advocacy - The student understands that under ADA and other applicable federal and state laws, they must be responsible for disclosure of their disability that requires accommodations in order to gain access to the curricula and materials.	What do I want to disclose about my disability, and to whom?	Participation in IEP and researching current information on disability laws and regulations.
3. Communication - The student is able to utilize communication and interpersonal skills to communicate with faculty concerning how to ensure confidentiality, documentation, evaluation and grievance procedures.	Can I communicate my needs to the appropriate people in a timely manner?	Learning how to approach teachers concerning handouts, tests, etc. before asking another adult/consultant to intervene.
4. Self-Advocacy and Leadership - The student uses a process to make a self-advocacy plan and to guide staff and supporters in the provision of AT and accommodations that allow access to the curriculum and aid independence.	Do I understand the difference between my use of AT for daily living and AT for academic use, and what the college will legally provide?	Student develops a wish list of technology with regard to future goals and is able to justify each piece of technology as an essential part of achieving a particular goal.
5. Self-evaluation and self-determination - The student evaluates personal performance using AT and makes adjustments to their goals when necessary, including justification and acquisition of any new technology devices needed.	Do I understand the difference between my use of AT for daily living and AT for academic use, and what the college will legally provide?	Student develops a wish list of technology with regard to future goals and is able to justify each piece of technology as an essential part of achieving a particular goal.
6. Student Initiative and Decision Making - The student independently chooses the appropriate AT for each situation and makes long-term decisions about assistive technology device acquisition and supports.	Is the assistive technology I need, or have been using, different than what the college provides?	Given a list of possible tasks, the student will identify the most practical technology approach for performing each task and justify these decisions.
7. Assistive Technology Problem Solving - The student identifies problems with AT use and is able to identify the needed AT supports and services to solve AT problems and communicate these solutions to disability services and their instructors.	Problems that may arise?	Routine maintenance installations, use documentation and tutorials, and utilize technical support independently when technology issues arise.

Quality Indicators in Assistive Technology – Post Secondary (QIAT-PS)
Self-Advocacy and Self-Determination Indicators and College Guidelines

Indicator	Student Question	Related Task
1. Self-awareness - The student is aware of the various factors of their disability and is knowledgeable about their needed accommodations.	Are our intake counselors, recruiters and referral sources trained to work with students with disabilities and assistive technology needs to assist in defining their disability and determining their accommodations?	University staff members are trained to facilitate exploration of individual students disabilities and assisting them in understanding their need for and types of accommodation.
2. Self-advocacy - The student understands that under ADA and other applicable federal and state laws, they must be responsible for disclosure of their disability that requires accommodations in order to gain access to the curricula and materials.	Does college have a campus culture of inclusiveness that facilitates self-advocacy and provides professional development to staff to enable student faculty collaboration regarding accommodations and assistive technologies?	Staff are trained to support diversity, including disability. Staff are familiar with and follow appropriate legislation and policy that influences access to course curriculum and school activities. Staff are open to communication regarding student needs, and work collaboratively with students and disability services to develop appropriate accommodations.
3. Communication - The student is able to utilize communication and interpersonal skills to communicate with faculty concerning how to ensure confidentiality, documentation, evaluation and grievance procedures.	Are our college and university marketing materials, course catalogs, procedures and Web resources accessible and assessed frequently regarding their appropriateness and staff and services have open communication policies?	Materials are accessible and clearly delineate procedures for students, including grievance policies. University policy committees encourage and accept student input. Student support services, such as counseling, nursing, health, food service, law enforcement, etc. understand and participate in accessible service delivery and make efforts to communicate with students.
4. Self-Advocacy and Leadership - The student uses a process to make a self-advocacy plan and to guide staff and supporters in the provision of AT and accommodations that allow access to the curriculum and aid independence.	Do we promote an inclusive campus culture and encourage and actively seek student with a disability input in assistive technology planning, implementation and support on the campus, on campus living environments, and online/distance learning environments?	University administration and disability services staff lead by example in promoting accessibility, and assistive technology use on campus. The university uses peer mentoring, tutoring for self-advocacy and other methods to improve student involvement in their self-advocacy efforts.
5. Self-evaluation and self-determination - The student evaluates personal performance using AT and makes adjustments to their goals when necessary, including justification and acquisition of any new technology devices needed.	Do we work with the student to make timely changes to assistive technology supports and accommodations that may be necessary for different academic tasks and environments?	Disability services staff monitor student performance and use of assistive technology and accommodations, but allow the student to lead or guide self-evaluation and delivery of adjustments to assistive technology devices and services.
6. Student Initiative and Decision Making - The student independently chooses the appropriate AT for each situation and makes long-term decisions about assistive technology device acquisition and supports.	Do we support the integration of personal assistive technology into the classroom and labs when appropriate, collaborate in professional development on this integration of student owned assistive technology and integrate appropriate university support devices and services in a timely manner?	Student owned assistive technology supports are integrated into the curricular and extracurricular activities of the university when appropriate. Procedures for using school owned assistive technology are clearly communicated to the student and faculty. The university arranges opportunities for professional development for staff members working with the student with a disability when requested through the planning process.
7. Assistive Technology Problem Solving - The student identifies problems with AT use and is able to identify the needed AT supports and services to solve AT problems and communicate these solutions to disability services and their instructors.	Do we promote collaboration between the student, various support services and faculty in solving AT challenges and problems?	Systematic procedures for collaboration, planning, problem solving and coordination are used by instructional and support personnel of the university in identifying assistive technology challenges and solving problems.

Closing the Gap with the AceReader Pro Reading Efficiency Software

By Miriam Ruff

Closing The Gap provides parents, students, and educators with the information and training necessary to assess, plan and implement assistive technology to help those with special needs learn to read proficiently. "Through reading, we gain content knowledge, get exposure to written language structure and conventions, and develop the vocabulary that is essential for success …" This quote, published in the June/July 2009 issue of Closing The Gap (Vol. 28 No. 2, p. 11) clearly states the importance of being able to read proficiently, no matter what your background or disability.

But with the adult illiteracy rate in the United States at a staggering 38.4 percent – more than one-third of the population – what does that say about priorities, our educational system or our ability to compete in an ever-growing and sophisticated global market? According to statistics reported by the National Institute for Literacy (1998):

• *Low literacy is strongly related to crime* – fully 70 percent (almost three-quarters) of prisoners fall into the lowest two levels of reading proficiency.

• *Low literacy is also strongly related to unemployment* – more than 20 percent of adults read at or below a fifth-grade level, while 75 percent of today's jobs require at least a ninth-grade level to earn a living wage.

• *Low literacy is strongly related to poverty* – 43 percent of those with the lowest literacy skills live below the poverty line.

In addition, it's not just individual status or achievement that's at risk. According to Carol Morris of the Charlotte-Mecklenburg Workforce Development Board, "American businesses are estimated to lose over $60 billion in productivity each year due to employees' lack of basic skills." Many employers find themselves saddled with the need for remedial training, just to bring their employees up to a minimum functional level.

What can we do? We can start by implementing proper and constant reading habits. Reis, et al (Using Enrichment Reading Practices to Increase Reading Fluency, Comprehension, and Attitudes, posted 22 May 2008) observed that for many years, educators and researchers have demonstrated the relationship between improved reading comprehension and higher scholastic achievement. With that achievement, comes greater income, and with greater income comes greater productivity, no matter what the job.

The process of learning to read, though, especially for a child with special needs, the task can be overwhelming. Late or improper interventions, uninformed parents and/or teachers, and a lack of adequate positive reinforcement and practice can all compound the student's problems and

Figure 1: Expert Mode.

make his/her success in future academic endeavors less likely.

One way to address this issue is to create and use assistive technology, technological aids that help or circumvent the disabilities and allow the students to read, understand and retain the content being taught. These aids can be devices, such as hearing aids or Braille screens, machines, such as audio and video recorders, or specialized computer software, such as reading, writing, skills development, and more. Though, in the past, most aids were created for individuals that were blind and/or deaf, current technologies allow us to reach a wider population with a greater variety of disabilities.

One of the first electronic machines built to deliver printed content in non-print form appeared in 1934. It was called the Read-phone, and it reproduced literature and music on long playing disks. The disks held two hours and twenty minutes of recording time, which is about 28,000 words when read at an average pace (about 250 words per minute).

In 1948, the National Bureau of Standards developed specifications for a new, reliable, cost-effective talking book machine for the blind – the tape recorder. Its use and popularity, for both literature and music, carried through to the end of the 20th century, when it was replaced with a wide array of digital media.

Alexander Graham Bell, famous for inventing the telephone, helped pioneer various forms of assistive technology. Researchers at the Bell Labs built on his work with individuals who were deaf to create the first mechanical speech *recognizer*. It would allow low vision users to dictate text to a computer so sighted people could view their work. The Lab reported that, with training, the machine achieved 97 percent accuracy on the spoken forms of ten digits. Today, such mechanical speech recognition devices are commonplace, found in items ranging from telephone menu prompts to training and productivity software.

In 1936, H.W. Dudley, another Bell Labs scientist, created the world's first electronic speech *synthesizer*, which would allow individuals who were hearing impaired to listen to the words being read while they watched them on the screen. It was a cumbersome machine – it required an operator with a keyboard and foot pedals to control the pitch, timing and intensity of the speech, but it was an uncontested hit when Dudley brought it with him to the New York and San Francisco World's Fairs of 1939. He called it the "voice coder," but it quickly became known simply as a "Voder."
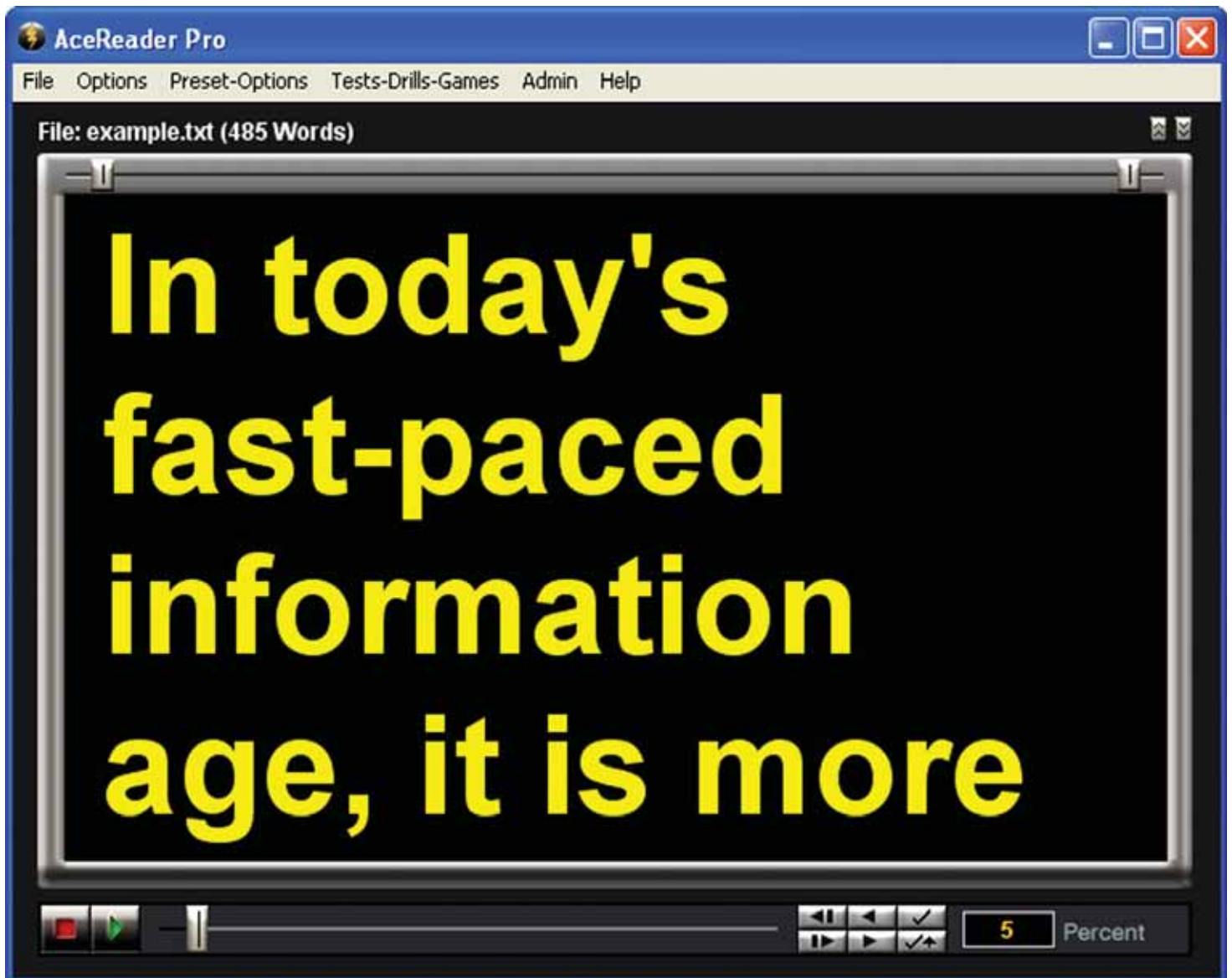

Figure 2: Custom Options (menu) – Large font, high-contrast words.

Perhaps the greatest boon to disability aids, though, came as a result of the computer revolution. With machines designed with ever-increasing memory and processing speed, with the miniaturization of computer chips and with instant access to content over the Internet, not only new software programs, but new *types* of software programs, could be created easily and efficiently.

With software, programmers could develop code-based scenarios that would emulate the prior hardware's mechanical capabilities more easily and efficiently. But not all software programs contain the same features or achieve the same results. That is especially true if the user has special needs. Some programs provide only a few readings and exercises, some include speed training but no comprehension tests, some offer drills and games, and some provide a wide range of options and customizable features. The bottom line, though, is that a user with disabilities needs to interact with the program more easily than others and be able to work with it to *customize* his or her training.

According to Top Ten Reviews, all effective reading software programs should have:

1. A wide variety of exercises to train eye movement

2. Comprehension tests for baseline and progress notations

3. Different reading levels

4. Different types of text (i.e. different length, format, genre)

5. The ability to alter the parameters of the reading exercises (i.e. font size and color, background color, flash rate, etc.)

6. The availability of customer and technical support

(Please note: While the Top Ten Reviews site listed above contains correct information, you should realize that it does not always compare apples to apples. For example, the reviewers may compare product A from vendor #1 with product B from vendor #2 even though vendor #2 has a higher end product that should rank higher).

When comparing equivalent reading software programs side by side, one of Top Ten Reviews' top picks was StepWare, Inc.'s **AceReader Pro Reading Efficiency** software (www.acereader.com), which won the 2000 Calvin H.P. Pava Prize for advancing the application of assistive technologies that enhance the productivity and independence of brain tumor patients (you can view the April 2000 Press Release at www.acereader.com/about/press.html).
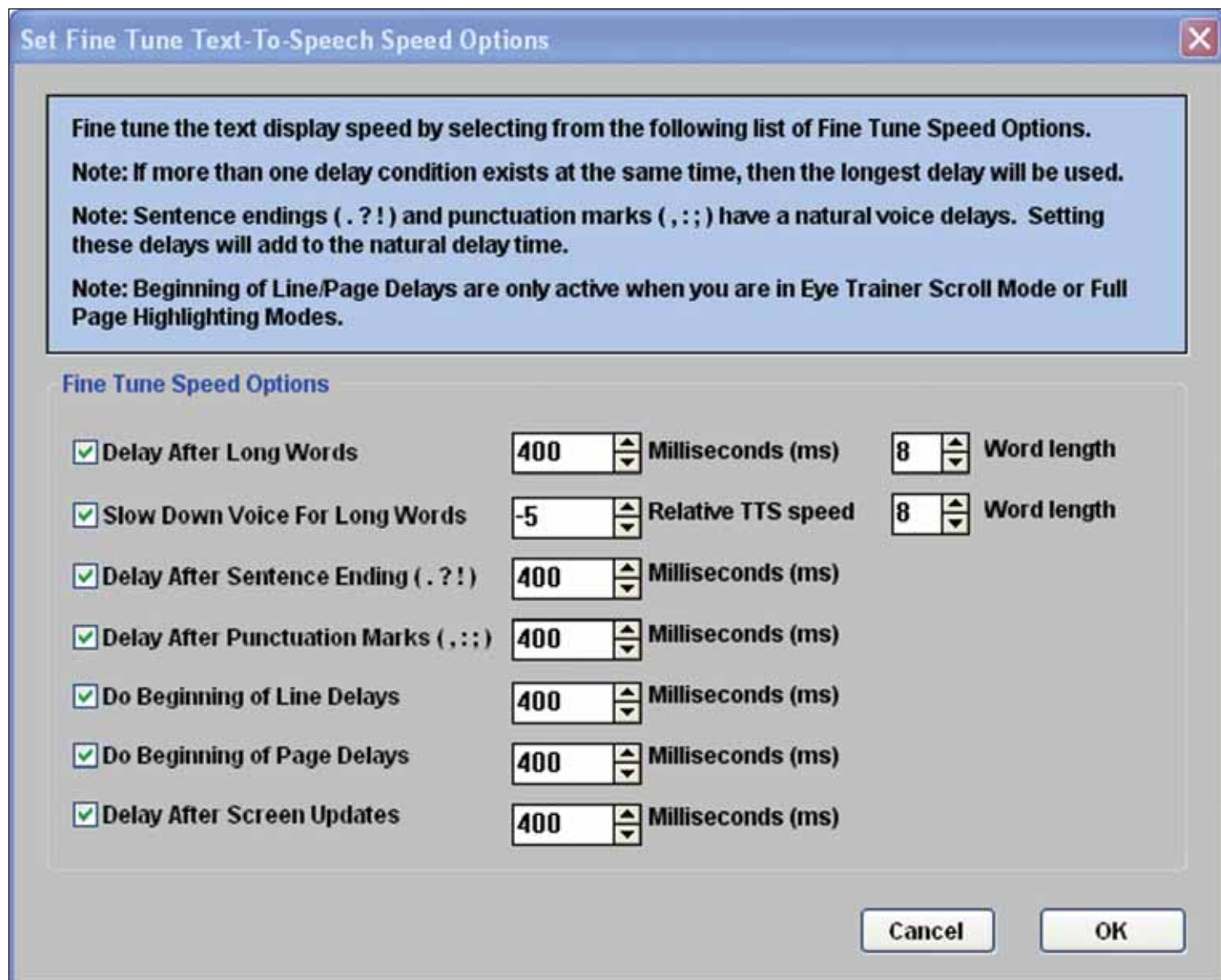
Set Fine Tune Text-To-Speech Speed Options

Fine tune the text display speed by selecting from the following list of Fine Tune Speed Options.

Note: If more than one delay condition exists at the same time, then the longest delay will be used.

Note: Sentence endings (. ? !) and punctuation marks (, : ;) have a natural voice delays. Setting these delays will add to the natural delay time.

Note: Beginning of Line/Page Delays are only active when you are in Eye Trainer Scroll Mode or Full Page Highlighting Modes.

Fine Tune Speed Options

☑ Delay After Long Words — 400 Milliseconds (ms) — 8 Word length

☑ Slow Down Voice For Long Words — -5 Relative TTS speed — 8 Word length

☑ Delay After Sentence Ending (. ? !) — 400 Milliseconds (ms)

☑ Delay After Punctuation Marks (, : ;) — 400 Milliseconds (ms)

☑ Do Beginning of Line Delays — 400 Milliseconds (ms)

☑ Do Beginning of Page Delays — 400 Milliseconds (ms)

☑ Delay After Screen Updates — 400 Milliseconds (ms)

[Cancel] [OK]

Figure 3: Fine Tune Speed Options features.

AceReader Pro is priced at $69.95 and is available either for PC or for Mac. It can be used for all students, but it is especially attuned to those with special needs, providing assistive technology and/or rehabilitation exercises to a wide group of users. You can download a 30-day FREE trial that allows you to try *all* the different features, including tests, drills and games, before buying. The demo does have some limitations (i.e. speed limits, limited number of tests …), but you can still get a good feel for how the program works as a whole. The user can work through the fully automated Course Mode, select activities from a pick-and-choose Menu Mode, or open the fully customizable Expert Mode (Figure 1, page 17), which gives the user total control over all the content and presentation parameters of the reading material. This Mode also serves as the main interface for persons with disabilities.

Some of the many AceReader Pro features include:

• A small download size (8 MB)
• The ability to stretch or shrink the screen
• The ability to adjust bursting rates for text (the only program that does this)
• An extensive Help menu, plus e-mail and phone support
• The ability to import files from other formats (i.e. MS Word, TXT, PDF)
• The ability to copy and paste from Web pages into the program while still online
• The ability to adjust the text (or the voice, if you're using the TTS function described below) to pause at the end of sentences or to move/speak more slowly on longer words to aid comprehension
• The ability to tailor short-cut keys for common functions

Expert Mode allows you to access the program's many different features, either for *educational or productivity purposes*. Using the navigation bar at the top, you can import or load text and set font size, color, type, background color and means

of presentation – simply go to the Options menu at the top of the screen, select Speed Options or Fine Tune Speed Options from the Menu options (with or without the TTS on, if you've purchased this feature), and follow the prompts to change the text according to your needs. You can also set target speeds and burst options from the main Expert Mode screen.

AceReader Pro also has some nice Add-On features, including four Specialty Test Sets (American History, Earth and Space Science, Famous People and Fun Facts) that each contain 130 grade-leveled reading comprehension tests and each available for $19.95. The text-to-speech (TTS) function, which comes with a male and a female voice, lets you listen to the words on the screen. It is available for $31 if purchased with the program or $42 if purchased later. If you want to create your own tests, games and drills, you should purchase the AceReader Pro Deluxe version, which sells for $99.95 and keeps track of up to five users at a time.

AceReader Pro not only helps average or even gifted students become better readers, but it interfaces well with disabled users, due to its robust functionality and user-controlled features. For example, persons with dyslexia learn best when required to use simultaneous, multi-sensory techniques. AceReader provides that environment with a variety of visual exercises, TTS functionality and user-response quizzes (multiple choice or data entry). It also allows users to adjust the text's presentation speed, as well as to regulate the amount of text to be displayed at one time, known as bursting. The burst function allows you to display and repeat a specific amount of text before moving on to new material. No other program offers that.

Individuals with auditory/language discrimination disabilities, or those learning English as a second language, can use the TTS Add-On to pronounce the words in a high quality voice while the words are flashing on the screen. The TTS option gives students a multi-sensory reading experience since they will hear and see the words at the same time. Those with visual sequencing problems have difficulty ordering information sequentially, and they may see words, letters, and numbers in reverse; those with visual discrimination problems fail to recognize the differences between similar objects, letters, and words. AceReader uses common sight words in an engaging, fun and challenging flashcard game to help them learn to identify the words without needing to sound them out.

Even individuals who are paralyzed and unable to move their heads can work with the program. AceReader uses Rapid Serial

Figure 4: Newspaper Simulation.

Visual Presentation (RSVP) as one of its two modes of operation. In this mode, words appear in the central part of the screen; users do not have to move either their head or their eyes to see and interpret the words. The Sierra Group regularly uses the AceReader Pro to address this issue. You can find a testimonial of their satisfaction with the program at the bottom of www.acereader.com/personal/testimonials.html.

Of great importance to many individuals who are disabled are the Custom Options (Figure 2, page 18) and the Fine Tune Speed Options (Figure 3, page 19, both of which can be used with or without the TTS Feature turned on.

In the Custom Options, the user can set the font color and size, as well as the amount of words to display or highlight at a time. This is especially useful for users with low vision who need larger font sizes and higher contrast between text and screen to read effectively.

Fine Tune Speed Options (Figure 3, page 19) allow you to fine tune the voice speed. You can choose how long the program should delay on long words or pause at punctuation marks. Notice the unique ability to slow the voice down on long words. If TTS is not turned on, a similar set of Fine Tune speed options are available.

The Newspaper Simulation screen (Figure 4, page 20) is yet one more out of millions of possible display modes. You can flash or highlight text in the center of the screen and/or in a manner that paces eye movement, left to right and top to bottom, like you do in normal reading. You can define how much text to flash at a time based on the number of words, lines, sentences, phrases or number of eye fixations per line. This aids not only people with mobility disorders, but, by changing the parameters to include more words or lines at a time, it helps everyone to absorb more material at a time.

Other features that are notable for helping those with special needs are key mapping (setting a single key to replace the need for using the mouse), the ability to flash or scroll text, the ability to import material from a Web site or file so that it can be read with the TTS feature and to set custom challenges to ensure that all users, disabled or not, can push their limits and reach their reading goals.

Support is one of the hallmarks of the AceReader Pro. The program has an extensive Help mode built right into the software and, unlike many other manuals, this Help is actually helpful. If you still can't find what you need, you can e-mail Bernie Marasco at StepWare, Inc. (support@stepware.com) or call 970-243-9390 ext. 2. Messages are answered within a day at the outside.

The AceReader Pro is a small program, but it tackles the reading process far above the much larger programs' capabilities. And while AceReader is similar to other programs in that it contains readings and drills, it is the Expert Mode that sets it apart from the others. By allowing each person to have total control over the configuration of the text and its presentation, it allows them to work efficiently to meet their educational, productivity and reading needs and goals. Download the demo and you'll see – AceReader is not only the best value for the money, but it's simply the best program available at this time, hands down.

ABOUT THE AUTHOR

Miriam Ruff is a freelance writer, editor and reading instructor. She has developed numerous educational curricula, as well as content-based material for the AceReader Pro Reading Efficiency program. To learn more about AceReader, you can visit www.acereader.com. To learn more about the author's products and services, you can visit www.bumbershootwriting.com. ∎

Adapting Activities for Maximum Student Participation: Ideas for YOUR Classroom that Work in OURS!

Secondary Slump Remedies

By Bridget Bakula, Sharmin Koppes and Jari Sherburne

Secondary special education teachers have the amazing task of preparing students for life beyond school. While this is a rewarding opportunity, it carries with it unique challenges, specifically when teaching students with significant disabilities. To best prepare students in the areas of living, learning and working, repetition is a necessity. With this repetition, teachers might find themselves in a teaching rut or slump, teaching the same material day in and day out. This article offers ideas on how to get out of your secondary slump and reenergize by utilizing strategies that have worked for us in the areas of independent living skills, fundraising and additional ideas.

INDEPENDENT LIVING SKILLS

As educators of students with special needs, our goal is to have students graduate with the skills to become as independent as possible. To prepare students for adulthood, we have created a Home Living Center and utilized a variety of units.

Home Living Center

What is it? – The Home Living Center (HLC) is a room that allows students to gain and practice a variety of independent living skills, similar to a high school home economics room. Our room includes a full kitchen, bed, washer and dryer, dresser drawers and a table with chairs.

Why use it? – The HLC allows students of all ability levels to learn, improve and practice domestic skills to promote inde-

Example of how to label washer/dryer with colored electrical tape to serve as visual supports.

Example of how to visually organize sorting laundry with Boardmaker symbols.

pendence for their transition into adult life.

How do I get started? – Once you have a designated HLC, you can begin to create and gather the necessary materials.

Materials that we use regularly are assistive technology devices, such as Boardmaker by Mayer-Johnson, switches, Power Link, and color coded measuring cups and spoons, units that we have created (Clothing Care, Home Safety, Kitchen Appliances, Nutrition, Cleaning, Cooking Basics), and necessary domestic items, such as appliances and home goods.

Additionally, providing visual supports through the use of Boardmaker symbols and colored electrical tape, labeling cabinets, drawers, laundry baskets and washer/dryer increases student independence and participation.

FUNDRAISING

When educators think of fundraising for school projects, we usually think of selling magazines, cookie dough and wrapping paper. Unfortunately, this type of fundraising requires parents to take partial, if not full, responsibility for selling items, where students acquire little to no skills. One way to make fundraising functional for students with significant disabilities is to determine what skills need to

be developed in the class. Setting up a fundraising program centered on baking cookies and brownies can develop skills in the domestic domain. If the class needs more opportunities working in the vocational domain, making Holiday and Birthday cards may be more applicable for the students.

Currently, our classroom schedule allows for both activities to be conducted every week. Each classroom's time allotment may vary. Last year the class raised $750. These funds allow our graduating students to enjoy a free fun-filled day to celebrate all that they have accomplished.

Fundraising

What is it? – Students, not parents, earn money by baking treats, making holiday cards and selling the items to school staff, students, parents and the public.

Why use it? – Having a student-centered fundraising program provides various opportunities for students with significant disabilities to earn money for field trips and special activities. Students practice important skills in money, sorting, cutting, cooking/baking, communicating and writing.

Baking

How do I get started? – The first step is to do some research to find out what resources are available. The students can ask parents and school staff for baking supply donations. The kitchen staff may have commodities available for student use. The teacher may want to borrow necessary cooking supplies from the home economics teacher. If the classroom has gathered supplies and are still short they might want to ask the school for some starter money to get the project underway.

This high school student participates in a cooking activity by pushing a switch to activate a mixer.

This project provides many jobs for the students to practice. Students can be put in charge of collecting the correct baking items, such as cookie sheets, bowls, mixing spoons and spatulas. Other assignments related to this task can include cooking, preparing posters for advertisement, kitchen clean up, selling and counting money. In order to include all students, some assistive technology may be needed. A Kitchen Aide mixer is a great investment for the program. It can be plugged into the Power Link and operated by switch. Also, adapted recipes made with Boardmaker symbols and color-coded measuring cups and spoons provide visual supports to increase independence.

Cards

How do I get started? – Have the public donate used greeting cards. The teacher can contact the local AEA to see if an Ellison Press is available or look into purchasing a Sizzix machine, which is used to punch out shapes. Collect or ask for donations of various crafting supplies. Rummage sales are great places to look for holiday stamps and supplies. Compare prices on card stock paper, envelopes and rubber cement. Many businesses will give discounts for school projects.

Card making provides a range of vocational opportunities for the students. When making cards, the students develop skills in sorting, ripping, cutting, gluing on the back of trimmed cards, and folding card stock paper. Students have to choose which stamp to use and correctly stamp the inside of the card. In the final stages, students are required to package the product, take inventory, and manage the funds.

ADDITIONAL IDEAS

School Store

What is it? – The school store is a simple showcase that is located in our main lobby and is run by the students with assistance from adults. Students earn pretend money by working in our school kitchen and participating in vocational tasks around the building. The store sells various donated and bought items, some of which include stickers, posters, edibles, bracelets, stuffed animals, hats, t-shirts, movies, CDs and many other miscellaneous items. Store items are labeled in dollar amounts ($2, $3, $5, $10,

$15, $20 and $25). The school store can be implemented in many forms – it can be a small tub out of a classroom (used only for that classroom), an entire closet/room or a showcase, like the one at River Hills. All students can participate in running the store by utilizing low to high tech devices, such as jigs to help count the money or AAC devices to greet and thank other students for shopping at the store.

Example of a shopping list used when on a field trip to the grocery store.

Why use it? – The school store encourages students of all ability levels to practice money skills, choice making, purchasing, budgeting, running the store and gaining a basic understanding of employment pay systems.

How do I get started? – Determine a pay system, decide on a location and scale of the school store, gather items for purchasing, set up times and days for students to purchase and train students how to run the store.

Field Trip Choice Boards

Field trips are used to address extended curriculum skills or areas. They allow students to practice community mobility and access, communication, money skills, recreation/leisure, restaurant etiquette and social skills. Some students may require additional supports when participating in field trips. Two regular field trips we take are to restaurants and grocery shopping. Supports for these community outings include menu choice boards and shopping lists.

What is it? – Choice boards/pages are adapted menus using Mayer-Johnson Boardrmaker.

Shopping lists are lists adapted by using Boardmaker symbols. These lists increase student independence in selecting correct items to purchase while keeping on a budget.

Why Use it?– Choice boards/pages allow students to select food choices from adapted menus of the restaurant being visited. They encourage independence in making food selections and ordering, as well as decreasing anxiety associated with talking to strangers.

Shopping lists increase student independence in selecting correct items to purchase while keeping on a budget. These lists also help improve time management and organizational skills.

How do I get started? – Choice boards/pages and shopping lists should be generated through the use of the Mayer-Johnson Boardmaker program.

When using choice boards, decide what restaurant you will be using and provide pages with vocabulary appropriate for that particular restaurant. Encourage the student to circle or point to their choice of food before going out to eat. Once at the restaurant, the student can use the choice board to assist in ordering food as independently as possible. For some students, the board acts as a prompt to order while other students utilize the board by pointing to desired food selections.

Before heading out on a shopping trip, review the grocery list with students and assign responsibilities for who will be in charge of adding up prices, finding the items, checking off the list and purchasing items. Once at the store, implement assigned duties and enjoy a more organized and stress-free trip!

Student-Led IEPs

Student-led IEPs are becoming more common, yet, with students with more significant disabilities, it still remains a challenge to have their voices heard. The student-led IEP is the perfect opportunity for students to practice and build up the necessary self-determination skills to transition into post-school outcomes. While the student-led IEP is not a new concept, as there is a great amount of research and literature already available, listed below is what we have found to work for us.

What is it – Students facilitate a majority of the IEP meeting, with increased participation on all levels. Students utilize a portfolio, power point or other show piece, to help collect, organize and display IEP information.

Why use it – There are a multitude of reasons why students should lead their meetings. First, as mandated by IDEA, students are to be a team member and present at IEP meetings. Secondly, the IEP drives student education and postsecondary plans, therefore, the student should be an active participant in these major decisions. Third, the process of student-led IEP meetings teaches students self-determination and self-advocacy skills. Last, students of any skill level can participate and lead his/her meeting in some capacity.

How do I get started –

1. Check out current literature on the topic.

2. Browse and pull ideas from Web sites.

3. Help students develop portfolios to collect IEP data as a tool to lead the meeting.

4. Set aside time weekly to teach students necessary skills and practice before the IEP meeting (teach students components of an IEP document, IEP jargon, and about the team members).

5. Send out information to other IEP team members about student-led IEPs.

6. Collect materials, such as binders, page dividers, art supplies, IEP copies and Web site information.

7. Gather needed assistive technology, such as Dynavox, Voice Pod, Bookworm, switches, digital camera (for data collection) and Power Point.

Enjoy the change in meetings as students take the drivers seat! The tone of the entire IEP will become a more positive experience as students develop self-advocacy skills that will ensure a better transition into adulthood.

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Building Independent Work Skills in Students with ASD

By Jean M. Slater

Educators want all children to function independently throughout the school day with minimal adult intervention. Independence, as shown by following schedules, completing tasks, moving from one activity or class to another, and generalizing skills to varied environments, is the goal. That goal is especially important for students on the autism spectrum. Many children with autism do not know how to start or complete tasks and activities. Yet, independent functioning is a significant indicator of successful future employment and acceptance within a community.

In order for learning to occur, individuals must be actively engaged. When people are engaged, they attend to the information or actions around them. They are able to decide what is important and how tasks are sequenced. They store the information for use later and construct meaning from the details they have absorbed. Let's look at what is needed for a person to be engaged.

ATTENTION

Students on the autism spectrum often do not attend to an entire task or take clues from everything that is happening in the environment. They may only attend to isolated details and not see the big picture. For example, a student may not understand that if he lines up quickly for lunch, his class will get to the cafeteria quickly, which means that they will eventually have more time outside for recess. Or students may miss details and not return homework papers correctly or otherwise not grasp classroom rules and routines.

ORGANIZATION AND SEQUENCING

Students with ASD often do not know where to start or what must be done in order to finish a task. They may not know how to organize themselves or sequence steps that will lead to a successful outcome. This is especially true if the students are distracted by outside stimuli. Adult intervention and prompting is often required to help students complete their assignments.

INITIATION

Many of our students do not independently start a task. They may quickly learn a routine, but they require prompting to perform each step in the routine. For example, a student may have checked her picture schedule and understood that "library" was the next activity, but once she is there, she is uncertain about what to do. She may not go to the shelves to choose a book, or she may need prompting to take her chosen book to the librarian. (Figure 1)

GENERALIZATION

Many students with identified disabilities have difficulty generalizing information from one setting to another. This is also true for our students with autism. Perhaps they have focused on one detail in one situation that is not present in a new environment. Therefore, the generalization does not take place because the situation seems new. Temple Grandin, a college professor with autism, has emphasized the need for multiple opportunities to practice a skill. Practice is needed in order for the person with autism to understand a concept completely. She gave one example of "crossing the street" and practicing at intersections with stop signs, stop lights, painted crosswalks, busy city streets, quiet residential, and so on, until the person understands the concept.

Figure 1: Casey knows what is next on his schedule, but he has difficulty knowing how to begin that activity.
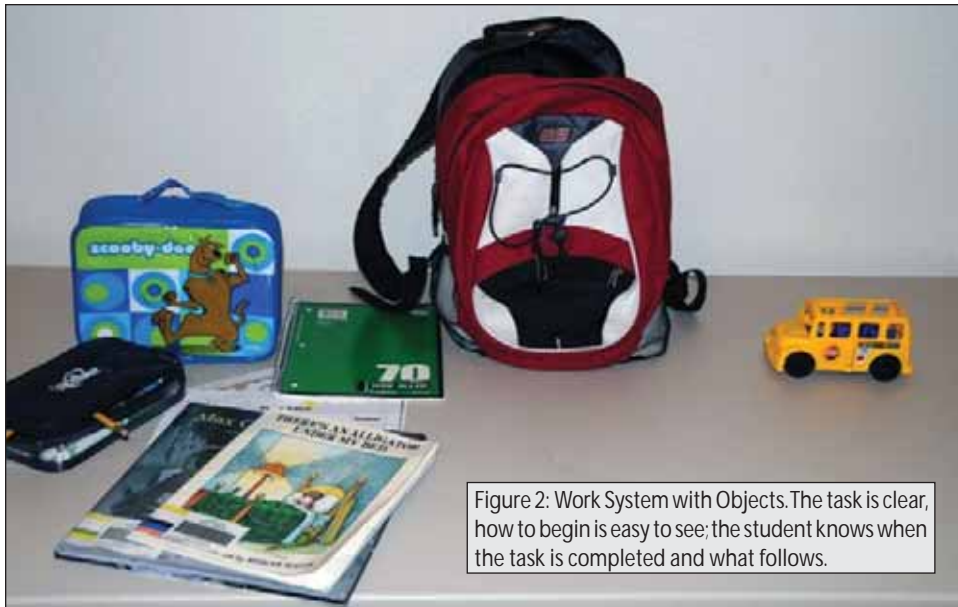
Figure 2: Work System with Objects. The task is clear, how to begin is easy to see; the student knows when the task is completed and what follows.

Figure 3: As the student learns the task, adult verbal and physical prompts are minimized.

Division TEACCH has developed a structured teaching model that can be used to build independent skills. It is a system that is visually organized, has clear tasks, defines expectations and is easily understood. They call their model a work system. A work system can take many forms, but it answers the questions: What activities do I need to do? How many activities do I need to do? How will I know when the work is finished? What will happen when the work is completed?

Whether you call the method a work system or a sub-schedule, a checklist, photo story, or written directions, the use of visual supports is necessary. We know that our students generally have strong visual skills. Using that strength, visuals help students engage in a task, maintain their attention, improve their understanding and aid in organizing and sequencing. Visuals reduce behavior problems, and, as we know, help students understand changes in their routines and schedules.

What situation needs to change? What do you identify as an area that you feel the student could eventually accomplish independently? What is your goal? What format will be the best for your student? Do we need to teach him or her how to use the system? What aspects of the system may cause confusion? Can we clear up those areas or do we need to spend extra time teaching the student about those aspects? Where and how often can we practice so that generalization occurs? Who are the people who will know about the system and help with its implementation? These are all questions that will be asked as you identify the area or areas where independence is desirable and achievable.

Figure 4: The photos tell the sequence (shortened in this example), and the picture-assistance adds a literacy dimension that encourages attention to words.

WORK SYSTEM WITH OBJECTS

Figures 2 and 3 show a work system for packing a backpack at the end of the school day. The items to go in the backpack have been assembled ahead of time by the teacher or paraprofessional. All items are on the left, because work systems should move from left to right. The backpack is open and ready. The student clearly knows that when all items are in the backpack, the task is finished and it is time to go to the bus.

PICTURE-ASSISTED READING

We discussed the importance and need for visual supports. Picture-assisted reading materials provide optimal cognitive and language support for word recognition and reading comprehension. Directly relating to each word in a phrase or sentence, picture-assisted reading reduces frustration, anxiety and guesswork, resulting in successful interaction with reading. Figure 4 (page 26) shows how picture-assisted short sentences can provide an additional level of visual support, reinforcement and expansion of the photo sequence.

SUB-SCHEDULES

Sub-schedules break down larger schedules into smaller units. A student may have a schedule for the first part of the day that goes something like the examples below (Figure 5). However, neither of these communicate how to complete each action. A sub-schedule will facilitate the student starting, doing and completing the activity. (As shown in Figure 6, page 28.)

Another example of a sub-schedule is shown in Figure 7 (page 28). The goal was to be independent when gathering supplies for each class in Middle School. The four pictures (pencils, notebook, folder, book) are needed for each class period designated with 1, 2, etc. The colored paper squares beside the numbers refer to the colored paper that cover the textbooks and are on the notebooks. In this way the student can be sure to be ready for the next class.

CHECKLISTS

Checklists provide some flexibility in a student's work system. Providing fewer clues than sub-schedules and work systems with objects, checklists are useful to help a student transition from actual objects to pictures and text. Checklists may be used with a student who is beginning to generalize the task to other environments or situations. And checklists may be the final support a student needs in order to independently complete a task. The checklist below (Figure 8, page 28) lists all the things that a person may need to take when he leaves the house. However, all those items will not be needed everyday. The person must gather items based on what will happen during that day.

WRITTEN DIRECTIONS

Written directions are generally longer and for more complex tasks. Each word may be supported with pictures or, for those students who are conventional readers, they may have sentences without picture support. Figure 9 (page 29) shows picture-supported sentences in the directions on how to complete a worksheet. You also see a photograph showing one-word cards. This particular student was learning to read the sentences in the worksheet procedure,

Figure 5: Daily Schedule to begin the day shows one word/graphic per change in activity (yellow example). Daily Schedule to begin the day shows picture-assisted sentences (blue example).

however, she continued to need to do a physical action to reinforce that she had completed a step in the directions. Therefore, we provided her with Velcro cards that she could remove when a step was completed. Note the doll in the picture with the "finish" card. This showed her that when the worksheet was done, she could have free time.

The goal for building an independent skill has been identified, the method and format determined and made, and the student is beginning to use the system. Just like all good teaching, keeping track of the student's performance within that system and checking for progress is necessary to measure success. If adjustments and modifications are needed, they can be easily designed and implemented.

Work systems engage the learner and leave ambiguity and confusion aside. Students understand clear goals and expectations. The number of adult prompts, either physical or verbal, decrease and the student's independence increases. We see students following schedules, completing assignments, moving around the school, participating in classes and generalizing skills when we determine the best ways to facilitate independence. Achieving independence may be a process that goes through different configurations as we reduce support. But when we address the needs of students and work to help them build independence in school, home and work tasks, the better the student will be able to interact with the world around him and have successful experiences.

Figure 7: This sub-schedule helps a student independently gather materials for her next class in Middle School.
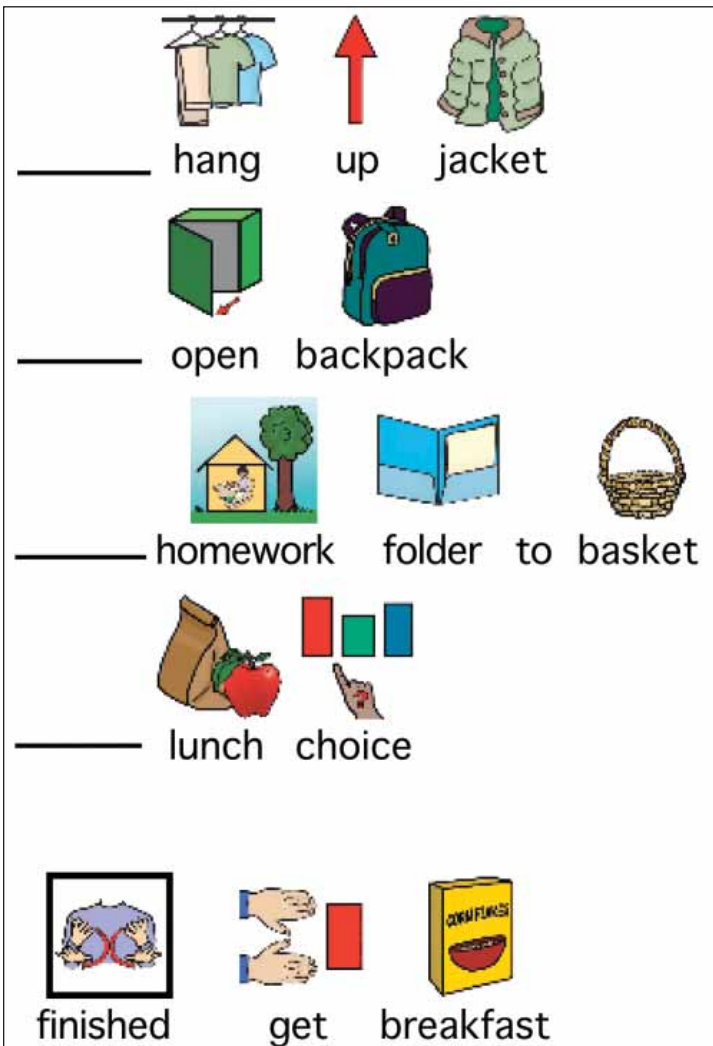
Figure 6: Sub-schedule shows the procdure upon entering the classroom.
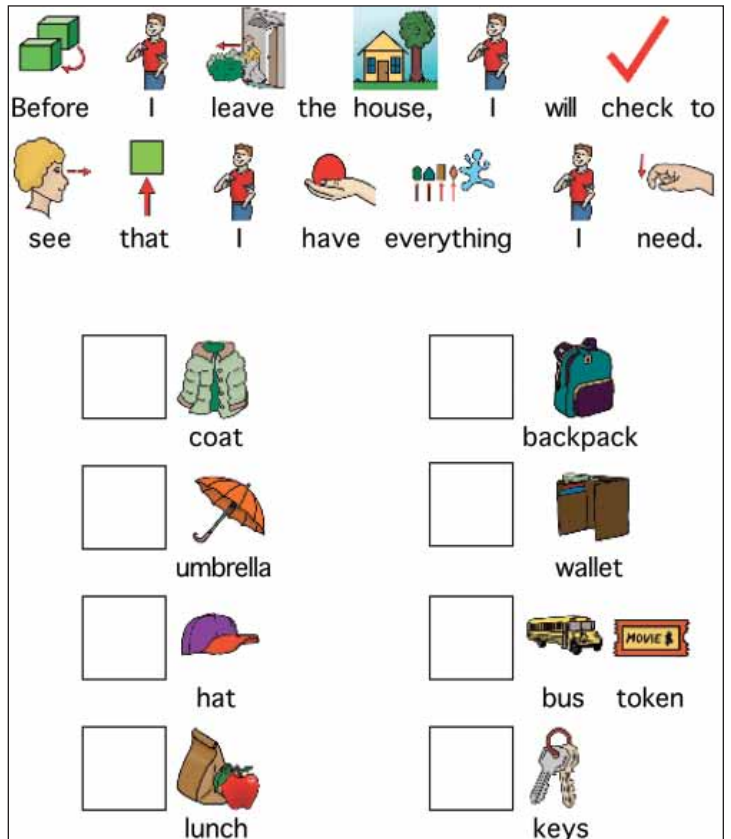
Figure 8: Checklist for leaving home - items needed each day will vary.
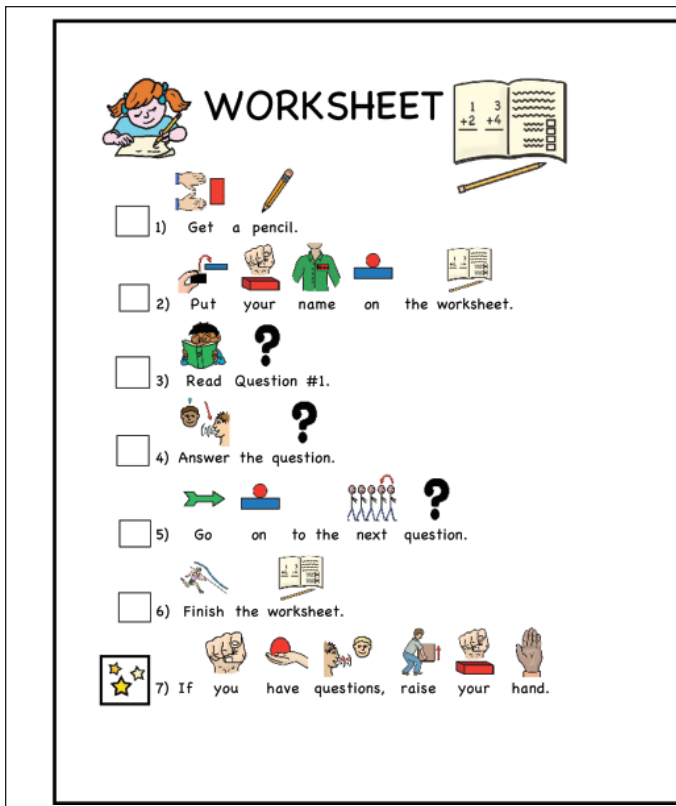
Figure 9: Written directions tell the steps in completing a worksheet. The photo shows an accommodation made to help the student transition from physical action after completion of a portion of the task to relying solely on reading the instructions.
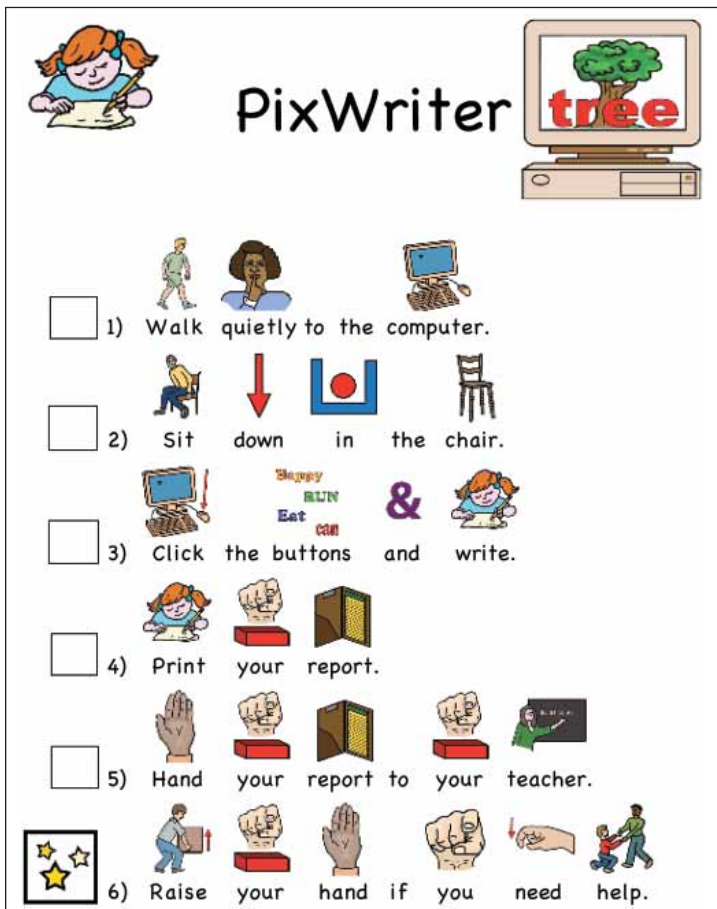
Figure 10: This checklist was placed in the computer lab so students using PixWriter would know the procedure.

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ABOUT THE AUTHOR

During her 25 years as a Speech/Language Therapist in the public schools in Michigan and Colorado, Jean Slater worked with students with moderate to profound disabilities and was a member of the Colorado Assistive Technology Evaluation Team for 15 years. She and her husband, Jim, own Slater Software, Inc. and develop software and materials that focus on developing students' language and literacy skills.

All Picture-Assisted materials shown in this article were made with Picture It, from Slater Software. PixWriter is a program from Slater Software, 351 Badger Circle, Guffey, CO 80820; Phone: 877-306-6968; Web site: www.slatersoftware.com. ∎

New Children's Book Series Teaches Sign Language Through Storytelling

Ask any parent with a young child and they're sure to tell you one of life's biggest frustrations is when baby starts crying and they can't figure out what's wrong. Most children don't start communicating with their parents until they are well past a year of age.

Then there are children like Chad Peterson of Eden Prairie, Minnesota. He was able to tell Mom, Marsha, when he was hungry, tired or in need of a diaper change before he was even a year old. Chad's mother had taught him American Sign Language (ASL); but it was no easy task. "My son was born with Down's syndrome and later diagnosed with autism," explains Peterson. "Verbal communication has always been very hard for him. I had been advised to teach him sign language early on, which I did."

Chad, who is now 17, has grown up with the power of communication. But Peterson still feels like he missed out on a lot of things when he was a young child. "Chad has always loved books, and it was clear to me early on that being read to was going to be one of his favorite activities. But when I started looking for story books in his language, I didn't find any good ones out there," she says.

Chad is very happy about the fact that there are now. The first installment of the story series his mother developed, Come Sign with Us: The Adventures of Potts and Friends (Beaver's Pond Press, June 2009, $24.95), is now available.

"Yum! Morning Breakfast" introduces babies to the signs they need to begin their day, including good morning, mom and break-fast. Story number two is "Bath Time Bubbles." It teaches the words and concepts associated with bath time, including wet and dry, soap and bubbles. The next two stories in the series will be about baby's first birthday, animals and colors. Future stories will include signs associated with music and numbers, as well as childhood adventures.

"Some of the recent research I've been doing stresses teaching in context so kids will understand the words and how they transfer to other settings. For example, they learn that 'bubbles' are in the bath, but understand that they can also be blown, be in the kitchen sink or be found traveling down a stream of water during a rain storm," says Peterson.

"This is a great teaching book. It takes you through a series of stories and pictures, and slowly introduces you to the words and symbols for signing. The fact that the book pops open like a tent allows you to read the book and sign at the same time. My son loved the book immediately. It is a 'must have' book for all parents," said Sally Knaeble, a retired teacher from Eden Prairie, Minnesota, in the review she posted on Amazon.com.

Come Sign With Us: The Adventures of Potts and Friends is a Beaver's Pond Press book. It sells for $24.95 and is available at local book stores and through the author's Web site: www.TalkingWithBaby.com. ■

PCI Education Partners with WeAreTeachers to Provide Community Members with Special Education Expertise

Special education teachers access community support, idea sharing and product recommendations

WeAreTeachers, the online social and business network that brings together teachers, learners and content in the education industry, announces a partnership with PCI Education, the number one provider of resources for students with special needs.

This new partnership gives special education teachers a way to connect with one another, to share best practices and to interact with one another, as well as with PCI Education, to create a classroom culture that is up to date with the latest and best in teaching techniques and products.

"This partnership with WeAreTeachers allows us to interact with special education teachers in an exciting way," said Lee Wilson, CEO and President of PCI Education. "We look forward to lending our expertise to the WeAreTeachers community."
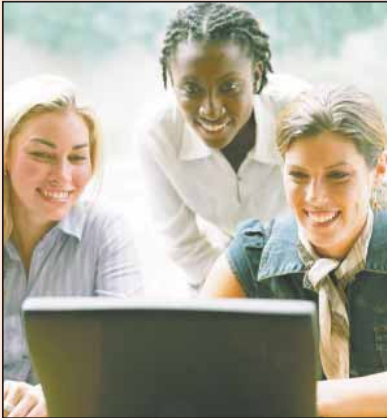
"Special education teachers have a vital and unique place in the education system," said Sandy Fivecoat, CEO and Founder of WeAreTeachers. "This partnership allows us to continue to provide them with the best support, ideas and products in the education field."

To view the PCI Education home page on WeAreTeachers, visit www.weareteachers.com/web/pcieducation.

WeAreTeachers (www.weareteachers.com) is a social and business community for educators, businesses and education marketers designed to enable community members to share, connect and collaborate using Web 2.0 tools and services. It is the first community to include The Knowledge Marketplace, which gives both educators and businesses the ability to share, sell and receive recommendations on knowledge-based content and products. WeAreTeachers is committed to giving back to the educator community by distributing tangible rewards through educator grants and incentives from transactions and sponsors in The Knowledge Marketplace.

PCI Education offers more than 7,500 instructional materials for a wide range of students with special needs, including significant or developmental disabilities, such as autism. In addition, the company's products are used in English language learner and adult literacy classes and to help students performing below grade level. Based in San Antonio, PCI Education has been helping educators lead students to success in school, at home and in the community since 1991. For more information, visit www.pcieducation.com or phone 800-594-4263. ■